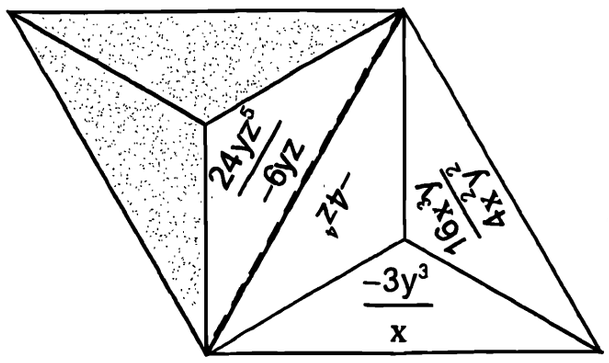
Matching Algebraic Expressions

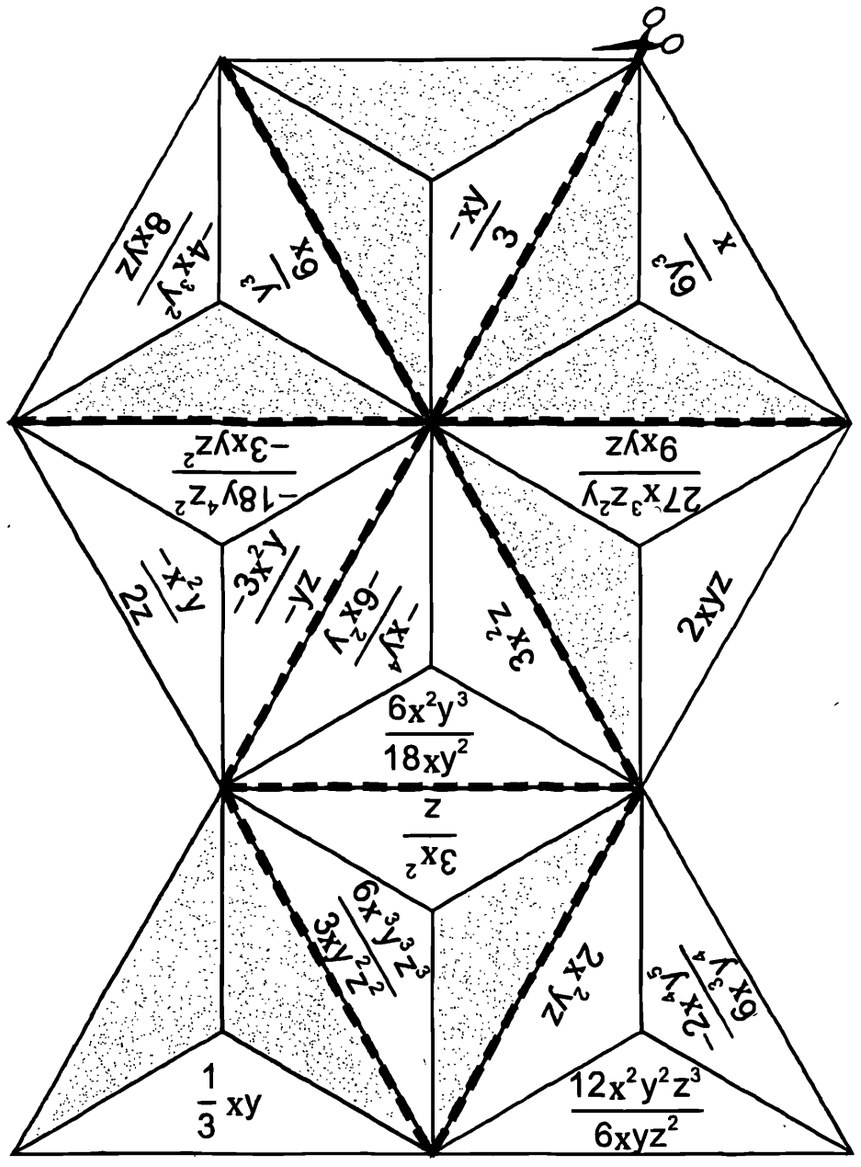
1. Cut out the 9 equilateral triangles along the dotted lines.
2. Match the equivalent algebraic expressions:

Example: $\dfrac{24yz^5}{-6yz} = \dfrac{24 \times y \times z \times z \times z \times z \times z \times z}{-6 \times y \times z}$

$= -4z^4$

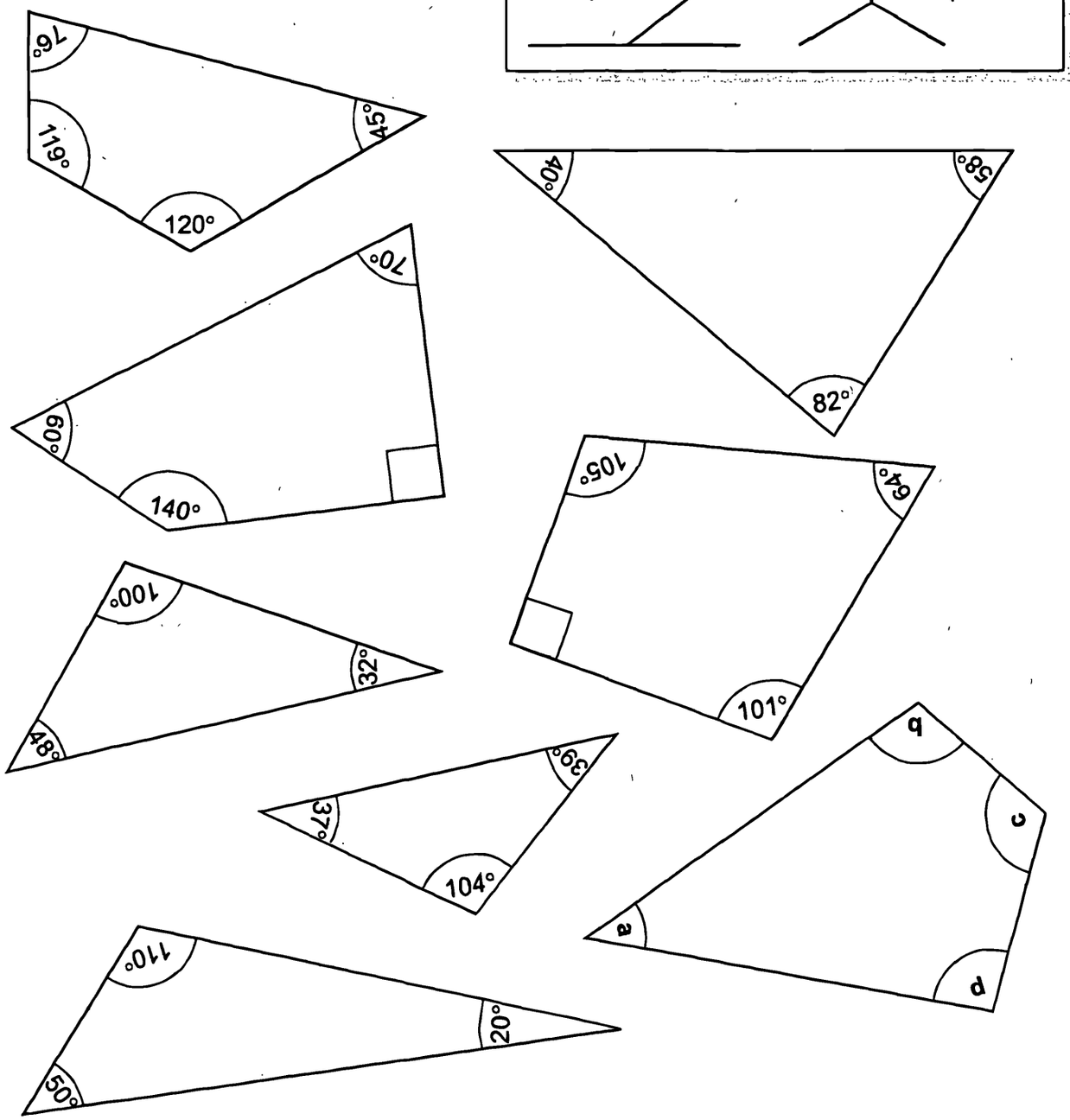


3. Record your working out in your book.
4. Fit the equilateral triangles together to make one large triangle. The shaded sections mark the edges of the triangle.



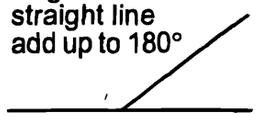
Angle Fit

Carefully cut out the following shapes.

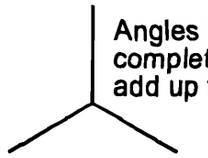


The following angle facts might help:

Angles on a straight line add up to 180°

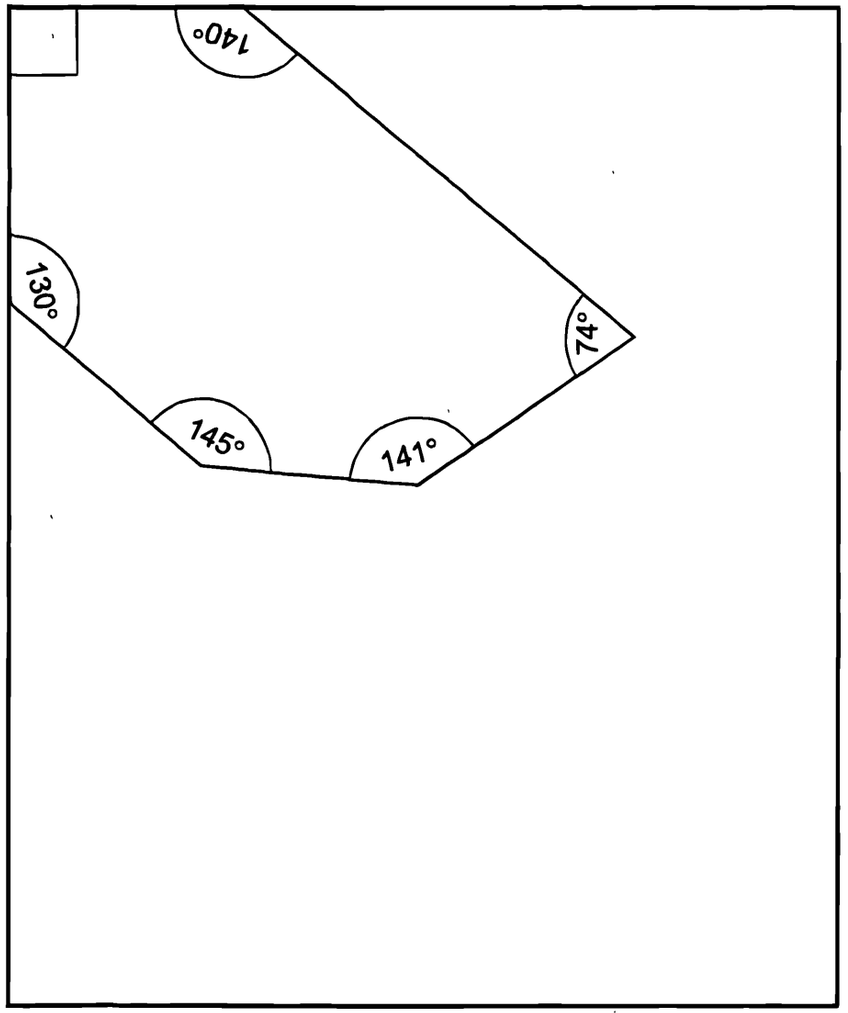


Angles in a complete turn add up to 360°



Smile Worksheet **2358**

1. By looking at the size of the angles, fit them in this rectangle.



2. Calculate angles **a**, **b**, **c** and **d**.

a =

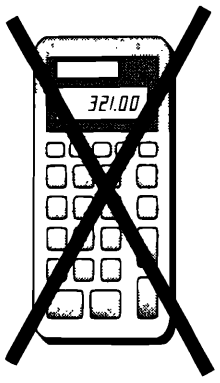
b =

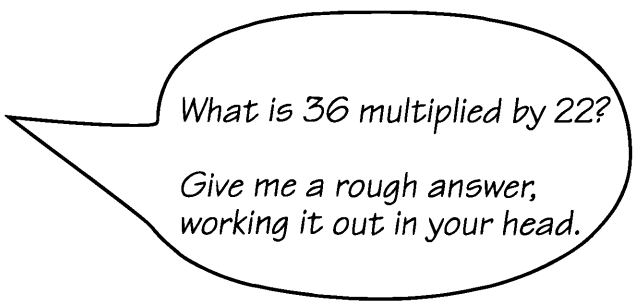
c =

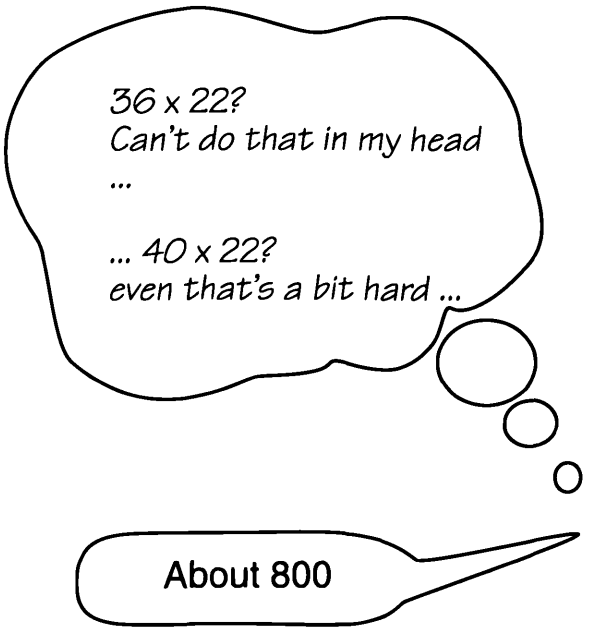
d =

Approximate Solutions

Smile **2359**



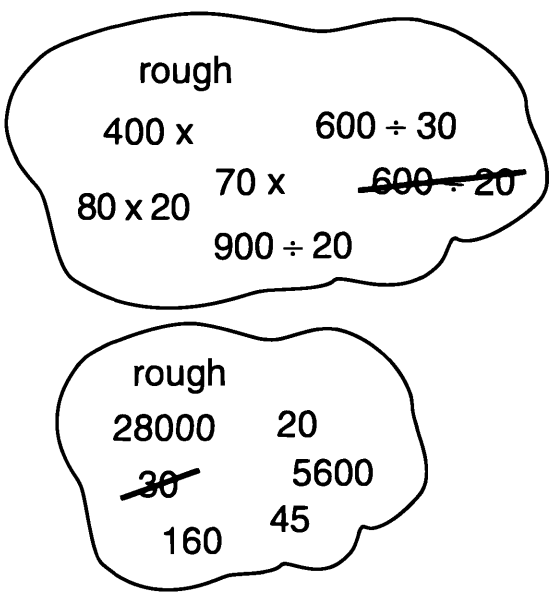




1. What is 46 x 17?
Give a rough answer, using the same method.
What calculation did you use?

2. Copy and complete this table:

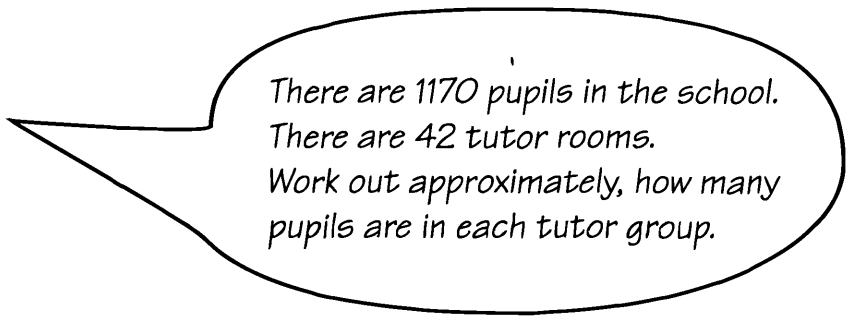
calculations	rough calculations	rough answers
583 ÷ 18	600 ÷ 20	30
408 x 68		
875 ÷ 23		
79 x 22		
576 ÷ 27		
67 x 81		

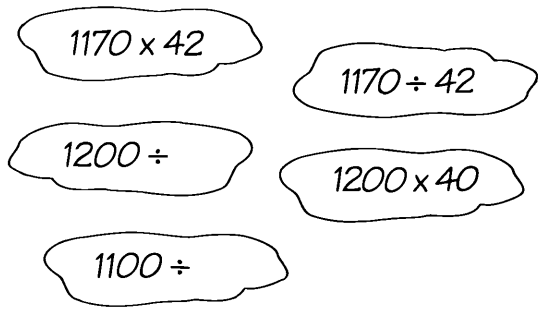


3. Choose your own rough calculations to complete this table:

calculations	rough calculations (approximations)	rough answers (approximate solutions)
71 x 88		
383 ÷ 53		
49 x 48		

4. Here is a problem ... ... and some calculations.





a) Which two calculations must be wrong?
b) Which two calculations give **approximate solutions** to the problem?
c) Which calculation would you use?

5. Copy and complete this table in your book.

	problems	calculations	approximations	approximate solutions
a)	There are 36 eggs in a tray. A box of eggs contains 12 trays of eggs. About how many eggs are in a box?			
b)	About how many 62 seater coaches are needed to take a school of 1796 students on a trip?			
c)	A bottle of cola contains 1950ml. About how many millilitres in 11 bottles?			
d)	A bottle of cola contains 1950ml. 205ml are needed to fill a cup. About how many cups can be filled?			

6. A job pays £214 per week.
About how much is this in one year (52 weeks)?

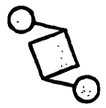
7. Each student needs 27 centicubes to build a larger cube.
There are 29 students in the class.
About how many centicubes are needed?

8. One pint of milk is sufficient for 22 cups of tea.
About how many pints are needed for 485 cups of tea?

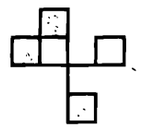
Rotational and line symmetry review

An activity for two. You will both need a copy of this worksheet.

Some shapes have line symmetry 

Some shapes have rotational symmetry 

Some shapes have both 

Some shapes have neither 

1. On your own:

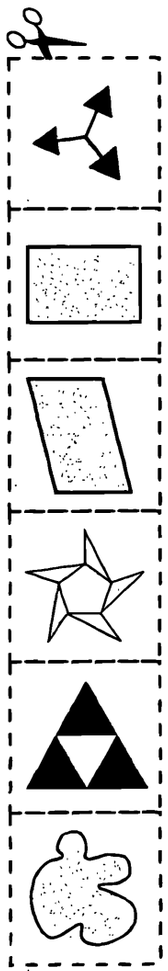
- Cut out the shapes below.
- Arrange them in the correct regions on the Venn diagram.

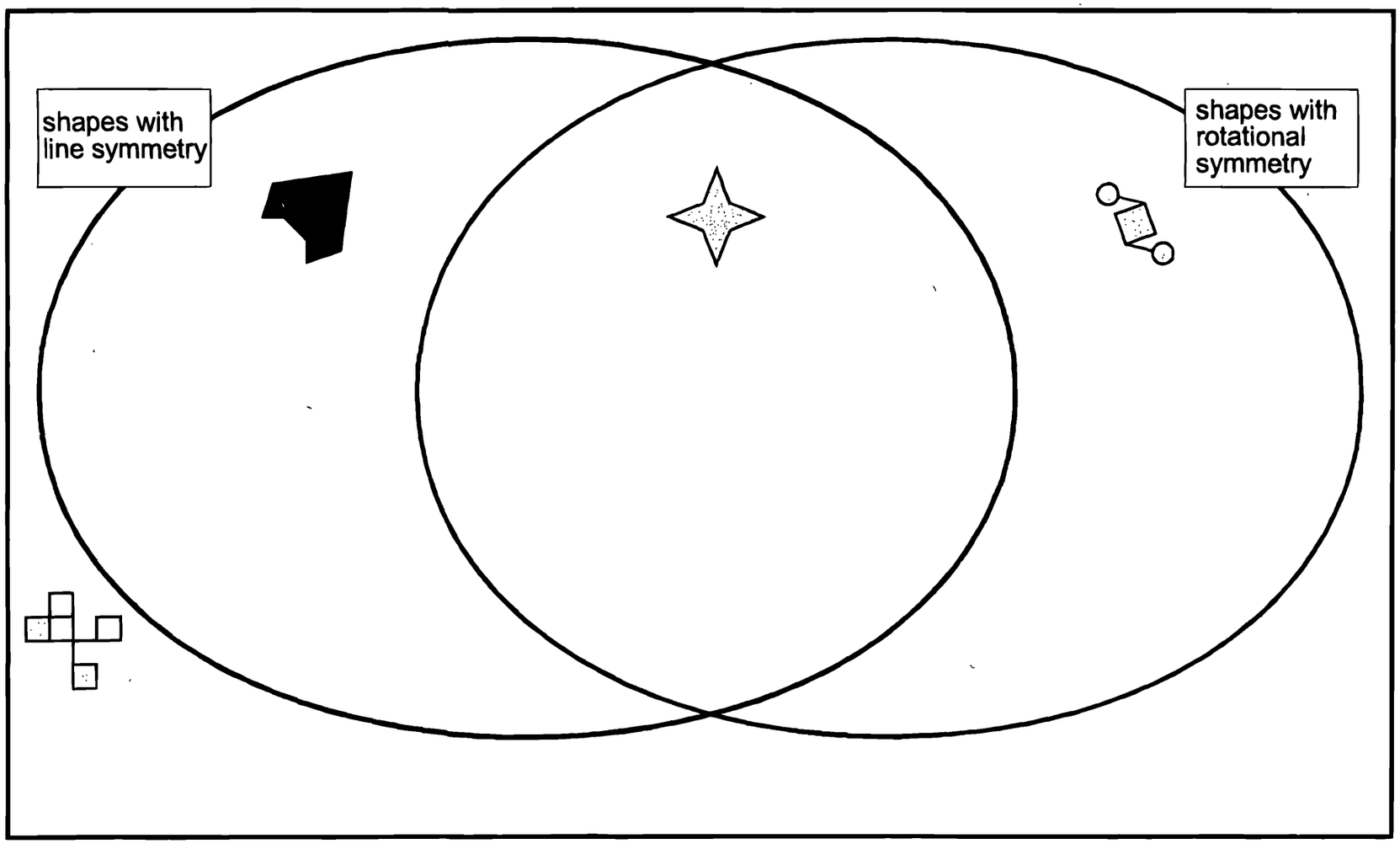
1. On your own:

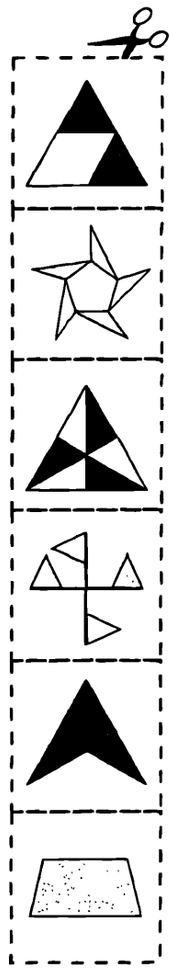
- Compare your answers.
- When you have agreed, stick them down.

1. On your own:

- Draw 4 shapes of your own, one to go in each region.







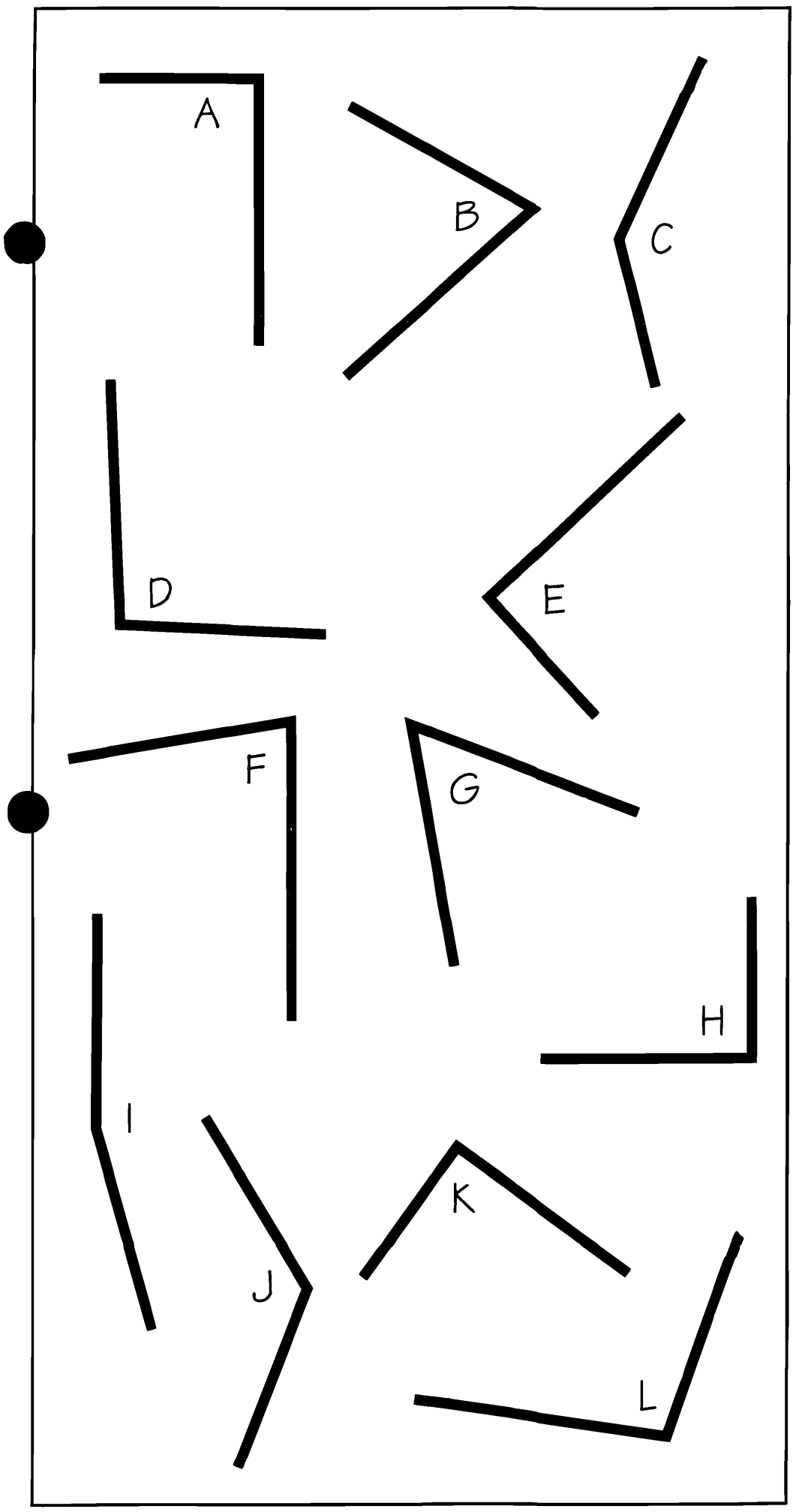
Right-angle or not?

Smile **2361**

You will need tracing paper.

There are many **right-angles** around. For example, the corners of this card are right-angles.

This is a **right-angle**.



1. Trace the right-angle and place it over the top of the angles to find out which ones are **right-angles**.

2. Copy and complete the table.

Angle	Right-angle
A	Yes
B	No
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	

3. Draw a right-angle in your book.

4. Find **5** things around your classroom that have right-angles.

Write a list of them in your book.

Check these with your teacher.

Decimal Routes

Start at Start and find your way to the End

1. You can only move left ← right → or up ↑ down ↓
2. You can only go into the squares when the answer is 3 or 1.5.
3. Shade in your route as you go along.

Start

0.2 + 1.3	0.3 x 10	2 x 1.5	7 ÷ 4	1.5 x 2 3	0.7 + 0.8	3 ÷ 2	1 + 2.5	1.3 x 10
15 ÷ 10	4 – 0.5	7 – 5.5	18 ÷ 5	0.5 + 1.5	1.4 x 11	4.5 – 1.5	1 ÷ 2	1 + 0.05
1.1 + 0.4	2.5 – 1	4.5 ÷ 3	0.5 + 1	10 – 8.5	16 ÷ 10	3 x 0.5	0.5 + 0.6	1 + 5
1.8 ÷ 0.4	18 – 0.3	5.2 ÷ 2	6 + 3.3	0.5 x 6	7.5 ÷ 5	1.6 – 0.1	0.5 x 10	3 x 0.1
0.4 x 10	2.3 + 0.7	6.5 – 5	0.2 x 1.5	1.4 + 1.4	3 x 1.5	1 ÷ 5	5 ÷ 10	3 x 0.5
6.3 – 3	5.3 – 2	0.75 x 2	1 x 0.3	1.6 + 1.3	1.5 + 2.5	0.2 x 1.5	7 ÷ 5	0.2 ÷ 4
3 ÷ 0.5	6.5 ÷ 4	12 x 0.25	4 ÷ 3	0.1 – 1.5	3.5 – 0.1	1.3 + 1.2	6 ÷ 0.5	4 – 3
3.5 ÷ 2	5 + 4	30 ÷ 20	0.6 + 0.9	30 ÷ 10	11.5 ÷ 10	6 x 0.2	7.1 – 3.1	3 ÷ 4

End

You should record any working out here.

Conversion Pack 1

An activity for 2 people

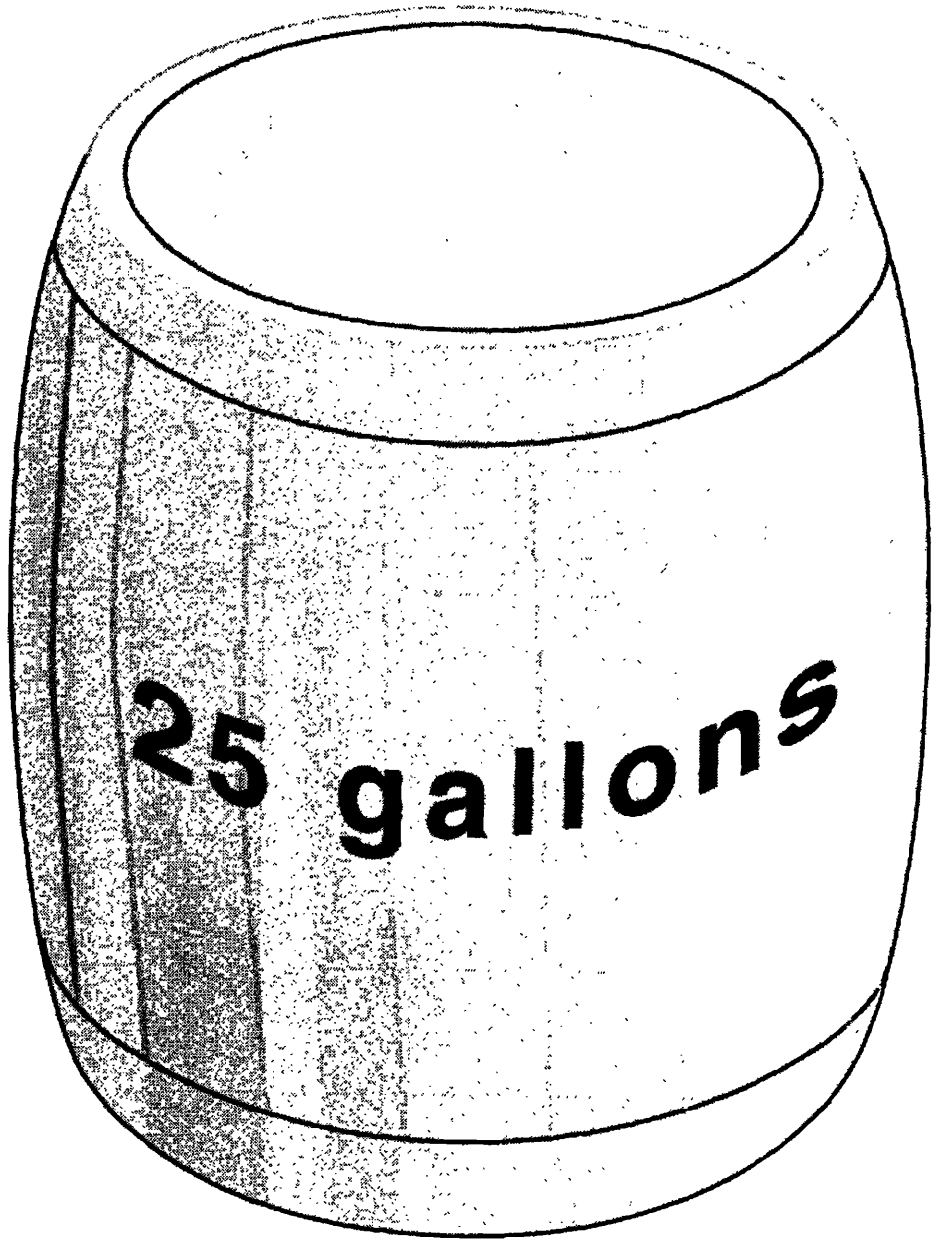
1. Complete the problems on cards A – F. You might find the conversion chart on the back of this envelope helpful.

2. Record your answers in your book. Show your working. Remember to include the units in your answers.

3. You need to know the conversions. Record them in your book and test each other on them.

A

Smile **2363**



How many pints?

B

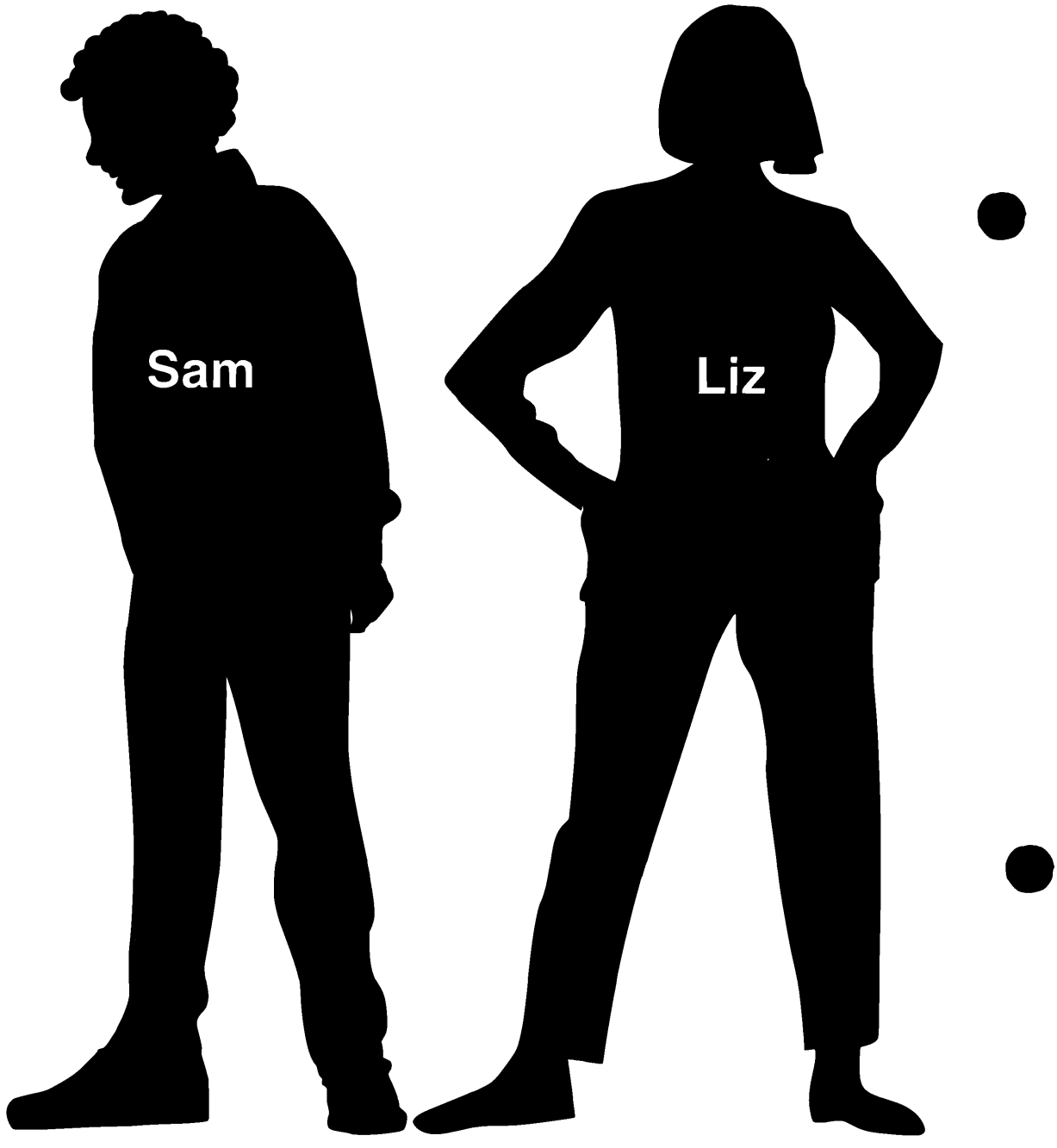
Smile **2363**

Match the pairs of cards.

a) 2km	1) 1350cm
b) 135cm	2) 0.265km
c) 26.5mm	3) 2000m
d) 13.5m	4) 1350mm
e) 265m	5) 2.65cm

C

Who is the heavier?

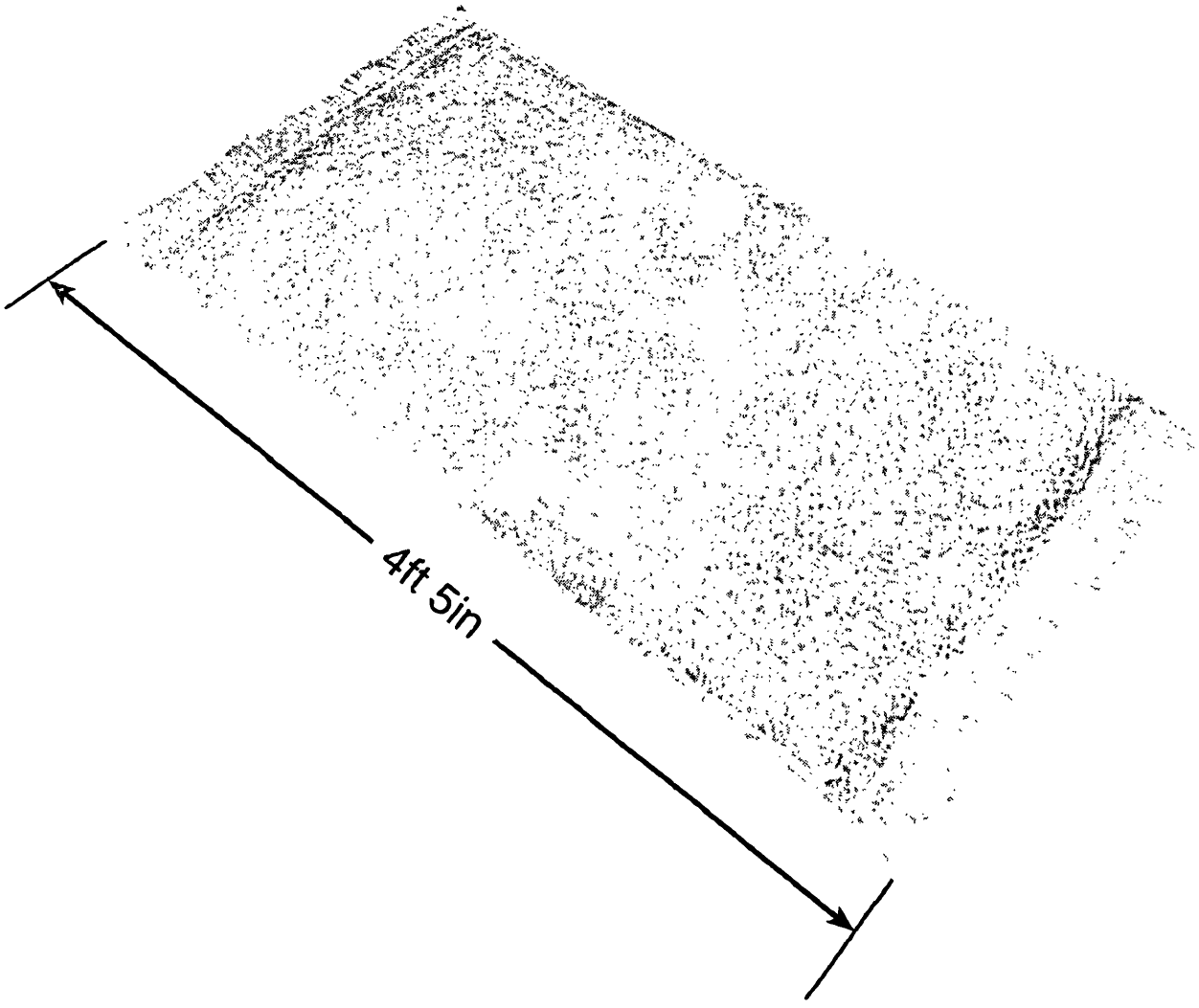


160lb

9 stone 7lb

A rug is 4 foot 5 inches long.

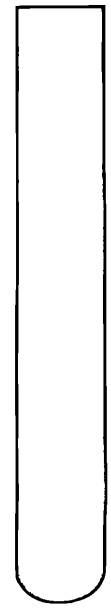
How many inches is this?

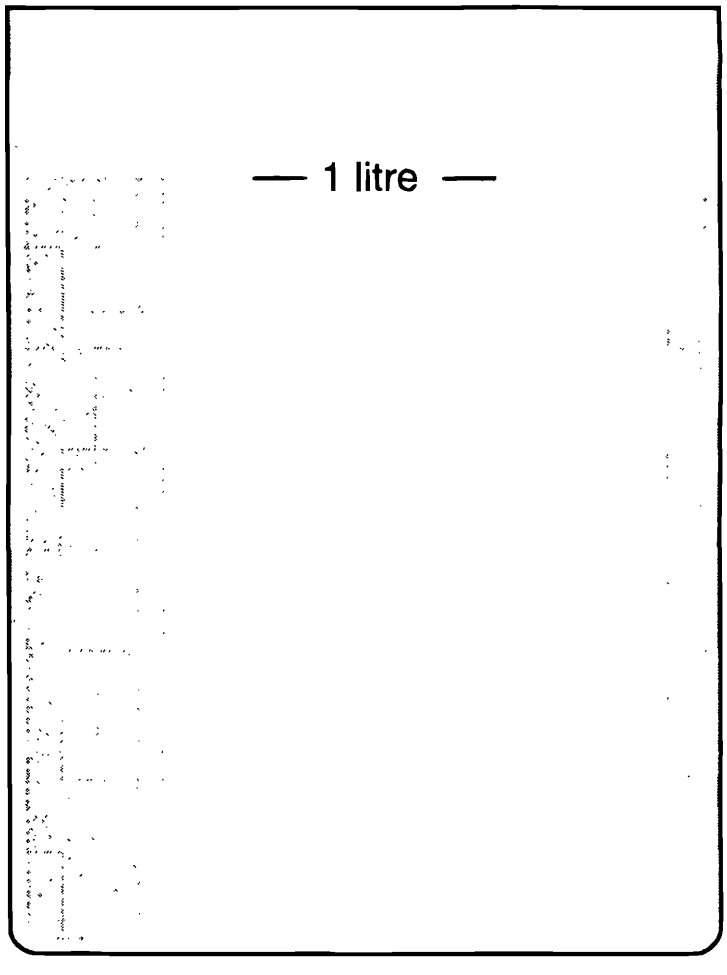


E

Two students are doing a science experiment.

They take 57ml





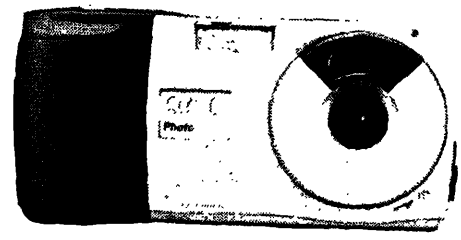
from a 1 litre measuring beaker.

How much liquid is left in the beaker?

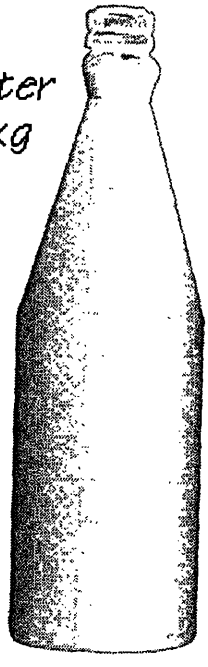
The hand baggage allowance on the flight to Kenya is 5kg.

Tim's bag contains:

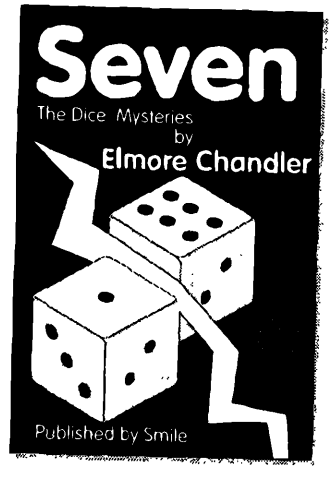
Camera
900g



Water
1.2kg

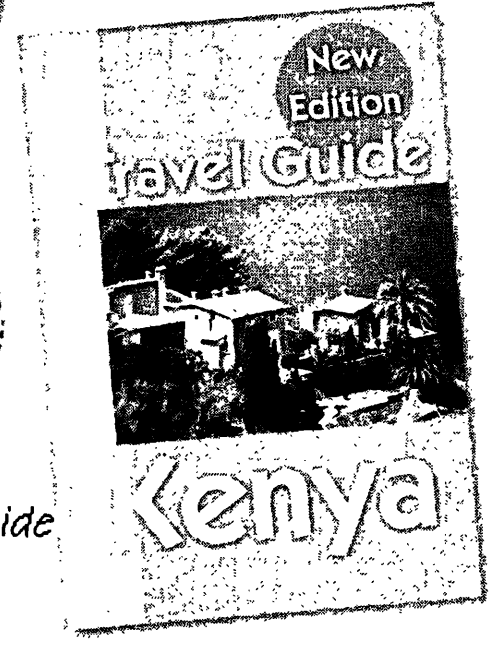


Book
350g



Crisps
75g

Wash bag
1.4kg



Travel Guide
600g

Is Tim's bag too heavy?

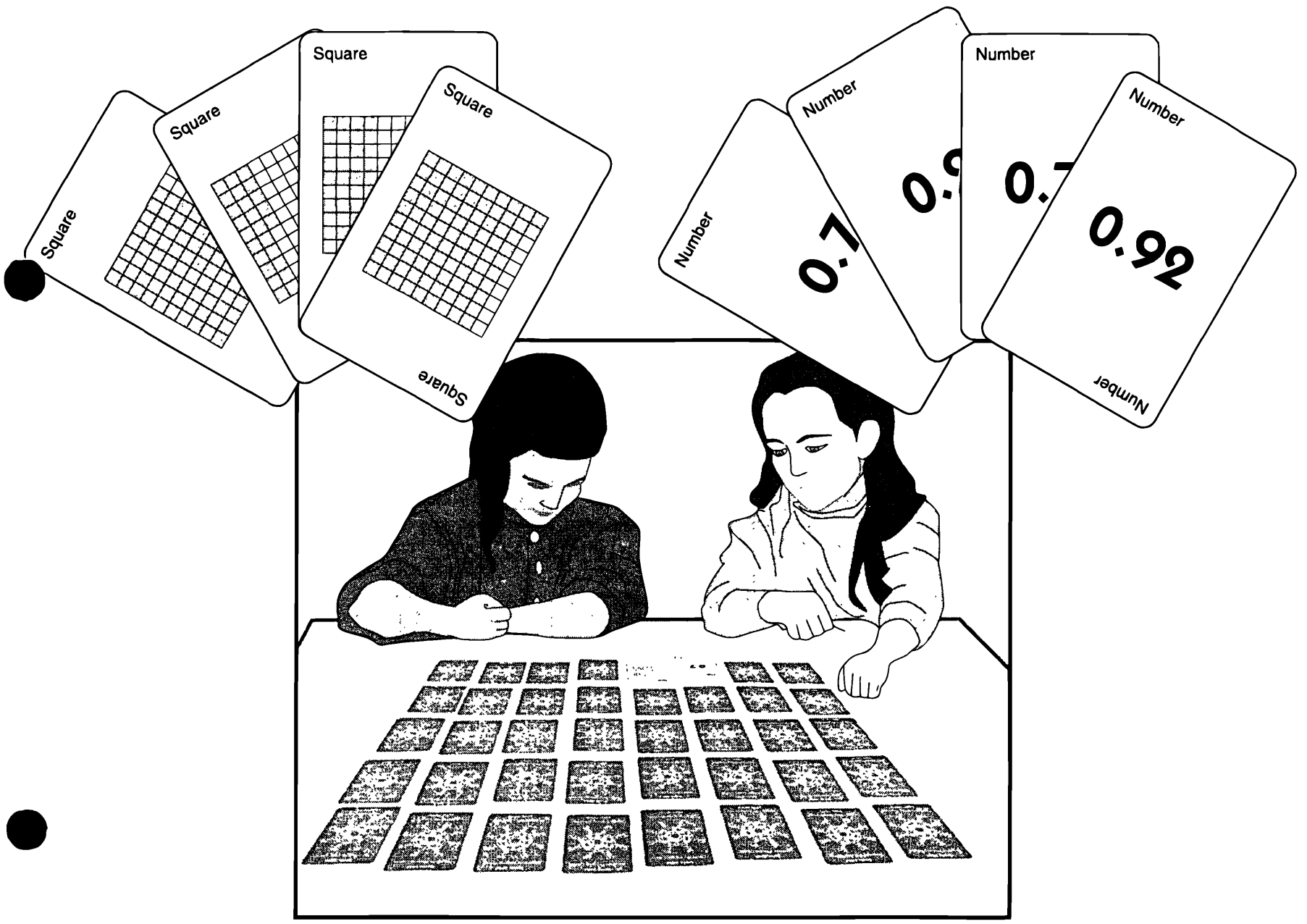
Higher decimal win

Smile **2365**

A game for 2 players.

You will need the SMILE Decimal Playing Cards.

Take out the 13 cards with 'Squares' and the 13 cards with 'Numbers'.
Shuffle the cards.
Deal the cards, face down, in front of you.



Each player turns over one card.

The player with the higher decimal wins that round and keeps both cards.

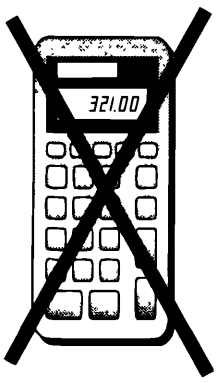
Carry on until you have used all the cards.

The player with the most cards wins.

Variation
Try turning over 2 cards at a time, adding the two numbers together. The player with the higher decimal wins.

Decimal differences

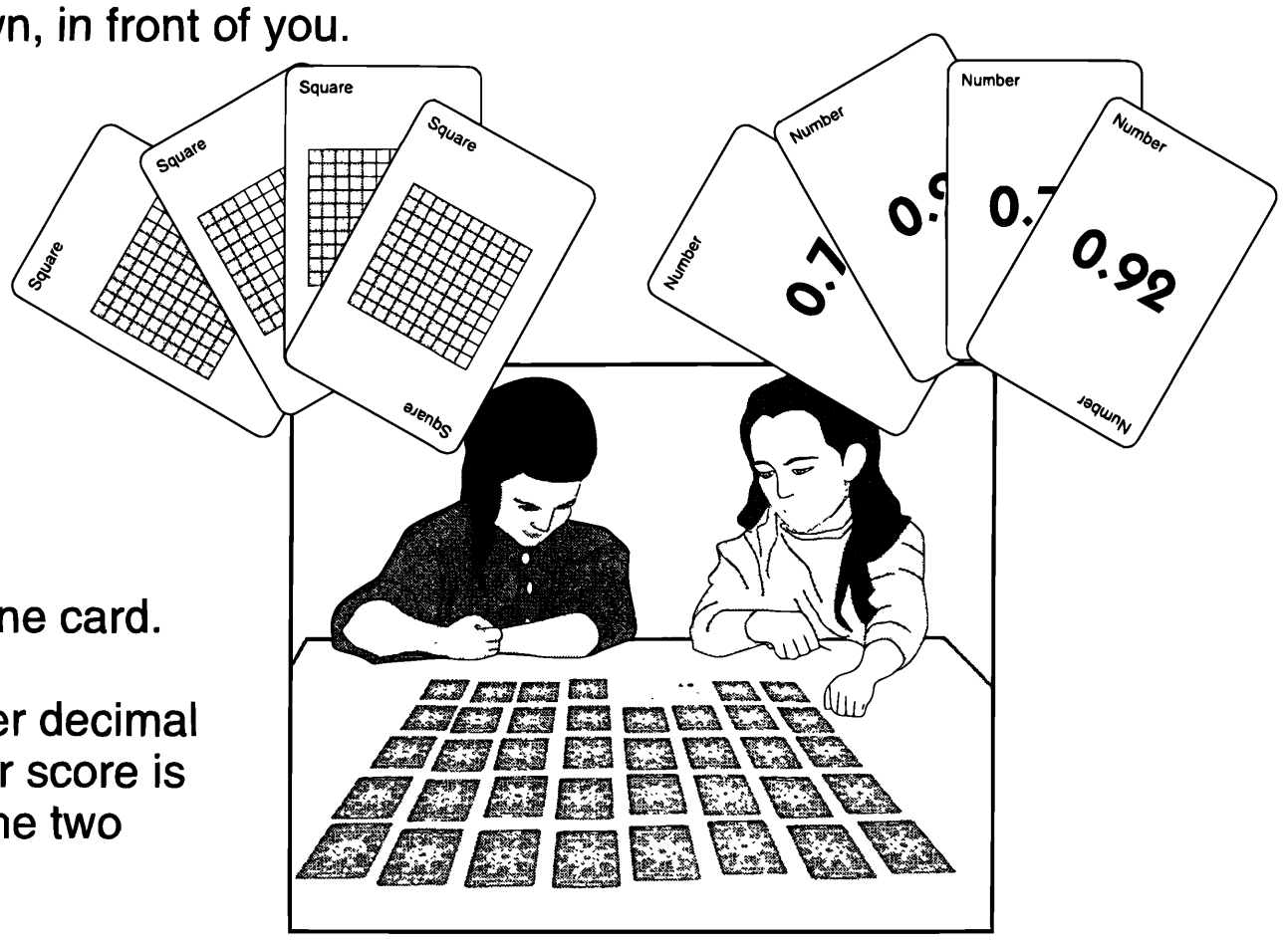
Smile **2366**



A game for 2 players.

You will need the SMILE Decimal Playing Cards.

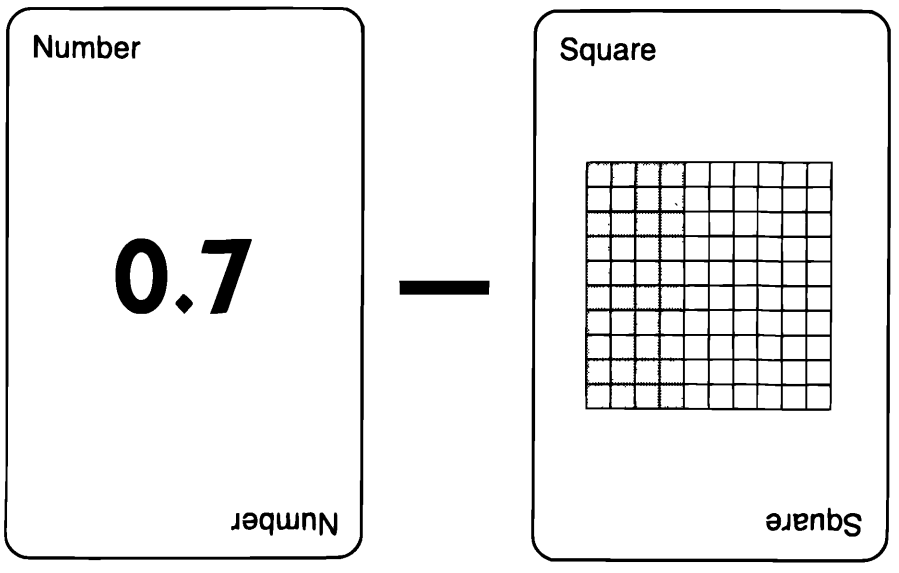
Take out the 13 cards with 'Squares' and the 13 cards with 'Numbers'.
Shuffle the cards.
Deal the cards, face down, in front of you.



Each player turns over one card.

The player with the higher decimal wins that round, and their score is the difference between the two decimals.

e.g.



Talia scores 0.3

Record your results.

Talia	Janice
0.7 – 0.4 = 0.3	

Carry on until you have used all the cards.

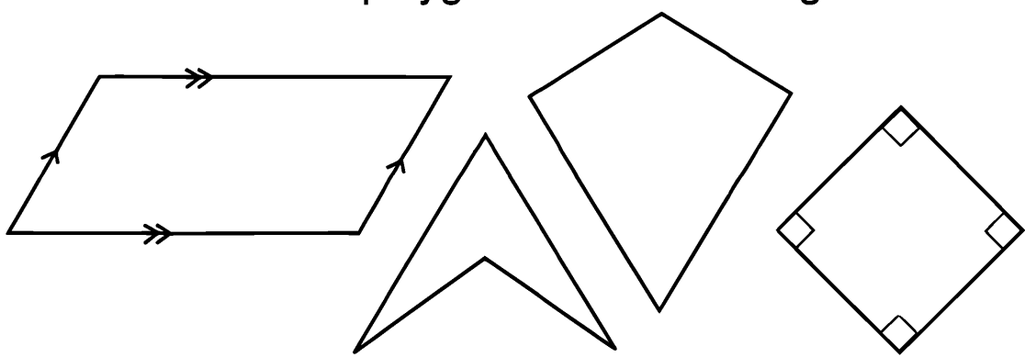
Total each player's score.

The player with the higher score wins.

Sixteen Quadrilaterals

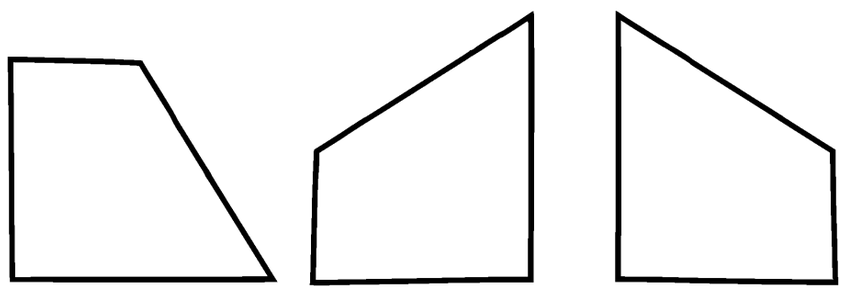
Definition: Quadrilateral

Quadrilaterals are polygons with four straight sides.

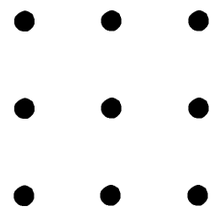


Definition: Congruent

Congruent shapes have the same shape and size.
e.g. These quadrilaterals are congruent.



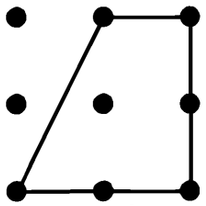
You can make 16 different quadrilaterals on a 9 point grid.



1. Find all 16 quadrilaterals.
(Remember none of your quadrilaterals can be congruent.)

- draw them
- label each quadrilateral with the correct mathematical name

e.g.



trapezium

(You may like to use Smile 2163 Geometry Facts to find all the names of your quadrilaterals.)

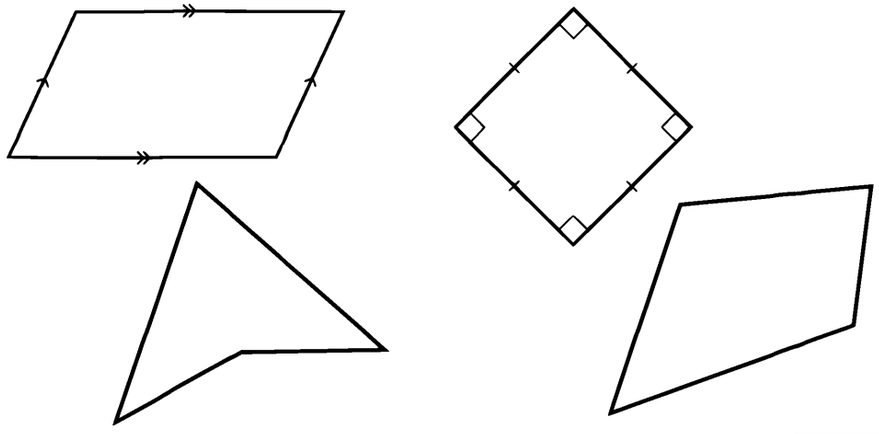
2. You may like to investigate . . .

- triangles on a 9 point grid
- other polygons on a 9 point grid.

Sixteen Quadrilaterals

Definition: Quadrilateral

Quadrilaterals are polygons with four straight sides.



Definition: Congruent

Congruent shapes have the same shape and size.
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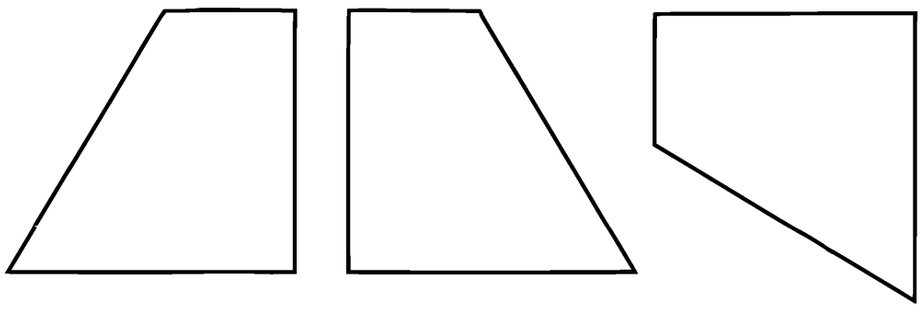
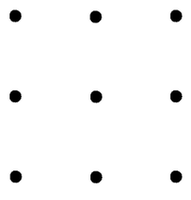
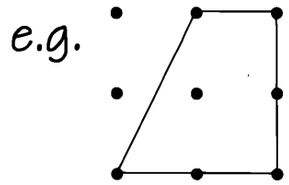


You can make 16 **different** quadrilaterals on a 9 point grid.



1. Find all 16 quadrilaterals.
(Remember none of your quadrilaterals can be congruent)

- draw them
- label each quadrilateral with the correct mathematical name



(You may like to use Smile **2163** Geometry Facts to find all the names of your quadrilaterals)

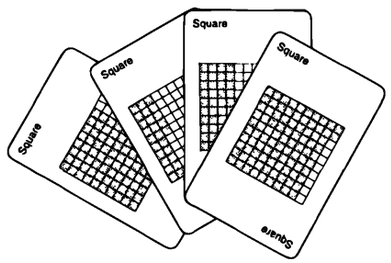
2. You may like to investigate ...

- triangles on a 9 point grid
- other polygons on a 9 point grid

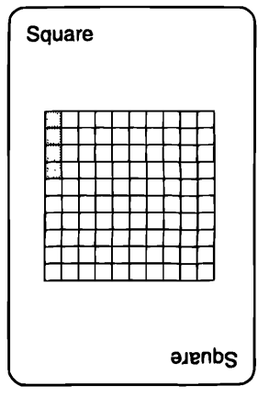
Matching decimals ●

You will need the SMILE Decimal Playing Cards.

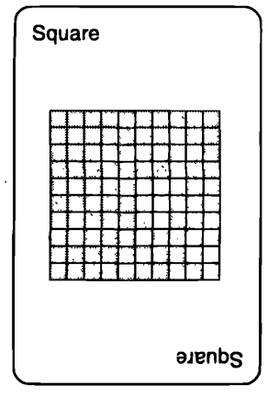
Take out the 13 cards with 'squares'.



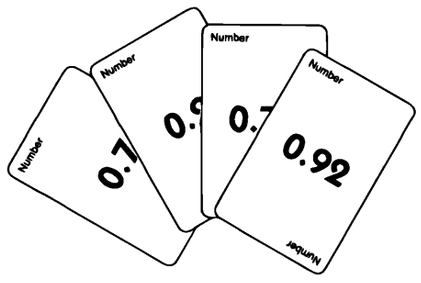
Put them in order of size – smallest first.



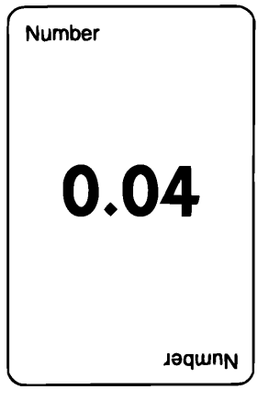
smallest → largest

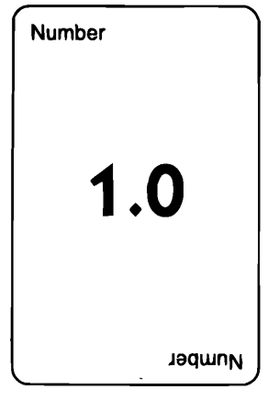


Take out the 13 cards with 'Numbers'.



Match them to the 'Squares' cards.





In your book:

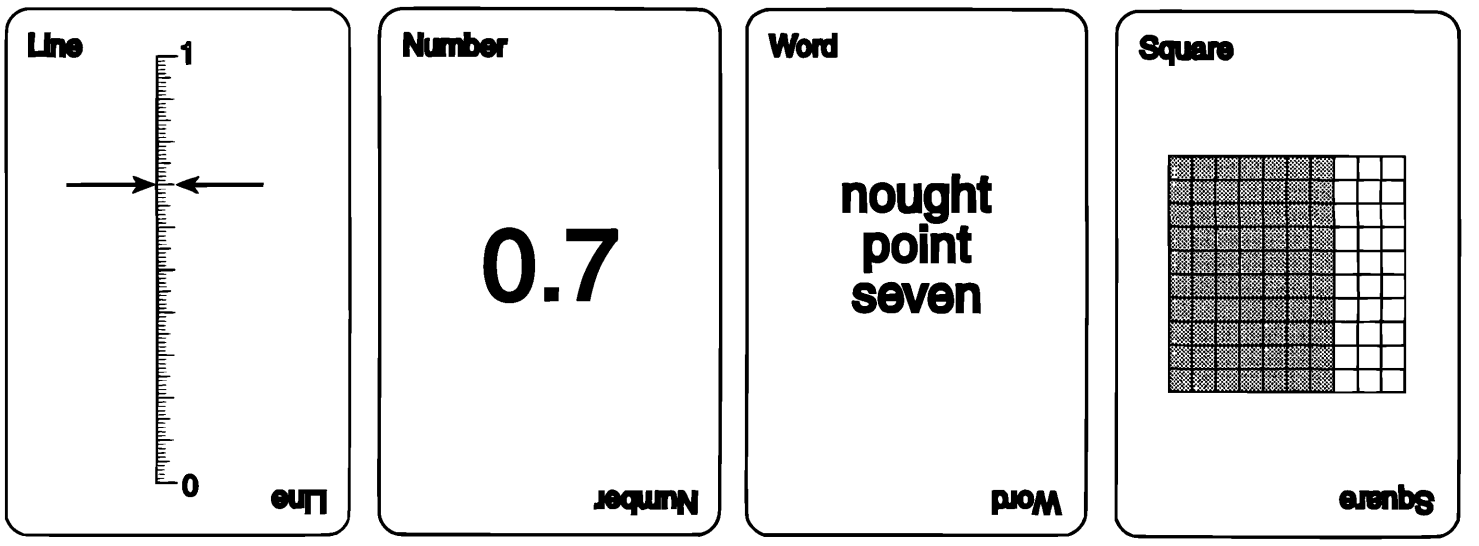
1. Write the numbers out in order of size, smallest first.
2. Which is the larger 0.8 or 0.5?
3. Which is the smaller 0.72 or 0.65?
4. Which is the largest 0.8, 0.08 or 0.75?
5. Write a number that comes between 0.5 and 0.8.
6. Write a number that comes between 0.35 and 0.4.

Decimal Sort

Smile **2369**

You will need the SMILE Decimal Playing Cards.

1. Find these 4 cards.



These cards show the same decimal expressed in four different ways.
This is the 0.7 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

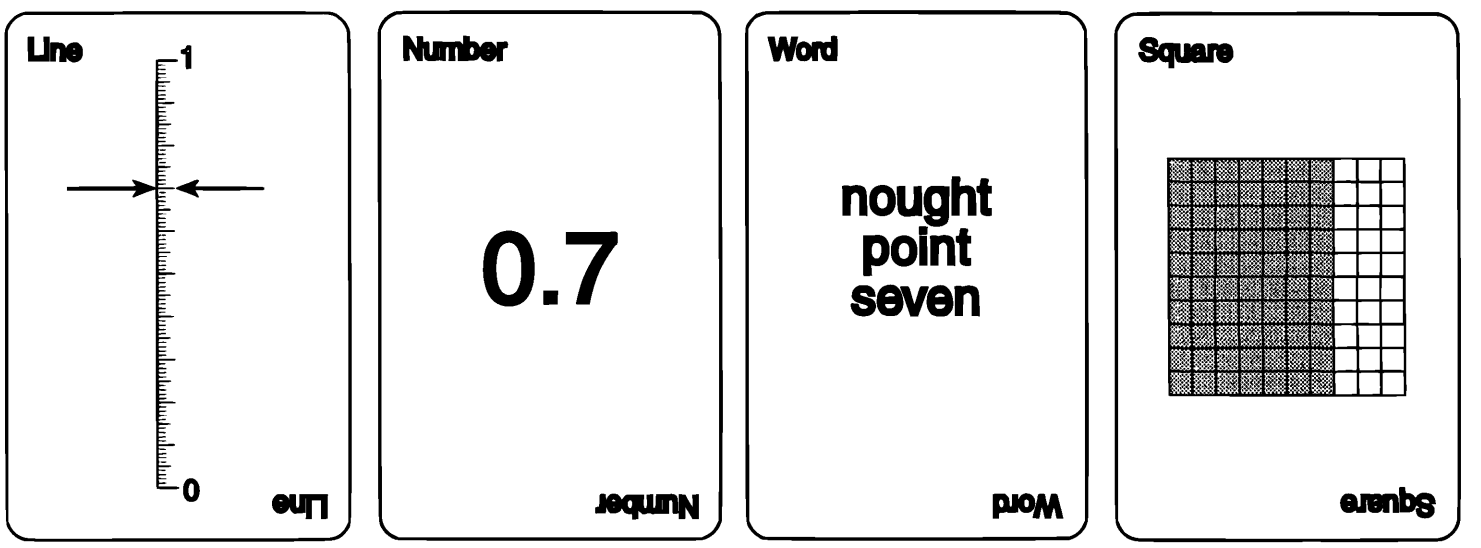
3. Show the decimal 'sets' to your teacher.

Decimal Sort

Smile **2369**

You will need the SMILE Decimal Playing Cards.

1. Find these 4 cards.



These cards show the same decimal expressed in four different ways.
This is the 0.7 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

3. Show the decimal 'sets' to your teacher.

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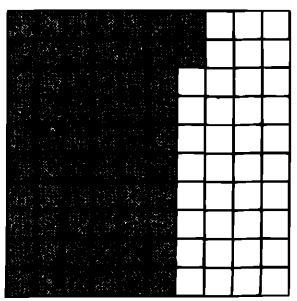
Decimals sort

You will need the SMILE Decimal Playing Cards.

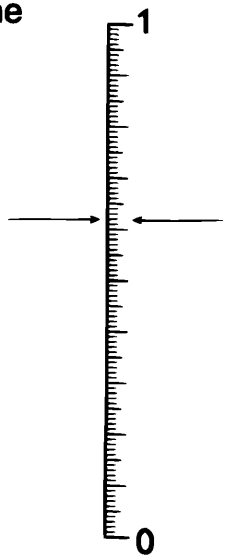
1. Find these 4 cards.

Square



Square

Line



Line

Word

nought
point
six
two

Word

Number

0.62

Number

These cards show the same decimal expressed in four different ways.
This is the 0.62 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

3. Show the decimal 'sets' to your teacher.

Conversion Pack 2

An activity for 2 people

1. Complete the problems on cards A – F. You might find the conversion chart on the back of this envelope helpful.

2. Record your answers in your book. Show your working. Remember to include the units in your answers.

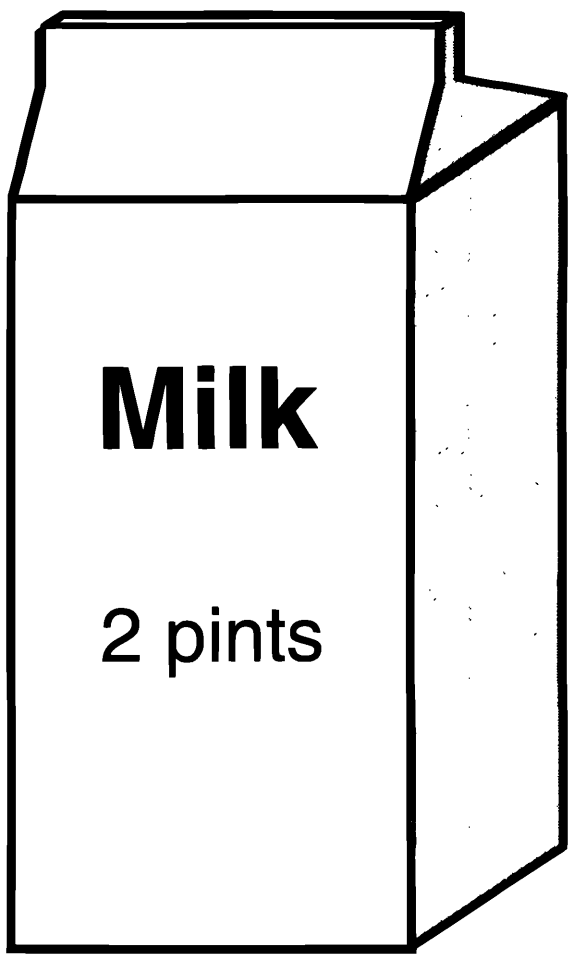
3. You need to know the conversions. Record them in your book and test each other on them.

A

Which is the cheaper petrol?

B

Smile **2370**



Which contains more liquid?

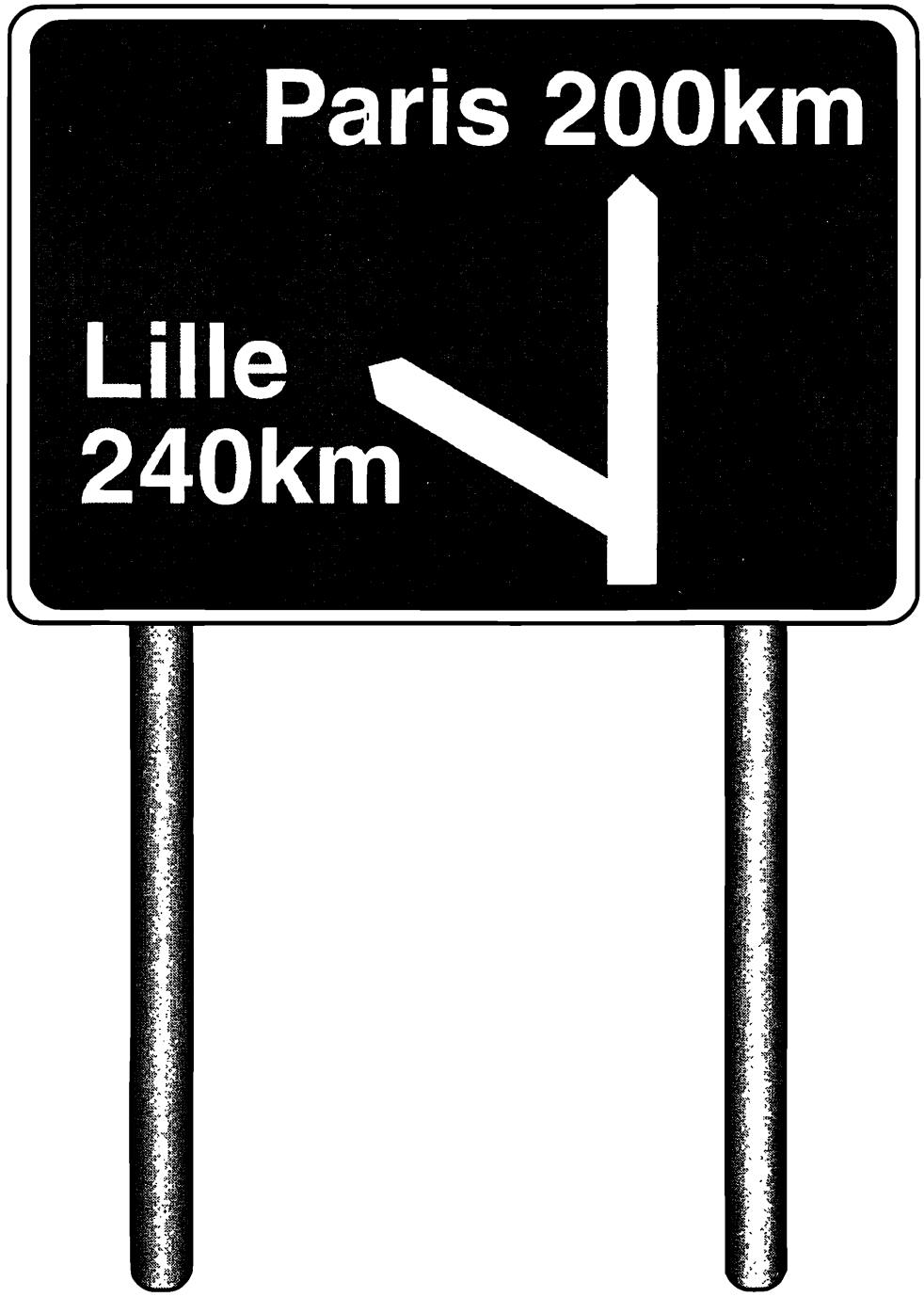
C

Which is longer ...

One Yard?

or

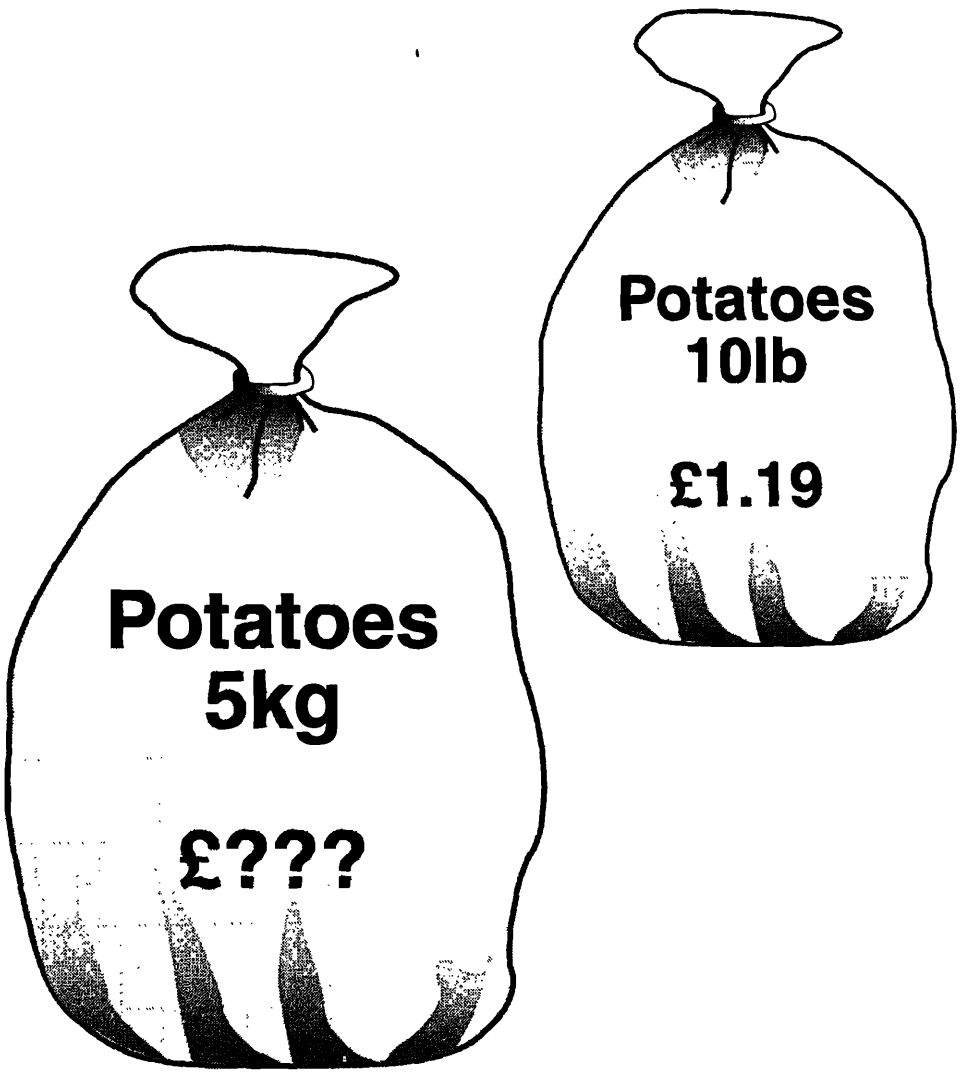
One Metre?



How many miles ...
to Paris?
to Lille?

E

Smile **2370**



How much should a 5kg bag of potatoes cost?

Andy is making mackerel paté

Recipé

Smoked mackerel.....6oz
Cottage cheese.....6oz
Lemon juice

Is this enough cottage cheese?

Rounding to 10

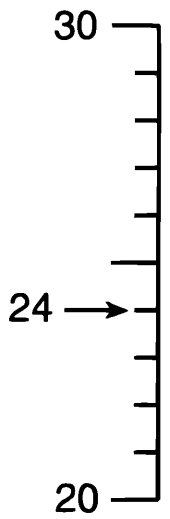
Smile **2371**

An activity for 2 - 4 people.
You will need Smile **2226** Sum Number Cards and 20 counters of the same colour for each player.

To round to the nearest 10.

Look at the digit in the units column.

24

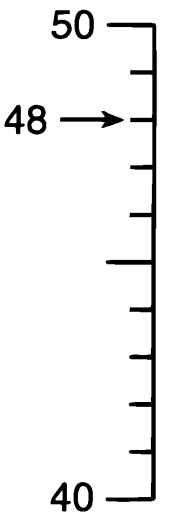


There is a **4** in the units column, so round down to **20**.

24 is nearer to 20 than to 30.

24 rounded to the nearest 10 is **20**.

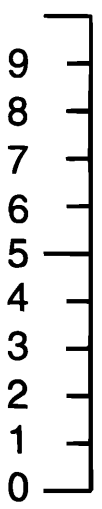
48



There is an **8** in the units column, so round up to **50**.

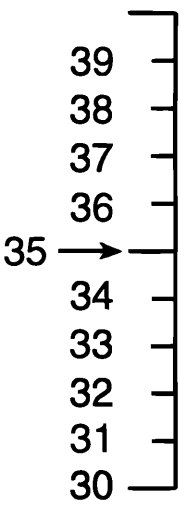
48 is nearer to 50 than to 40.

48 rounded to the nearest 10 is **50**.



- the digits 5, 6, 7, 8, 9 round up.
- the digits 0, 1, 2, 3, 4 round down.

35



35 rounded to the nearest 10 is **40**.

1. In your book write down these numbers to the nearest 10.

a)	57	**b)**	33	**c)**	45	**d)**	9
e)	82	**f)**	55	**g)**	14	**h)**	98

2. Turn over to play the Rounding to 10 Game.

Rounding to 10 Game

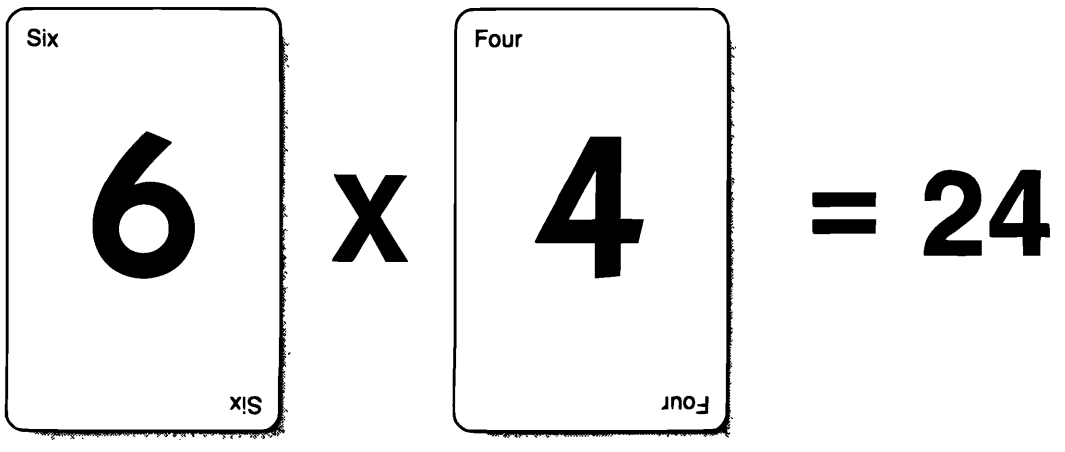
This is a game for 2 - 4 players.

Take out all the 3, 4, 5, 6, 7, 8 and 9 cards from Smile **2226** Sum Number Cards and 20 counters of the same colour for each player.

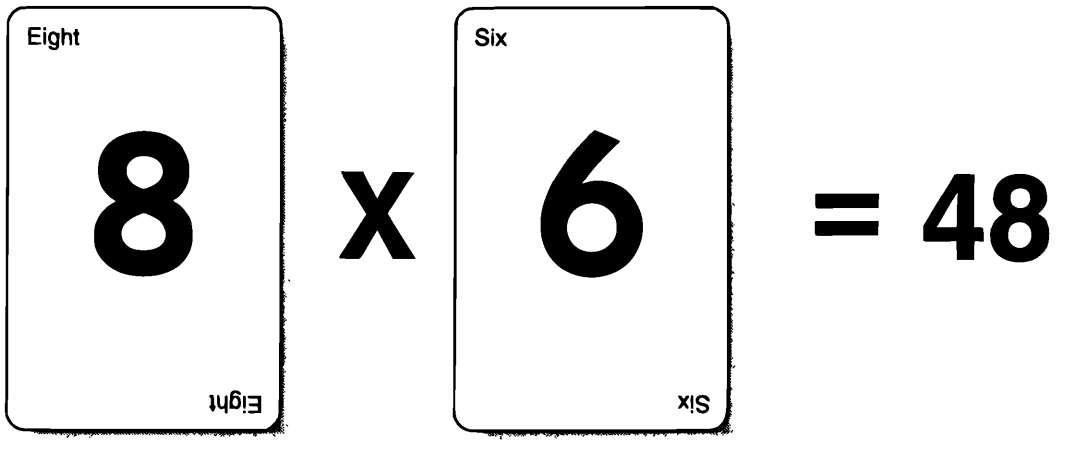
The Rules:

- Shuffle the cards.
- Place the cards face down.
- Take turns to turn over 2 cards.
- Multiply the two numbers together and round the answer to the nearest 10.
- Use a counter to cover up your rounded number on the board.
- The winner is the first player to get 3 in a line.
- Play the game several times.

Example:



24 rounded to the nearest 10 is **20**.
The counter can cover any **20** on the board.



48 rounded to the nearest 10 is **50**.
The counter can cover any **50** on the board.

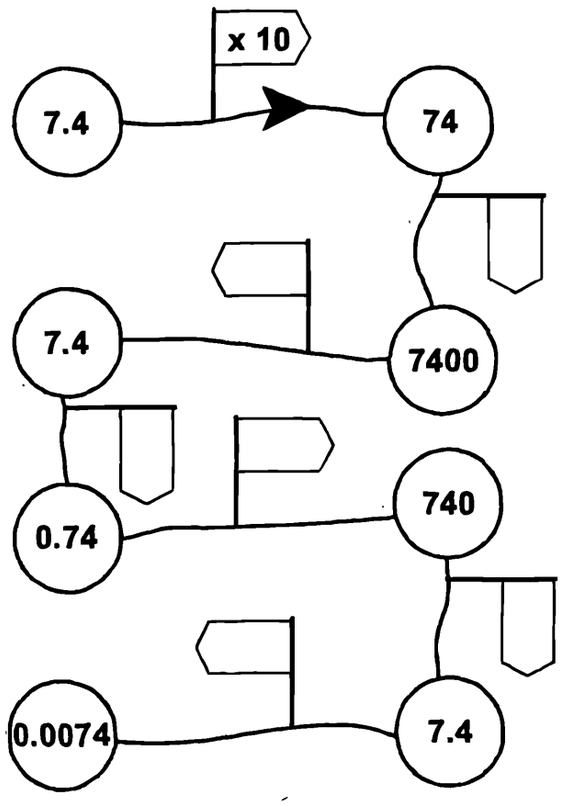
10	30	20	10	30	40	20
20	10	80	40	60	10	30
50	60	70	20	10	50	40
10	30	10	20	30	20	10
40	30	50	70	10	50	40
60	20	80	40	60	50	10
20	10	40	20	30	10	20

Powers of Ten flags

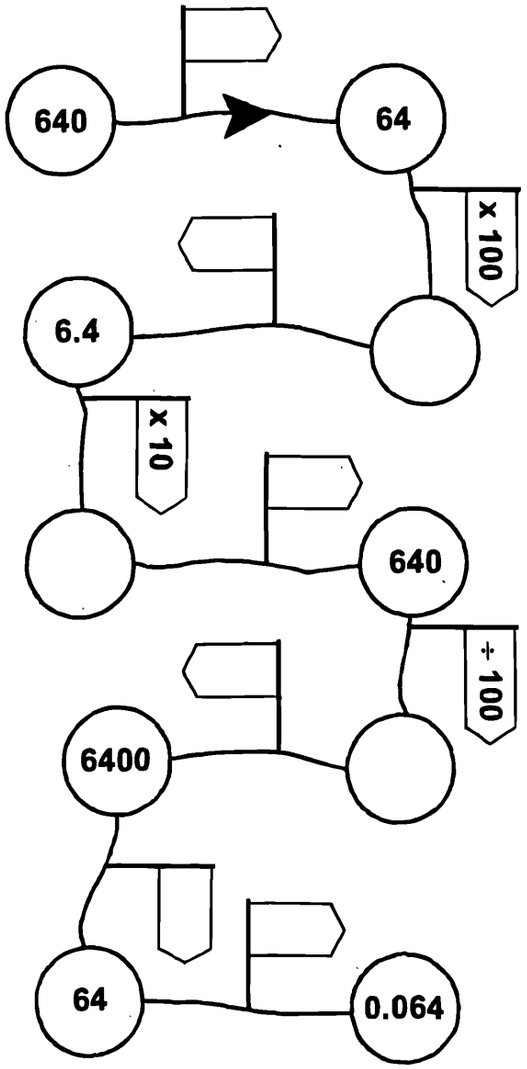
1) Fill in the flags to show which operation you need to use.

Choose from:

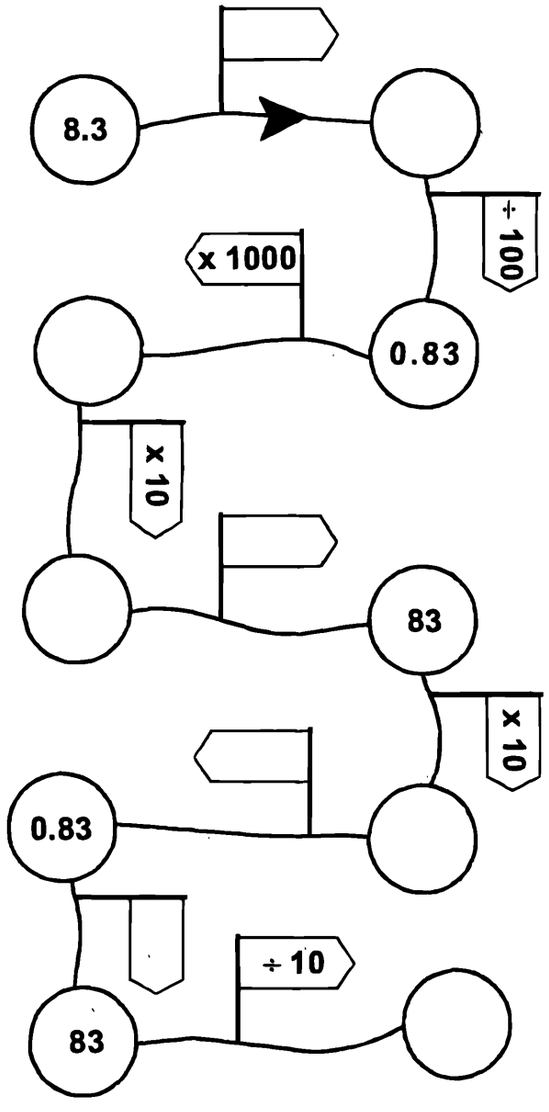
x 10	÷ 10
x 100	÷ 100
x 1000	÷ 1000



2) Fill in the flags and the circles.



3) This one is more challenging!



Equivalent Fraction Pairs

Smile **2374**

1	2	3	4	5	6	7	8	9	10

The numbers above can be used to make two pairs of equivalent fractions.
No number can be used more than once.

example:

$$\frac{3}{4} \equiv \frac{6}{8} \qquad \frac{1}{2} \equiv \frac{5}{10}$$

7 and 9 are not used.

≡ means "is equivalent to"

1. a) Find another way of making two pairs of equivalent fractions using the numbers 1 to 10.

b) Which numbers are not used?

2. a) How many equivalent fraction pairs can you make using the numbers 1 to 20?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

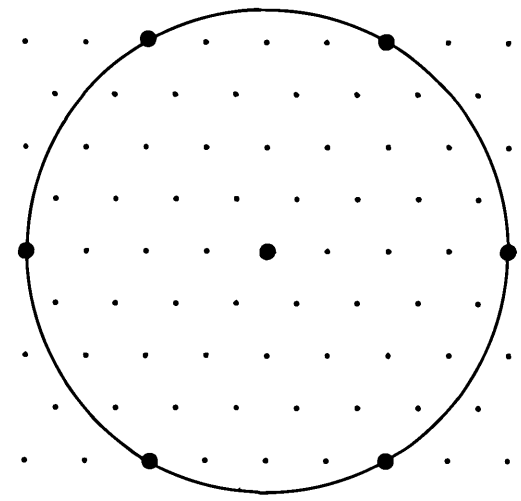
Remember: No number can be used more than once.

b) Which numbers are not used?
Why?

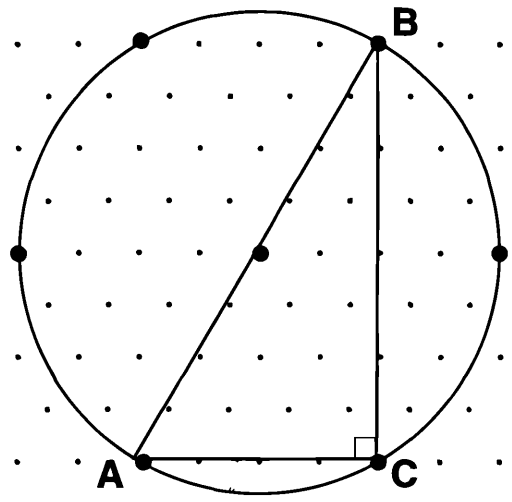
Polygons in Circles

You will need 1cm dotted isometric paper and a pair of compasses.

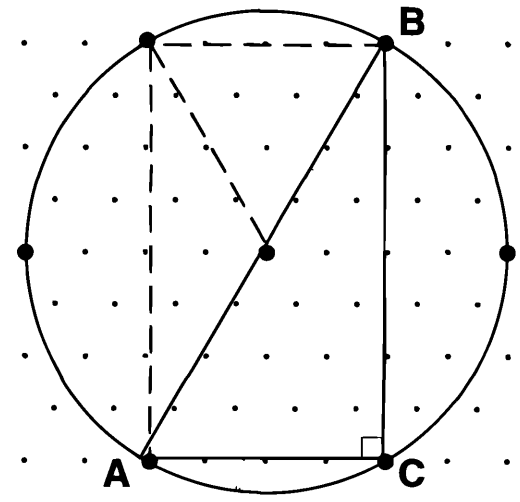
1. a) Draw a circle radius 4cm on isometric paper. There should be 6 points on the circumference of the circle.



b) Using these 6 points and the centre of the circle, construct a right-angled triangle.



c) Draw the dotted lines and explain why
$\angle BAC = 60°$ and
$\angle ABC = 30°$



2. By drawing similar circles construct the following polygons and work out the angles in the polygons. You might like to use Smile 2163 Geometry Facts.

   a) An equilateral triangle.
   b) An isosceles triangle.
   c) A rectangle.
   d) A trapezium.
   e) An arrowhead.
   f) A rhombus.
   g) A hexagon.
   h) A pentagon.

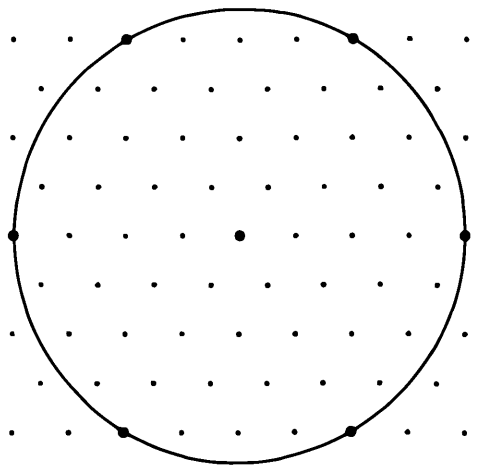
3. Which of your polygons are cyclic?

Definition of a cyclic polygon:

Any polygon whose vertices all lie on the circumference of a circle is called a cyclic polygon.

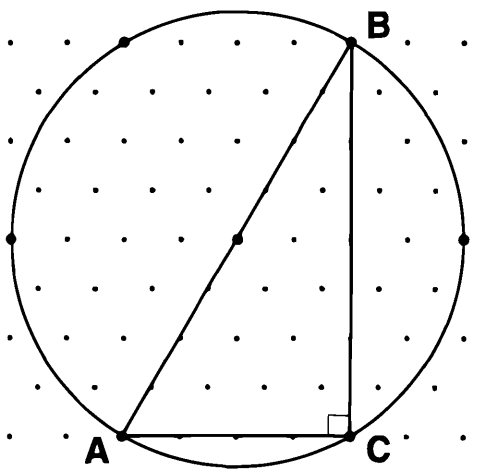
Polygons in Circles

You will need 1cm dotted isometric paper and a pair of compasses.



1. a) Draw a circle of radius 4cm on isometric paper. There should be 6 points on the circumference of the circle.

b) Using these 6 points and the centre of the circle construct a right angled triangle.



c) Draw the dotted lines and explain why
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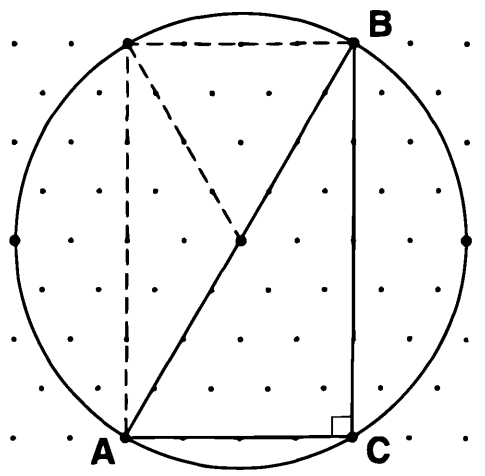


2. By drawing similar circles construct the following polygons and work out the angles in the polygons. You might like to use Smile **2163** Geometry Facts.

a. An equilateral triangle.
b. An isosceles triangle.
c. A rectangle.
d. A trapezium.
e. An arrowhead.
f. A rhombus.
g. A hexagon.
h. A pentagon.

Definition of a cyclic polygon:

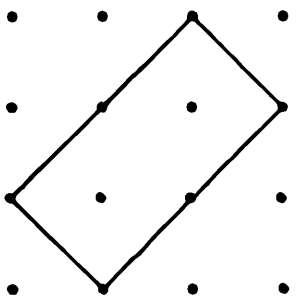
Any polygon whose vertices all lie on the circumference of a circle is called a cyclic polygon.

3. Which of your polygons are cyclic.

Areas of Polygons

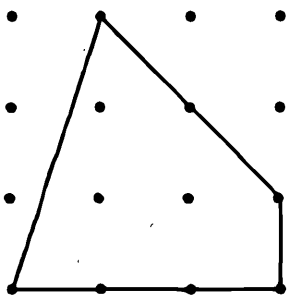
1. Calculate the areas of the polygons below.

A



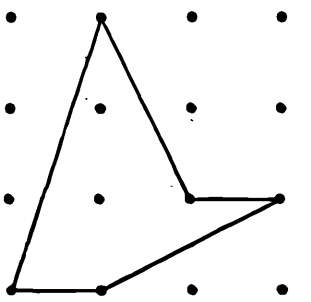
Area = _____ cm^2

B



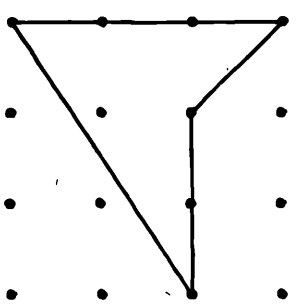
Area = _____ cm^2

C



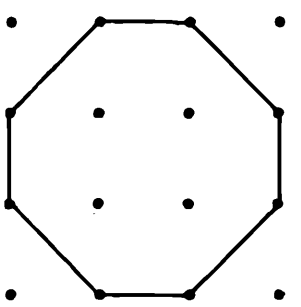
Area = _____ cm^2

D



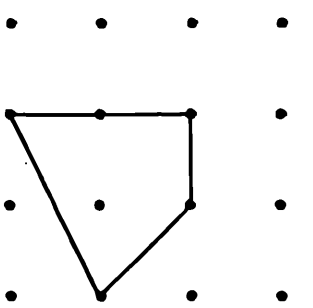
Area = _____ cm^2

E



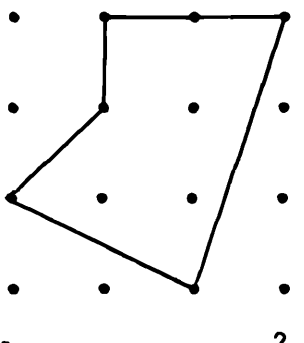
Area = _____ cm^2

F



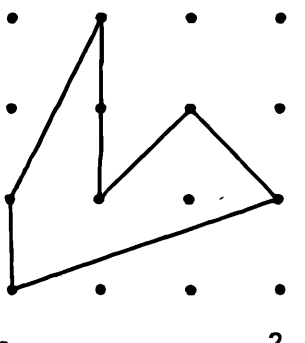
Area = _____ cm^2

G



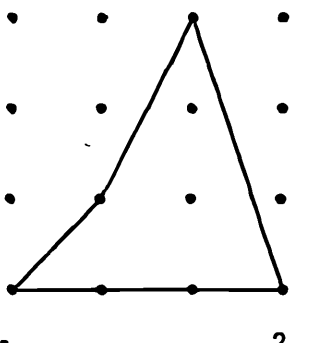
Area = _____ cm^2

H



Area = _____ cm^2

I

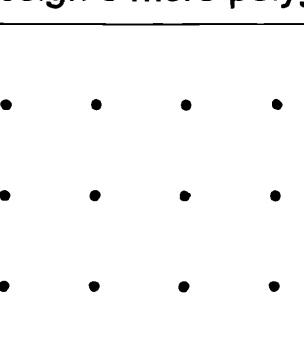


Area = _____ cm^2

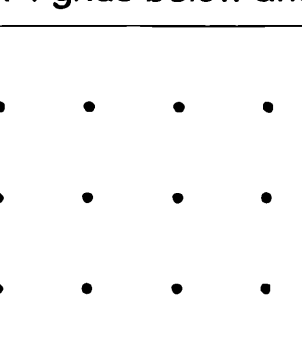
2. Sort the polygons in order of area, largest first.

---

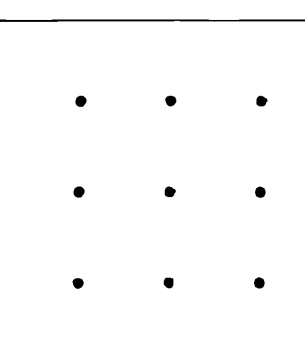
3. Design 3 more polygons on the 4 x 4 grids below and find their area.



Area = _____



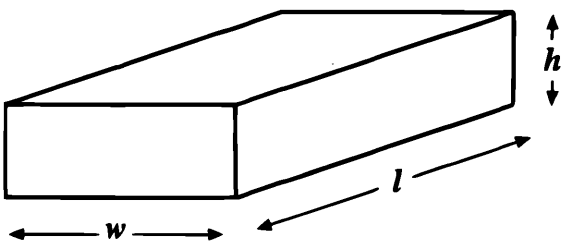
Area = _____



Area = _____

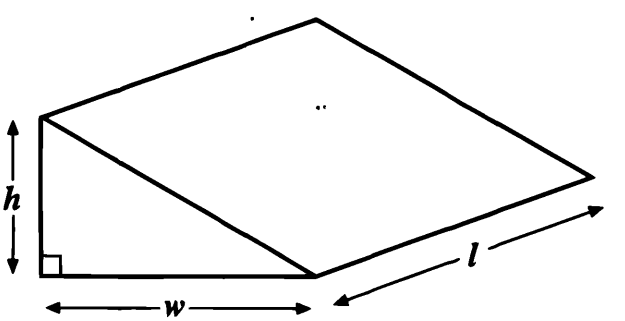
Solid Expressions

This cuboid has height h, width w and length l.



An expression for the **volume** of this cuboid is hwl.
An expression for the **surface area** of this cuboid is $2(hw + hl + wl)$.
An expression for the **total edge length** of this cuboid is $4(h + w + l)$.

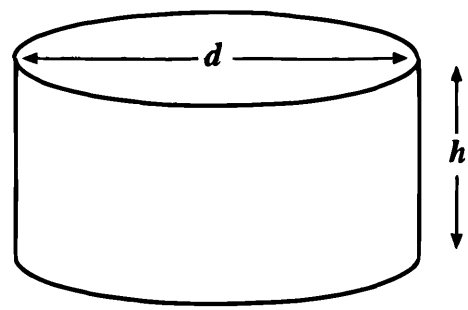
1. This right-angled triangular prism has height h, width w and length l.



Work out:

a) An expression for the volume.
b) An expression for the surface area.
c) An expression for the total edge length.

2. This cylinder has diameter d and height h.



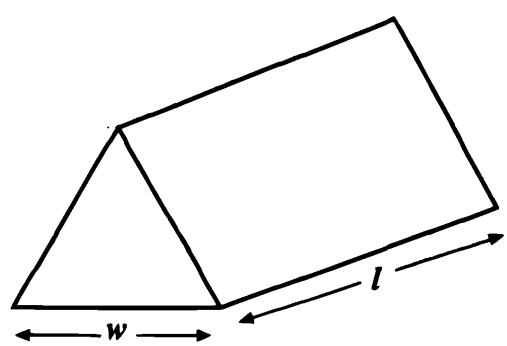
a) Show that the surface area of the cylinder can be expressed as $\frac{\pi d^2}{2} + \pi dh$

Work out:

b) An expression for the volume.

c) An expression for the total edge length.

3. This equilateral triangular prism has width w and length l.



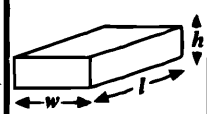
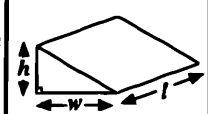
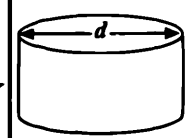
a) Show that the volume of this prism can be expressed as $\frac{\sqrt{3}lw^2}{4}$

Work out:

b) An expression for the surface area.

c) An expression for the total edge length.

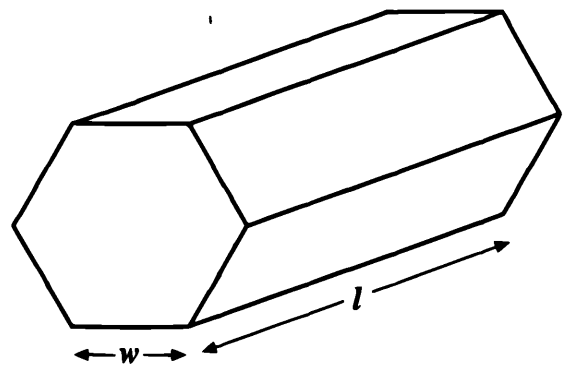
4. Copy and complete this table:

	Cuboid	Right-angled triangular prism	Cylinder	Equilateral triangular prism
Diagram				
Volume	hwl			$\frac{\sqrt{3}lw^2}{4}$
Surface area	$2(hw+hl+wl)$		$\frac{\pi d^2}{2} + \pi dh$	
Total edge length	$4(h+w+l)$			

5. Look carefully at the expression for each of the solids.
How would you decide if an expression described:

a) volume?
b) surface area?
c) total edge length?

6. The regular hexagonal prism below has the dimensions shown.



The three expressions for the hexagonal prism are:

$6lw + 3\sqrt{3}w^2$ $\qquad$ $12w + 6l$ $\qquad$ $\frac{3\sqrt{3}lw^2}{2}$

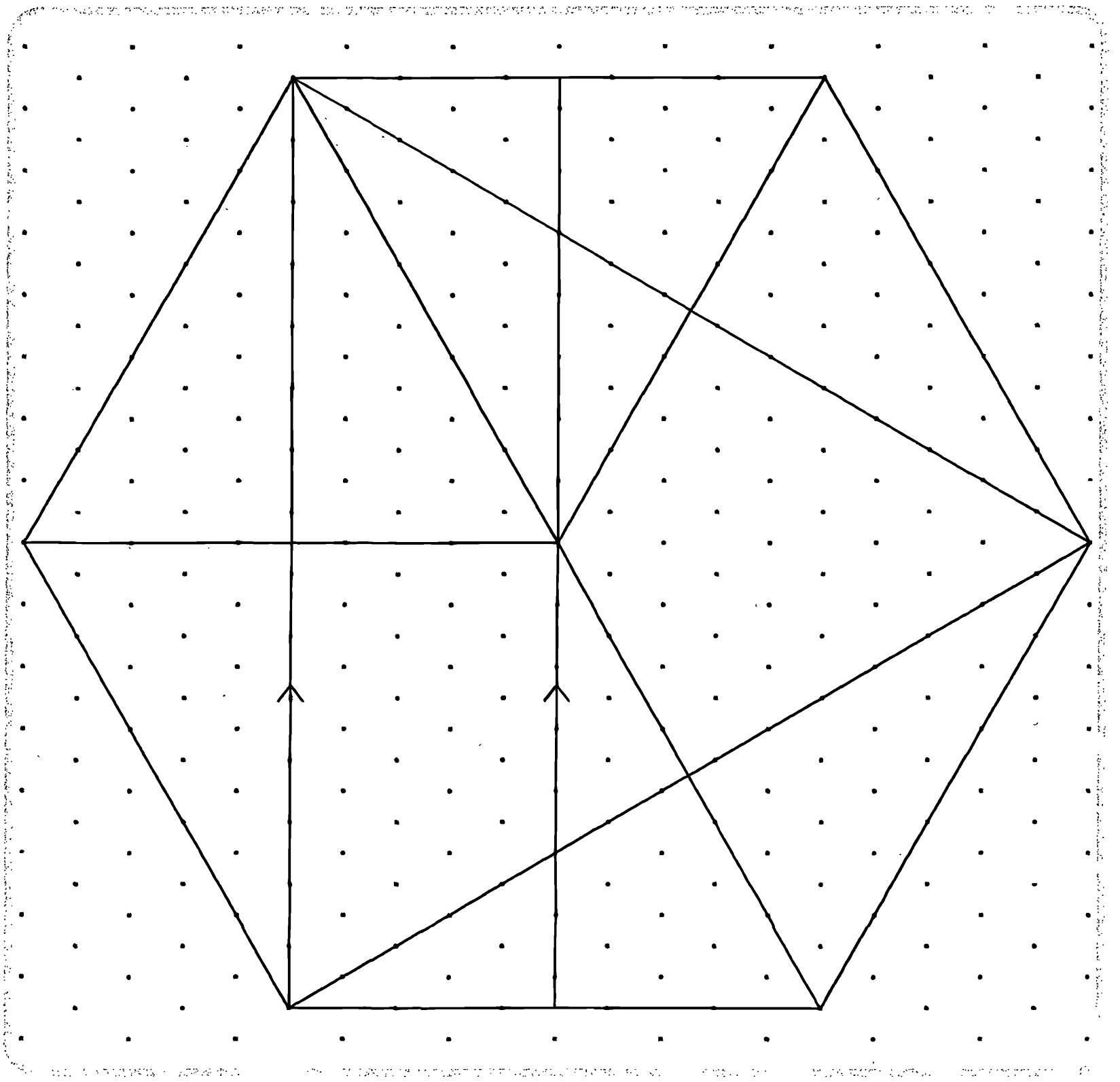
a) Which of the three expressions describes the volume of the regular hexagonal prism?

b) Which of the three expressions describes the surface area of the regular hexagonal prism?

c) Which of the three expressions describes the total edge length of the regular hexagonal prism?

Angles in a Regular Hexagon

The regular hexagon below is drawn on isometric dotted paper.
Find all the unmarked angles.



Nine Nine Nine

1. Copy and complete the following multiplication sequences.

1 x 9 = 9	1 x 99 = 99	1 x 999 = 999	1 x 9999 = 9999	1 x 99999 = 99999
2 x 9 = 18	2 x 99 =	2 x 999 =	2 x 9999 =	2 x 99999 =
3 x 9 = 27	3 x 99 =	3 x 999 =	3 x 9999 =	3 x 99999 =
4 x 9 =				
5 x 9 =				
6 x 9 =				
7 x 9 =				
8 x 9 =				
9 x 9 = 81	9 x 99 =	9 x 999 =	9 x 9999 =	9 x 99999 =

Do not use a calculator

2. Write about your methods. How did you work out the sequences?

3. Do your methods still work for:

10 x 9 =	10 x 99 =	10 x 999 =
11 x 9 =	11 x 99 =	11 x 999 =
12 x 9 =	12 x 99 =	12 x 999 =
13 x 9 =	13 x 99 =	13 x 999 =

Multiplication Review

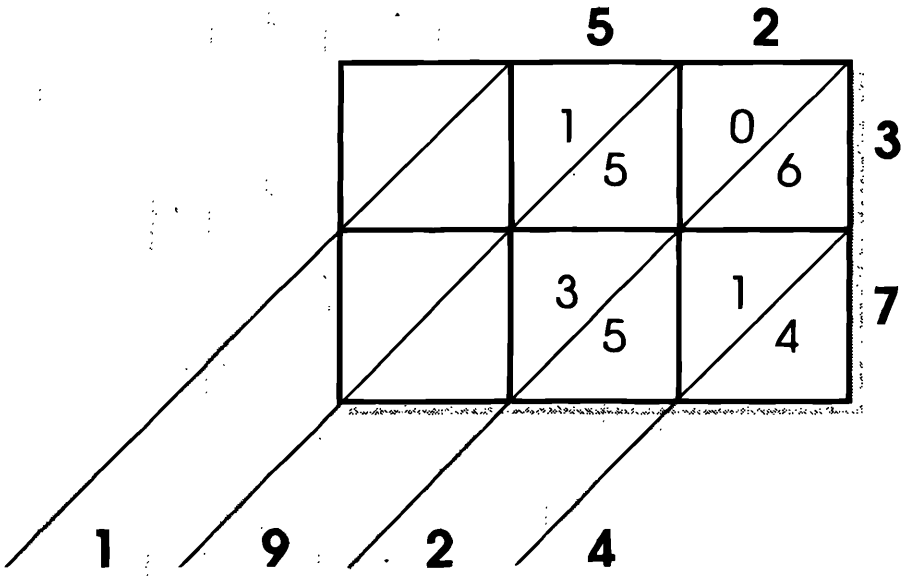
An activity for 2 or more people

In this pack there are five methods of multiplication.

For each one:

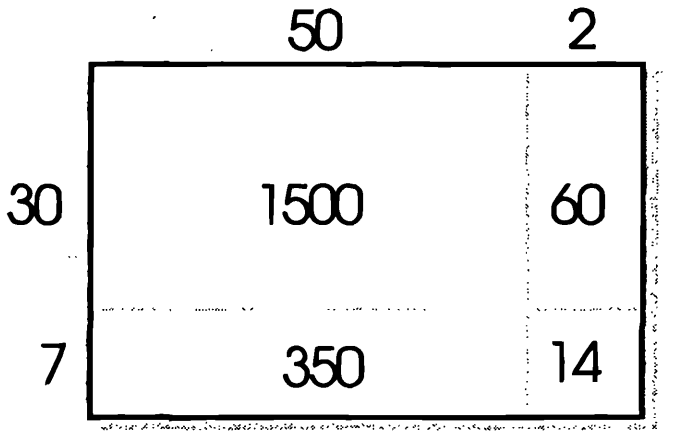
1. Look at the method of multiplication.
2. Describe what was done.
3. Check that the method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1500 + 350 + 60 + 14 = 1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

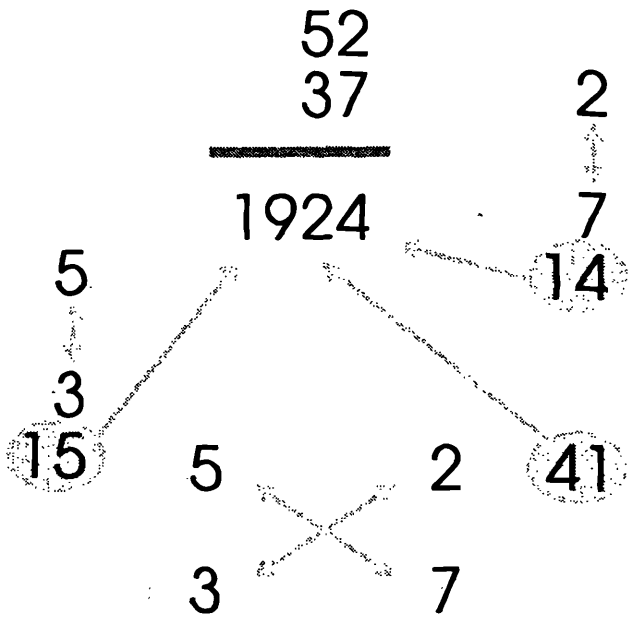
52 x 37 = ?

52 X 10 = 520
52 X 20 = 1040
52 X 40 = 2080
52 X 3 = 156

52 X 37 = 1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?

~~52~~	~~37~~
~~26~~	~~74~~
13	148
~~6~~	~~296~~
3	592
1	1184
	1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

Multiples of Ten

The **multiples** of a number are the numbers that appear in its multiplication table.

Example:
The multiples of 10 are **10, 20, 30, 40, ...**

1. This number square contains pairs of numbers next to each other whose sum is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

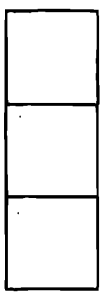
Example:

12
18

12 + 18 = 30

Find and mark five other pairs of numbers whose sum is a multiple of 10.

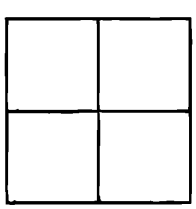
2. On this grid mark the three groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

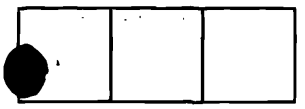
3. On this grid mark the five groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

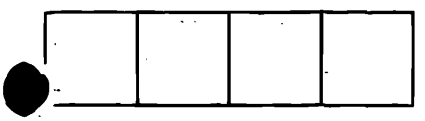
4. On this grid mark the two groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

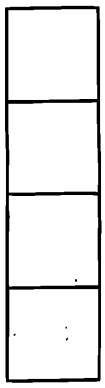
5. On this grid mark the four groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

6. On this grid mark the four groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

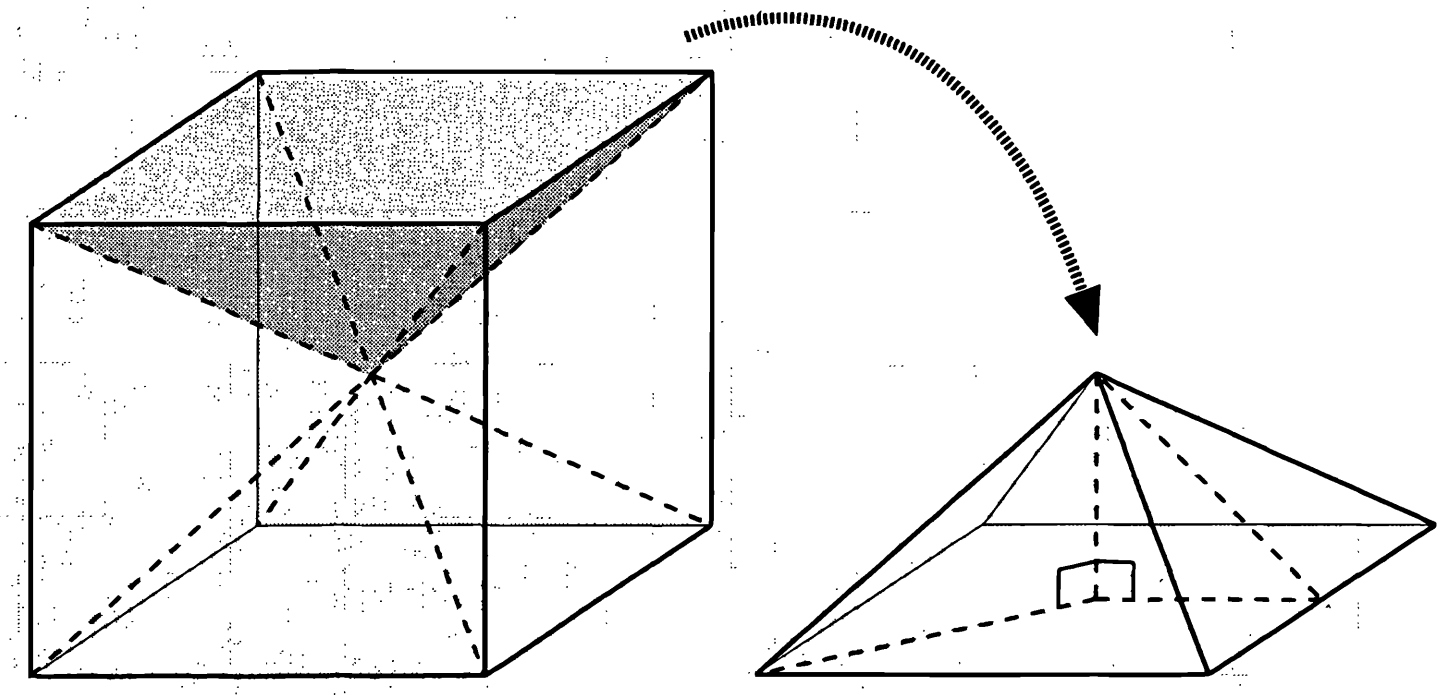
7. What other groups of numbers can you find whose sum is a multiple of 10? Mark them on the grid below.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Six Pyramids

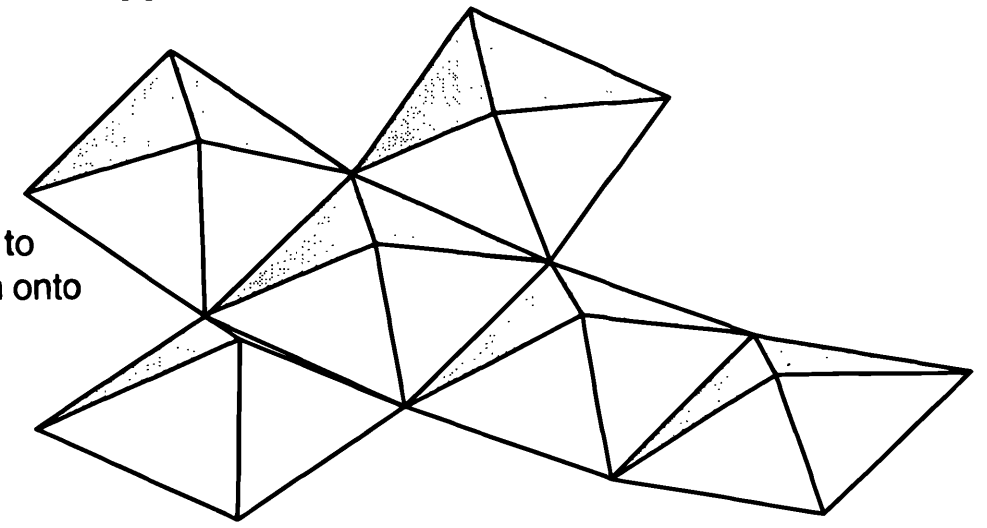
An activity for a small group.

This 6cm cube has been divided into six congruent pyramids.



Calculate the dimensions of each pyramid ...

... and use these dimensions to make six pyramids. Stick them onto the net of a 6cm cube.



Check that your pyramids fold back into a cube.

Now fold the cube net so that the pyramids are on the outside.

Solve the problems below for your new solid.
For each problem assume there are no hollow spaces inside the solid.

What is the volume of the new solid?

What is the surface area of the new solid?

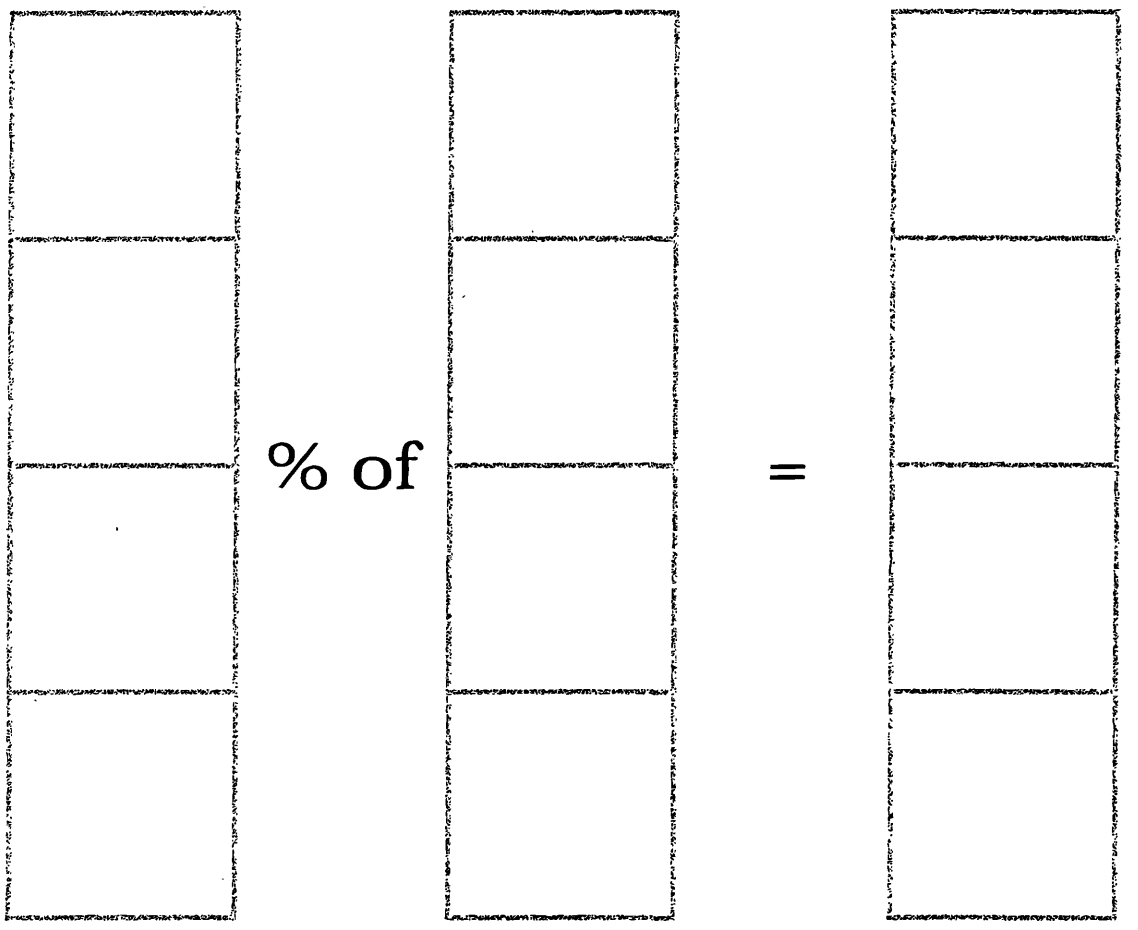
Has the new solid got 12 faces or 24? Justify your answer.

Can you draw a net for the new solid using ruler and compasses only?

Percentage Puzzle

You will need: scissors, glue

- Cut out the numbers at the bottom of this sheet.
- Place them on the sheet to make four true statements.
- Do not stick them down until you are sure that all four statements are true.



10	15	20	25	35	45
50	65	70	75	80	150

Consecutive Products

Consecutive numbers lie next to each other on the number line.

Examples:

6 and 7 are consecutive.
5, 6 and 7 are consecutive.
4 and 6 are **not** consecutive.

The **product** of two numbers is found by multiplying them together.

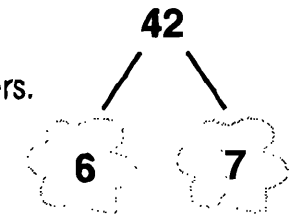
Example:

The product of 6 and 12 is 72 because 6 x 12 = 72

Example:

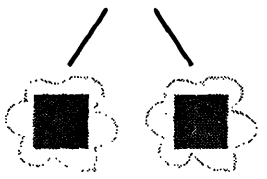
42 is the product of two consecutive numbers.

6 x 7 = 42

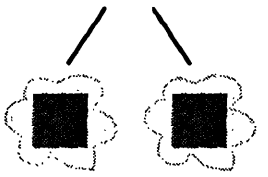


1. Copy the following and find the two missing consecutive numbers.

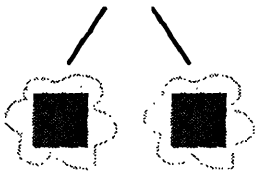
a) **12**



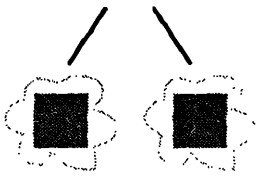
b) **72**



c) **90**

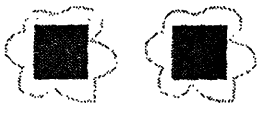


d) **56**

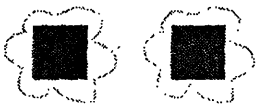


e) **110**

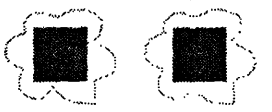
f) **462**



g) **306**

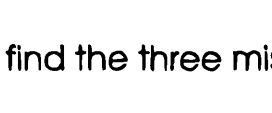


h) **756**

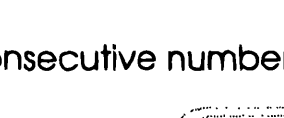


i) **210**

j) **1806**



k) **3782**



l) **3192**

2. Copy the following and find the three missing consecutive numbers.

a) **336**

b) **990**

c) **21924**

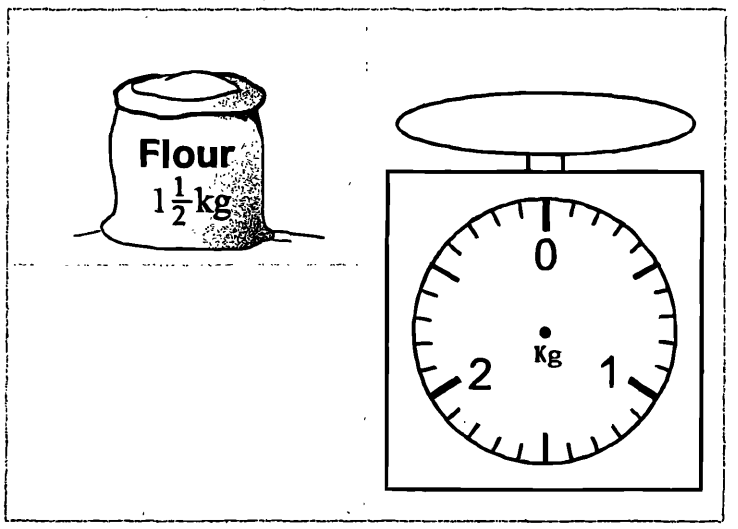
Challenge!

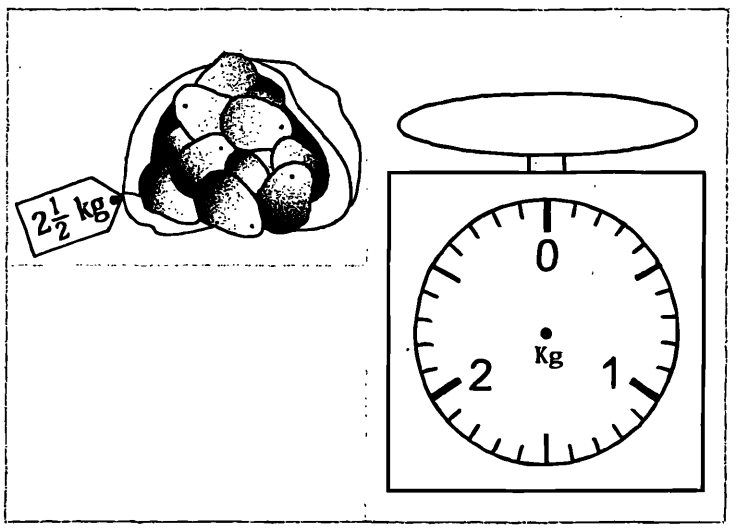
Matching Weights

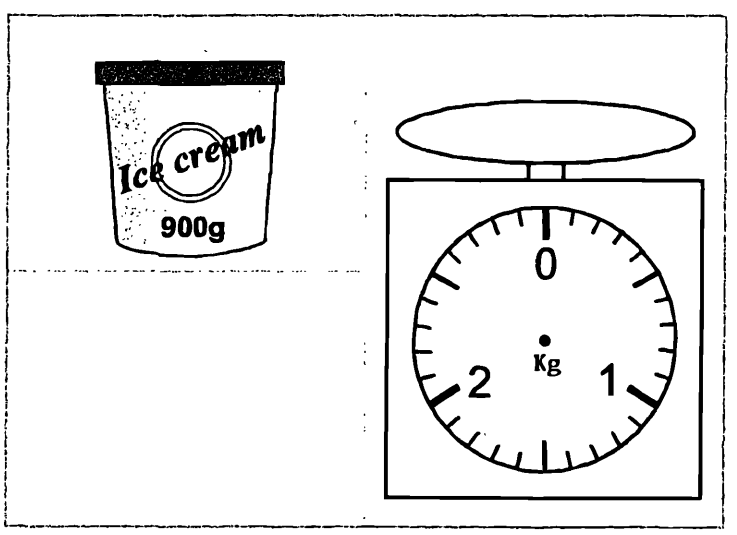
You will need: glue, scissors

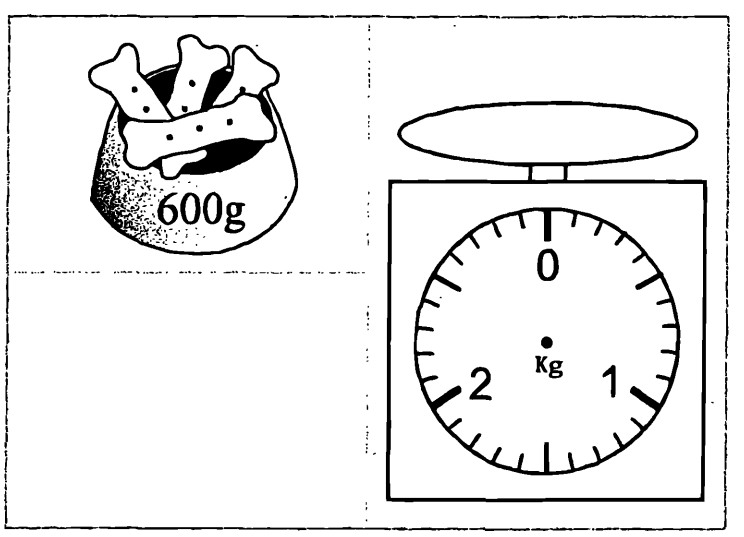
1. Cut out the weights at the bottom of this worksheet and match them to the objects.
2. Show each weight on the scales.

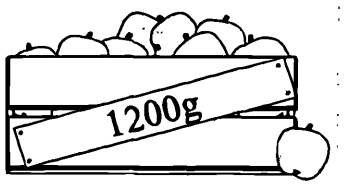
Remember 1kg = 1000g

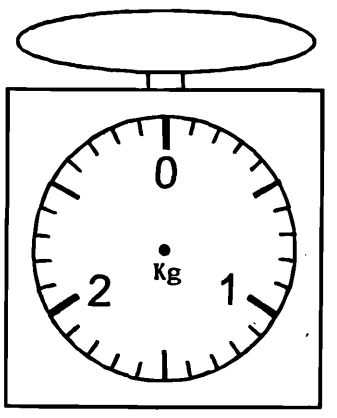


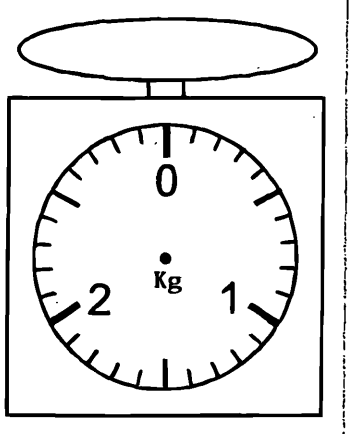


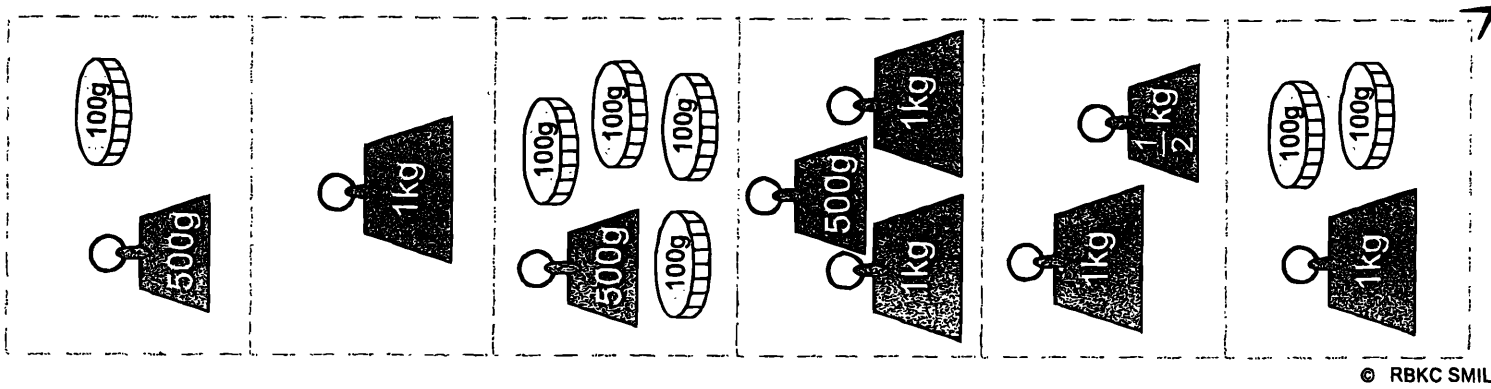










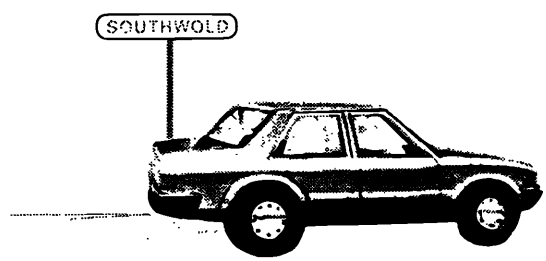


Sensible Answers

Do not use a calculator.

Problem:
18 people are going to Southwold by car.
Four people can fit in each car.

How many cars are needed?



Method:
$18 \div 4 = 4.5$
The answer to 18 divided by 4 is between 4 and 5.
If you gave the answer 4 only 16 people could go.
2 people would be left behind.

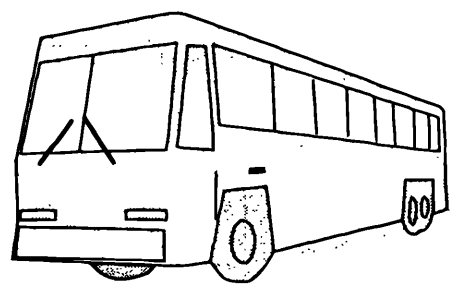
So the sensible answer is 5 cars.

The sensible answer depends upon the original problem.

Solve the problems below.
For each problem, show your method and make sure that your answer is sensible.

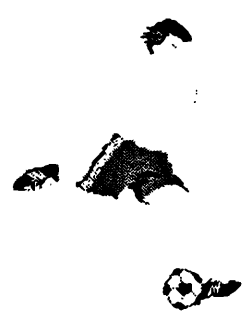
1. 169 students are going on a school trip to Margate. Each coach can carry 50 students.

How many coaches will be needed?



2. A football club has 49 members. A football team needs 11 players.

How many teams can the football club field?

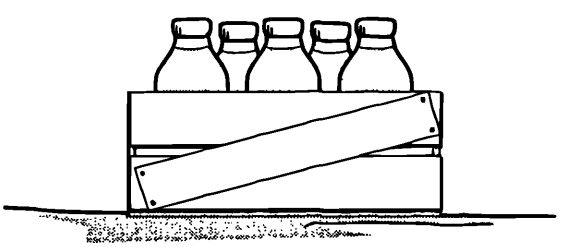


3. A tin of paint covers 25 square metres.

How many tins of paint will you need to cover 116 square metres?

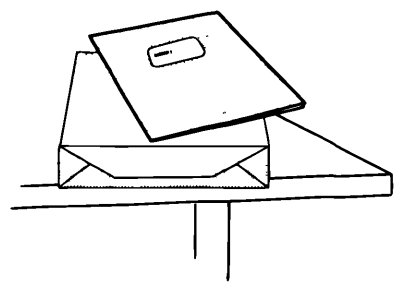
4. Milk is sold in crates of 12 identical bottles.
A wholesaler has 102 identical bottles.

How many crates can she make up?



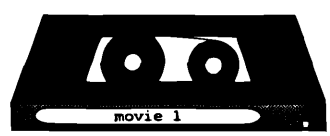
5. Exercise books are sold in packets of 10. Ms Kershaw wants to order exercise books for 67 students.

How many packets of books does Ms Kershaw need to order?



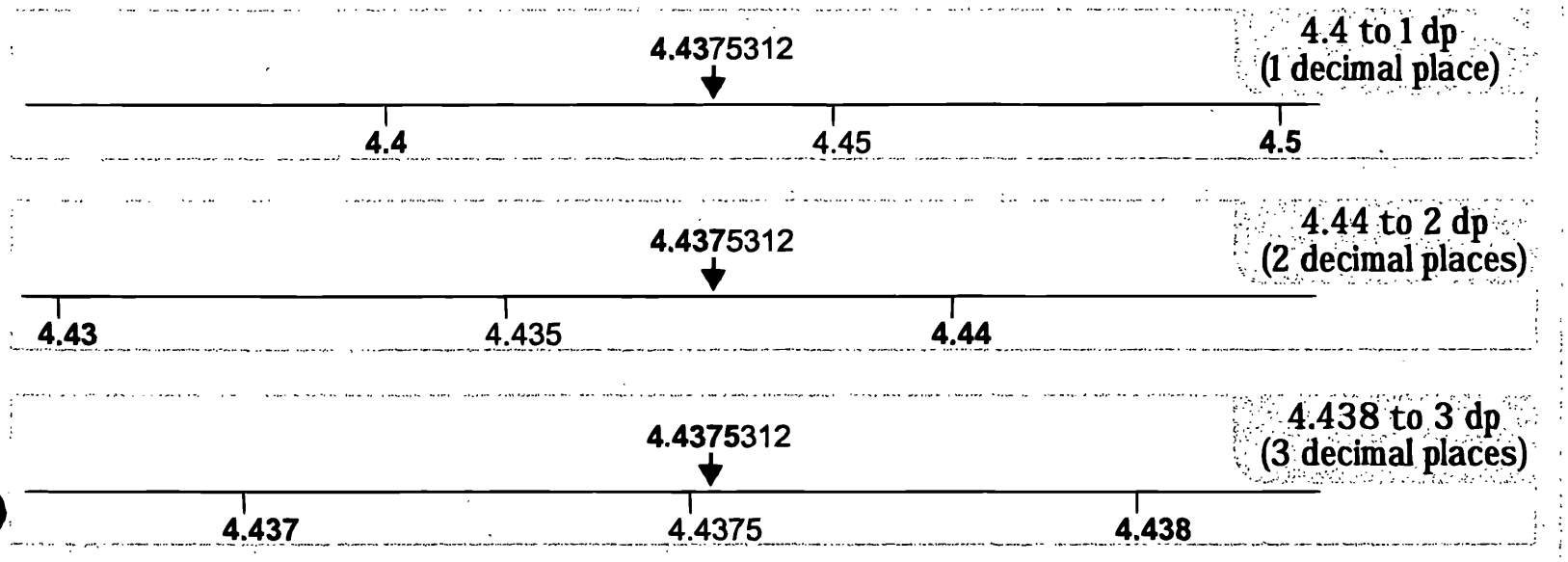
6. Jameela wants to record her favourite television programme.
Each episode lasts 40 minutes.

How many episodes can she record on a 3 hour tape.



Decimal Places Match

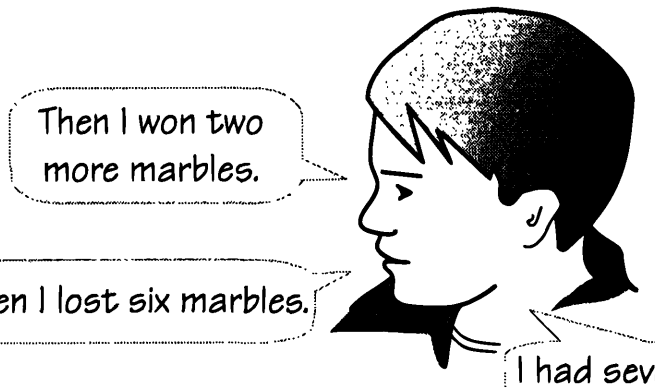
The number on the calculator shows 4.4375312
This can be approximated to:



Match each calculator answer to its three approximations.

Number on calculator 3.4457982	Number to 2 decimal places 3.45 to 2 dp	Number to 1 decimal place 3.6 to 1 dp	Number to 3 decimal places 3.456 to 3 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.557 to 3 dp	Number on calculator 3.5471035	Number to 2 decimal places 3.47 to 2 dp
Number to 2 decimal places 3.46 to 2 dp	Number on calculator 3.4561207	Number to 3 decimal places 3.547 to 3 dp	Number to 1 decimal place 3.4 to 1 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.446 to 3 dp	Number on calculator 3.5568156	Number to 2 decimal places 3.56 to 2 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.467 to 3 dp	Number to 2 decimal places 3.55 to 2 dp	Number on calculator 3.4672331

Number Stories



Here is a calculation.

7 + 2 – 6

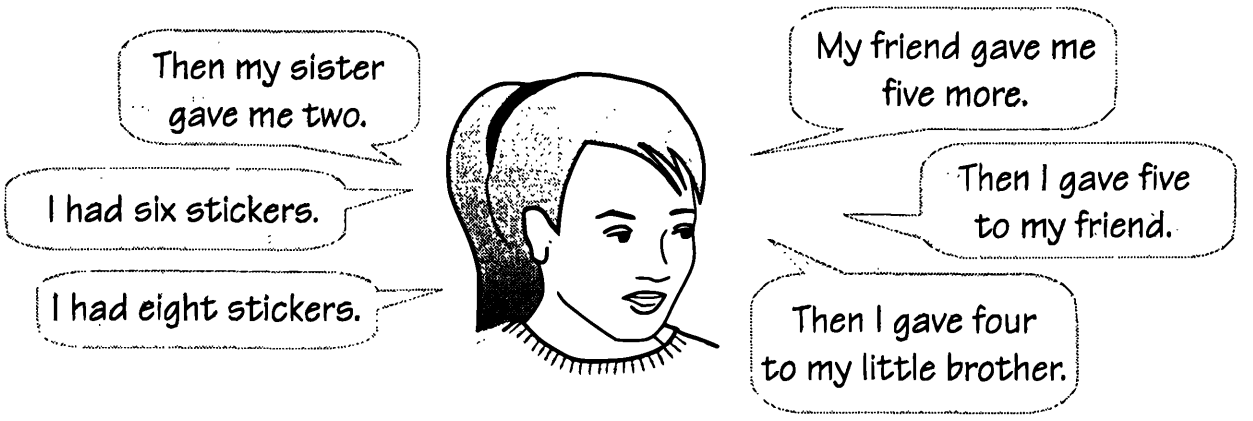
Here is its story:

I had seven marbles. Then I won two more marbles. Then I lost six marbles.
7 + 2 – 6

1. Here are two other calculations.

8 – 5 + 2 **6 + 5 – 4**

Use the sentences below to make a number story for each calculation.
Write them down in your book.



2. Here are two more calculations. Use the sentences below to make a number story for each calculation. Write them down in your book.

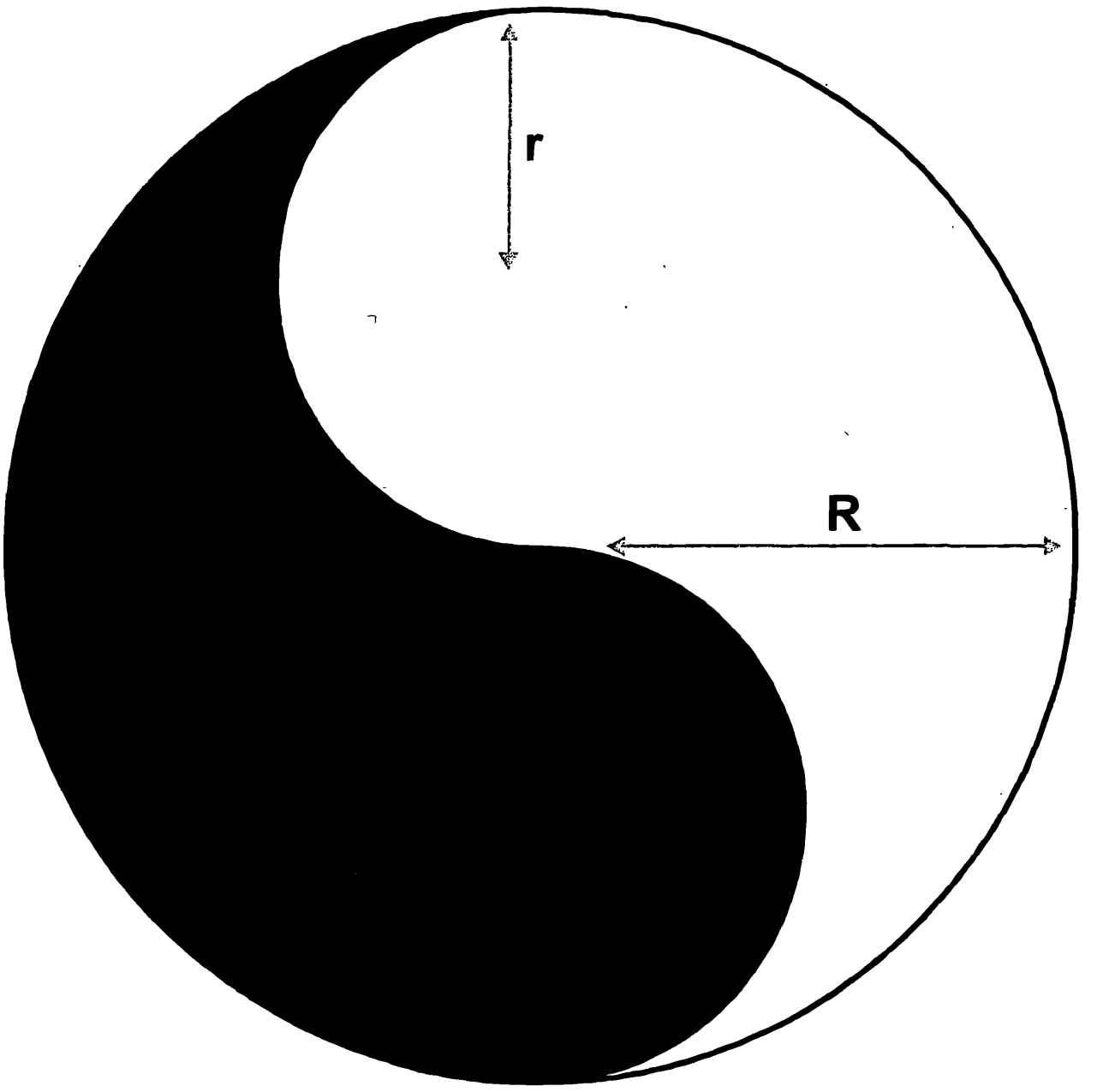
6 × 2 – 5 **10 ÷ 2 – 4**

3. Make up number stories for each of these calculations and show them to your teacher.

8 – 3 + 7 **4 × 3 + 6**

Circle Cut

In the diagram below, the radius of each small semicircle (**r**) is half the radius of the outer circle (**R**).



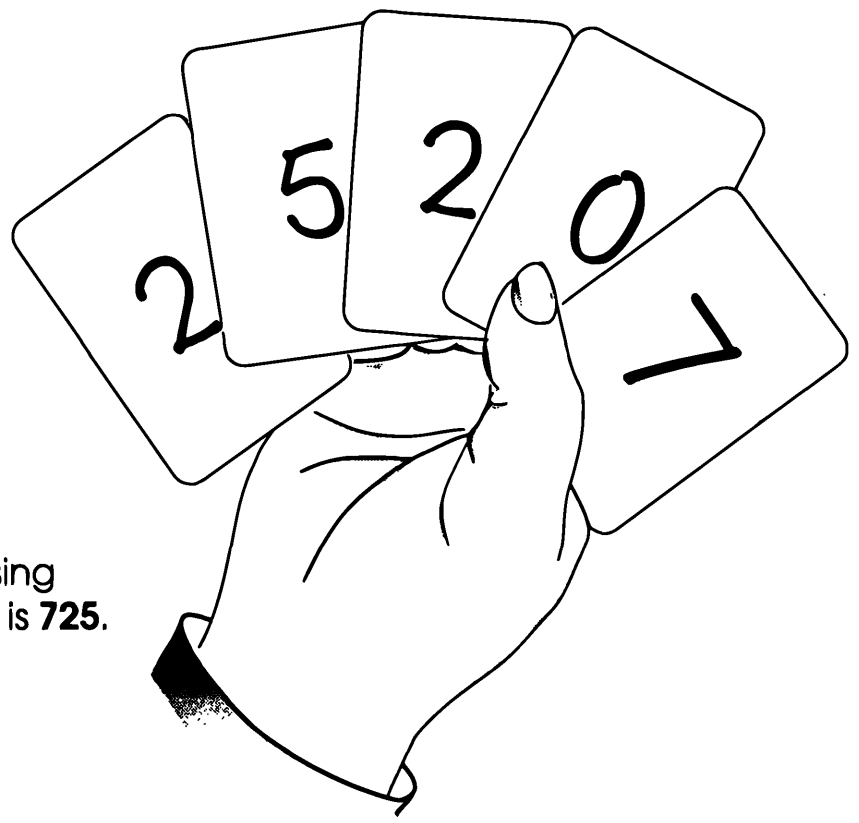
Make one straight cut across the circle so that each of the two regions is exactly halved.

Use algebra to justify your answer.

Play Your Cards Right

A game for four players in two teams.

You will need a set of number cards (digits between 0 and 9) and the targets from worksheet 2401a.



Target!

Largest odd number

The largest odd number using three of the number cards is **725**.

The Rules

Shuffle the number cards.

Deal each team five number cards.

Place the targets face down in a pile.

Turn over the first target.

Use any three of the number cards to get as close to the target as possible.

The team who gets the closest scores one point.

Place the used number cards at the bottom of the pack and replace them with three new cards.

Turn over the next target and repeat the game.

The team with the highest score wins.

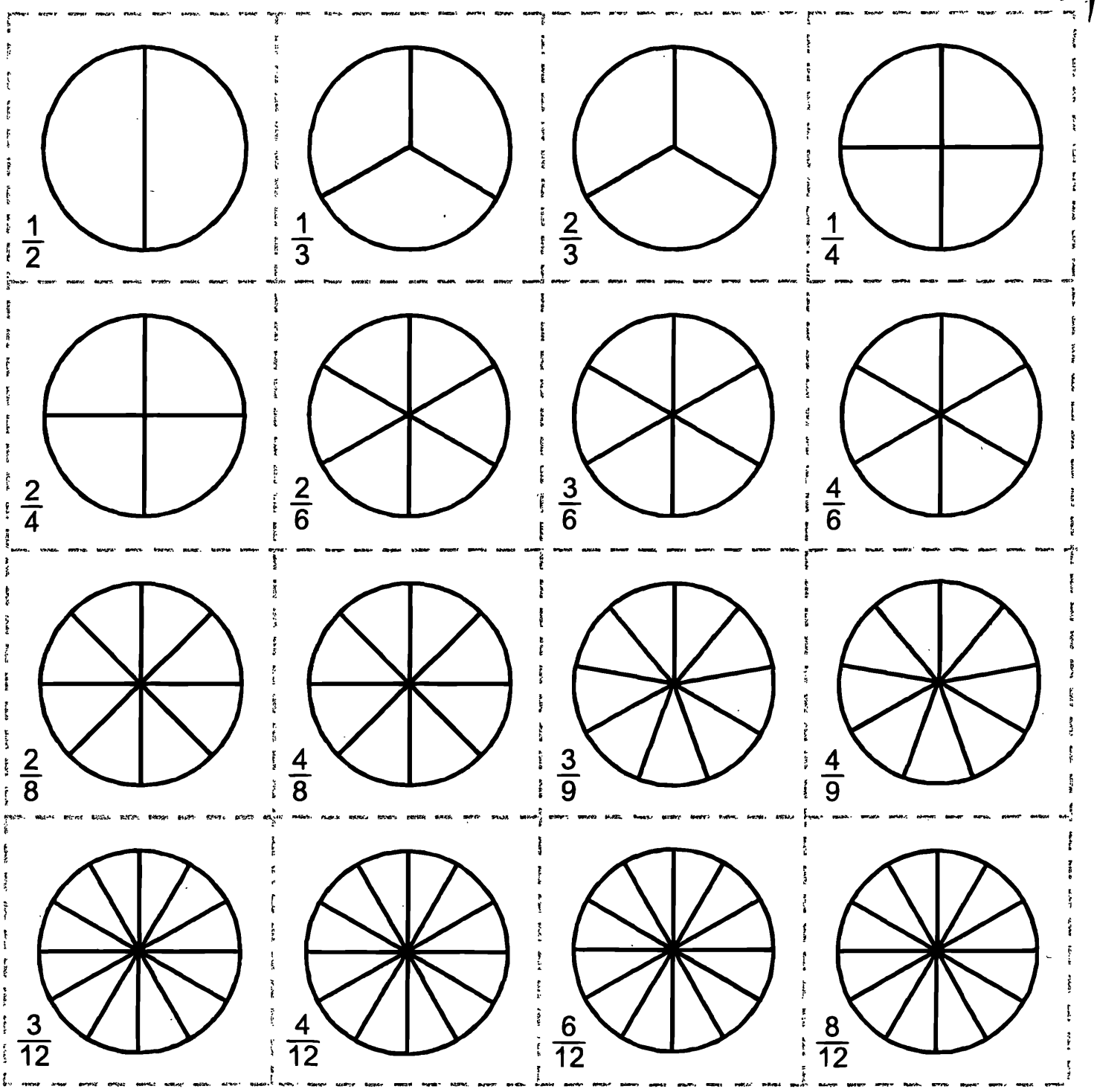
Targets for

Play Your Cards Right

Target! **Nearest even number to 500**	Target! **Nearest number to 100**
Target! **Largest odd number**	Target! **Largest even number**
Target! **Nearest odd number to 400**	Target! **Nearest number to 250**
Target! **Nearest number to 723**	Target! **Nearest number to 1000**
Target! **Smallest odd number**	Target! **Smallest even number**
Target! **Largest number**	Target! **Smallest number**

Equivalent Fractions Sort

1. Shade the fractions of the circles below.



2. Cut out all the fractions and arrange them in order of size.

3. Which of the fractions are equivalent?
(equivalent fractions represent the same proportion).

4. Find 2 fractions which are equivalent to $\frac{3}{4}$.

Missing the Point

Example:

Sheila saw this addition and realised that one of the numbers being added had a decimal point either missing or in the wrong place.

$$53.7 + 1.26 = 66.3 \quad ✗$$

She rewrote the addition correctly.

$$53.7 + 12.6 = 66.3 \quad ✓$$

Do not use a calculator.

In each of the calculations below, one and only one of the decimal points is either missing or in the wrong place.

A Rewrite these additions to make them correct.

1. $40.5 + 24.05 = 28.1$
2. $5.8 + 74 = 13.2$
3. $7 + 4 = 4.7$
4. $7.77 + 7.07 = 84.77$
5. $4.5 + 0.55 = 1$
6. $0.003 + 7 = 7.3$

B Rewrite these subtractions to make them correct.

1. $45 - 1.95 = 2.55$
2. $6.05 - 3.12 = 57.38$
3. $4.9 - 4.9 = 44.1$
4. $5 - 0.01 = 0.49$
5. $1.23 - 122.9 = 0.1$
6. $6 - 3.12 = 56.88$

SMILE MATHEMATICS

Commercial References

0001 - 2403 in numerical order

List of abbreviations on 2001 SMILE Network

ANGLE	SMILE software 'Angle Estimation' available from **SMILE Mathematics**
COORD	SMILE software 'Co-ordinates' available from **SMILE Mathematics**
DfEE	SMILE software Ref: 0260/2000 available from **DfEE**
DIME	A variety of materials available from **Tarquin**
ENRICH	SMILE software 'Co-ordinates' available from **SMILE Mathematics**
GRAPH	SMILE software 'Graphing' available from **SMILE Mathematics**
INVEST	SMILE software 'Investigation' available from **SMILE Mathematics**
INVEST Pgxx	Page number from Student's Handbook 'Investigation' available from **SMILE Mathematics**
MA Poster	Poster available from **Mathematics Association**
MATH PUZ	SMILE software 'Mathematical Puzzles' available from **SMILE Mathematics**
MOVE	SMILE software 'Movement' available from **SMILE Mathematics**
MOVE Pgxx	Page number from Student's Handbook 'Movement' to be printed from the CD available from **SMILE Mathematics**
NUM	CD 'Numeracy' available from **SMILE Mathematics**
PROP/NO	CD 'Properties of Number' available from **SMILE Mathematics**
PROP/NO Pgxx	Page number from Student's Handbook 'Properties of Number' to be printed from the CD available from **SMILE Mathematics**
SENSE/NO	SMILE software 'Sense of Number' available from **SMILE Mathematics**
SENSE/NO Pgxx	Page number from Student's Handbook 'Sense of Number' to be printed from the CD available from **SMILE Mathematics**
TARQUIN Poster	Poster available from **Tarquin**

List of Commercial Referenced activities in SMILE number order.

0581 Using a Mirror (DIME - Reflection Activities PP)
0778 Tangram Tree (MA Poster)
0906 Tak Tiles A (DIME - TakTiles PP3)
0907 Tak Tiles B (DIME - TakTiles PP3)
0908 Tak Tiles C (DIME - TakTiles PP3)
0909 Tak Tiles D (DIME - TakTiles PP3)
1331 Equal Angles (DIME - The Rotagram PP)
1332 Rotations (DIME - The Rotagram PP)
1333 Directions (DIME - The Rotagram PP)
1334 Recognising Solids (DIME - 3-D Sketching PP)
1335 Sketching Solids (DIME - 3-D Sketching PP)
1336 Turning and Toppling (DIME - 3-D Sketching)
1337 Reflections (DIME - 3-D Sketching PP)
1338 Wedges (DIME - 3-D Sketching PP)
1339 Flags (DIME - Pre-Algebra PP)
1340 Pattern and Notation (DIME - Pre-Algebra)
1341 Number Machines (DIME - Pre-Algebra PP)
1342 Mappings and Graphs (DIME - Pre-Algebra)
1343 Simple Mappings (DIME - Pre-Algebra PP)
1344 Further Mappings (DIME - Pre-Algebra PP)
1354 Euler Solids (MA Poster)
1482 Tricky Sum (MA Poster)
1604 Nim (SMILE software Mathematical Puzzles)
1605 Guess (SMILE software Sense of Number)
1606 GuessD (SMILE software Sense of Number)
1607 Elephant (SMILE software Co-ordinates)
1608 Reverse (SMILE software Mathematical Puzzles)
1609 Maze (SMILE software Movement)
1620 Bounce (DfEE)
1621 Rhino (SMILE software Co-ordinates)

1622 Vectmeet (SMILE software Movement)

1624 Snooker (SMILE software Angle Estimation)

1625 Box (SMILE software Sense of Number)

1626 Boat (SMILE software Mathematical Puzzles)

1641 Lines (SMILE software Co-ordinates)

1650 Take Part (Software - DfEE)

1651 Frog (SMILE software Mathematical Puzzles)

1652 Jugs (SMILE software Mathematical Puzzles)

1653 Master(SMILE software Mathematical Puzzles)

1654 Racegame (SMILE software Movement)

1666 Tower (SMILE software Sense of Number)

1667 Pilot (SMILE software Movement)

1691 Predict (SMILE software Mathematical Puzzles)

1702 Circle (SMILE software Investigations)

1708 Factor (SMILE software Properties of Number)

1714 Queens (SMILE Properties of Number Students' HB Pg 35)

1715 Locate (SMILE software Co-ordinates)

1718 Line Symmetry A 1 - 4 (DIME - Line Symmetry Puzzles A PP5A)

1719 Line Symmetry A 5 - 10 (DIME - Line Symmetry Puzzles A PP5A)

1721 Angle 90° (SMILE software Angle Estimation)

1728 BoxD (SMILE software Sense of Number)

1729 Minimax (SMILE software Sense of Number)

1730 Wall (SMILE software Sense of Number)

1731 Rose (SMILE software Investigations)

1732 3D Maze (SMILE software Movement)

1745 Identify (SMILE software Properties of Number)

1746 Define (SMILE software Properties of Number)

1747 Darts (SMILE software Numeracy)

1755 Hopslide (SMILE software Mathematical Puzzles)

1756 Tadpoles (SMILE software Mathematical Puzzles)

1767 AddsUpTo (SMILE software Numeracy)

1776 Spirals (SMILE software Investigations)

1777 Avoid each other (SMILE Investigations Students' HB Invest Pg 35)

1778 Jumping (SMILE software Mathematical Puzzles)

1779 Lineover (SMILE software Graphing)

1785 Invest. Queens (SMILE Movement Students' HB Pg 35)

1787 Angle 360° (SMILE software Angle Estimation)

1796 Plotter (SMILE software Graphing)

1798 Quilts (SMILE software Investigations)

1820 Parallels (SMILE software Graphing)

1833 Magic (SMILE software Numeracy)

1834 Tenners (SMILE software Numeracy)

1835 Magnify (SMILE software Sense of Number)

1836 3inaline (SMILE software Co-ordinates)

1840 PointsAndLines (SMILE software Graphing)

1841 Interlocking Squares (DIME - Shape Recognition PP1)

1842 Shapes Jigsaw (DIME - Shape Recognition PP2)

1851 Regions (SMILE software Graphing)

1852 Foxes and Chickens (SMILE software Graphing)

1853 Pinball (SMILE software Investigations)

1855 Quadratic Mappings (DIME - Pre-Algebra PP)

1866 Mirror Match (DIME - Reflection Activities PP)

1876 Fill the Shape (DIME - Build-up PP)

1877 Add a Cube or Two (DIME - Build-up PP)

1878 Two Blocks (DIME - Build-up PP)

1879 Build and Balance (DIME - Build-up PP)

1880 More than Two Blocks (DIME - Build-up PP)

1882 Wedges 1 (DIME - Build-up PP)

1883 Wedges 2 (DIME - Build-up PP)

1889 Regular Tilings 1 (DIME - Regular Tilings Project)
- Use A Triangles, B Convex Quadrilaterals, C Concave Quadrilaterals, E 2 Sizes of Squares.
- For each activity do questions 1 - 3.

1890 Regular Tilings 2 (DIME - Regular Tilings Project)
- Use F Polygons.
- Do questions 1 - 4.

1891 Regular Tilings 3 (DIME- Regular Tilings Project)
- Use D Pentagons.
- Do questions 1 - 3.

1892 Line Symmetry B 1 - 3 (DIME- Line Symmetry Puzzles B PP5B)

1893 Line Symmetry B 4 - 6 (DIME- Line Symmetry Puzzles B PP5B)

1894 Line Symmetry B 7 - 10 (DIME- Line Symmetry Puzzles B PP5B)

1896 Spatial Reasoning (DIME - Spatial Reasoning Puzzles PP7)

1903 Numbers (SMILE software Properties of Number)

1908 Pattern Pack A (DIME - Pattern Pack A PP6A)

1909 Pattern Pack B (DIME - Pattern Pack B PP6B)

1920 Pattern Spotting (SMILE Properties of Number Students' HB Pg 16)

1936 Many Grids (SMILE Properties of NumberStudents' HB Pg 28)

1950 Diagonal Multiples (Students' HB Properties of Number Pg 29)

1961 One Million (TARQUIN Poster)

1966 Curve Stitching (TARQUIN Poster)

1967 One Dice (DIME - Probability Pack A)

1968 Numbers Up (DIME - Probability Pack A)

1969 Two Dice (DIME - Probability Pack A)

1970 Five Beads (DIME - Probability Pack B)

1971 Seven Beads (DIME - Probability Pack B)

2008 Curves of Pursuit (TARQUIN Poster)

2009 Three Counters (DIME - Probability Pack A)

2010 Six Beads (DIME - Probability Pack B)

2011 Four Beads (DIME - Probability Pack B)

2012 Tessellation Poster (TARQUIN Poster)

2014 Probably Probable? (Students' HB Investigations Pg 43)

2073 Tricubes (DIME - Tricube Puzzles Project)

- Worksheets A1, A2, A3, A4

2074 Building with Tricubes (DIME - Tricube Puzzles Project)

- Worksheets B2, B6, B10

2075 Tricube Plans (DIME - Tricube Puzzles Project)

- Worksheets C1, C5, C6, C8

2076 Building on a Square (DIME - Tricube Puzzles Project)

- Worksheets D1, D5, D8, D10

2077 Making a 3 x 3 x 3 Cube (DIME - Tricube Puzzles Project)

Worksheets E3, E7, E10

2086 Circles to Polygons (SMILE Investigations Students' HB Pg 10)

2094 Squares (SMILE Investigations Students' HB Pg 4)

2113 Mystery (SMILE 1783 Calculating: Page 3)

2114 2 Puzzles (SMILE 1783 Calculating: Page 5)

2115 Missing Digit (SMILE 1783 Calculating: Page 8)

2116 Operations (SMILE 1783 Calculating: Page 9)

2117 Rumour (SMILE 1783 Calculating: Page 10)

2118 Ticket Sales (SMILE 1783 Calculating: Page 11)

2119 Patterns (SMILE 1783 Calculating: Pages 12 & 13)

2120 Productive (SMILE 1783 Calculating: Page 14)

2121 Hot and Cold (SMILE 1783 Calculating: Page 15)

2122 Target 200 (SMILE 1783 Calculating: Page 16)

2123 Missing Signs (SMILE 1783 Calculating: Page 17)

2124 Date of Birth (SMILE 1783 Calculating: Pg18 /19)

2125 Escape (SMILE 1783 Calculating: Pages 20 & 21)

2126 Problems (SMILE 1783 Calculating: Pages 22 & 23)

2194 Tossing Coins (SMILE Investigations Students' HB Pg 38 /40)

2202 Visiting Every Point (SMILE Investigations Students' HB Investi. Pg 8)

2284 BoxN (SMILE software Sense of Number)

2285 GuessN (SMILE software Sense of Number)

2286 Quadrants and Squares (DIME - Algebra through Geometry)

- Worksheets A3, A4

2287 Add and Subtract Squares and Quadrants (DIME - Algebra through Geometry)

- Worksheets A5, A6

2288 Algebra Tak-Tiles on a Grid (DIME- Algebra through Geometry)

- Worksheets B1, B2, B3, B4, B5, B6

2289 Algebra Tak-Tiles without a Grid (DIME - Algebra through Geometry)

- Worksheets C1, C2, C4, C5, C6

2290 A New Unit of Area (DIME- Algebra through Geometry)

- Worksheets D1, D2, D3, D4, D5, D6

2291 Comparing Areas (DIME- Algebra through Geometry)

- Worksheets E1, E3, E4)

2326 Hanoi (SMILE software Mathematical Puzzles)

2327 Hats (SMILE software Mathematical Puzzles)

2373 Queens (SMILE software Movement)

2377 TenSprint (SMILE software Numeracy)

2378 Matching Fractions (SMILE software Numeracy)

2379 Ordering Fractions (SMILE software Numeracy)

2380 NumberLines (SMILE software Numeracy)

2381 NumberLinesD (SMILE software Numeracy)

2393 Equivalent Pair (SMILE software Enriching Number)

2394 Make that Number (SMILE software Enrich No)

2395 Maximum Remainder (SMILE software EnrichNo)

2396 FindTheLine (SMILE software Graphing)

2397 Guess Inequality (SMILE software Graphing)

Additional resources available from SMILE Mathematics

SMILE Mathematics Worksheet Pack
There are 270 photocopiable worksheets. The worksheets are not included in a SMILE Full Class Set or a SMILE Single Copy Set, but are referenced on the SMILE 2001 Network.

Whole class lessons

• Bridging Units	2 units suitable for Year 7.
• Nice Ideas in One Place V.1	25 whole class activities, suitable for KS3.
• Nice Ideas in One Place V.2	20 whole class activities, suitable for KS3.
• Reasoning	27 whole class activities, suitable for KS3.
• Revision through Groupwork	9 topics allowing for differentiation.
• Whole Class Maths Projects	8 whole class projects, suitable for KS3/4.

Assessment

• Assessment Pack	Assessment activities and tests.

DfEE Available from **DfEE Publications**
www.dfee.gov.uk
Tel: 0845 0622260

MA Posters Available from **Maths Association**
259 London Road
Leicester
LE2 3BE
Tel: 0116 270 3877

SMILE software Available from **SMILE Mathematics**
108a Lancaster Road
London
W11 1QS
Tel: 020 7598 4841

TARQUIN Available from **Tarquin Publications**
Stradbroke,
Diss
Norfolk
IP21 5JB
Tel: 01379384 218

SMILE MATHEMATICS
Isaac Newton Centre
108A Lancaster Road
London W11 1QS
Tel 020 7598 4841
Fax. 020 7598 4838
Email. info@smilemathematics.co.uk
Web. www.smilemathematics.co.uk

ACTIVITY LIST

Smile 0001 - 2403

SMILE
MATHEMATICS

Abbreviations used, in alphabetical order.

Abbr	AT	Flow
3-D	AT3	3-D
A&P	AT3	Area and Perimeter
Add	AT2	Addition
AIDa	AT4	Analysing and Interpreting Data
Alg	AT2	Algebraic Structure
Ang	AT3	Angle
APr	AT3	Angle Properties
CDa	AT4	Collecting Data
CiM	AT3	Circle Measurement
Coo	AT3	Coordinates
CTr	AT3	Combined Transformations
DDa	AT4	Displaying Data
Dec	AT2	Decimals
Div	AT2	Division
DNo	AT2	Directed Number
Dra	AT3	Drawing
Equ	AT2	Equations
Fra	AT2	Fractions
Gra	AT2	Graphs
L&S	AT4	Logic and Sets
Map	AT2	Mappings
Mea	AT3	Measurement
Mix	AT2	Mixed
Mul	AT2	Multiplication
Or/R	AT2	Ordering and Rounding
O.R.		Other Resources
P&R	AT2	Powers and Roots
PaG	AT2	Patterns and Generalisations
Per	AT2	Percentages
PNo	AT2	Properties of Number
Pro	AT4	Probability
PSh	AT3	Properties of Shape
PV/N	AT2	Place Value/Number Systems
Rat	AT2	Ratio
Ref	AT3	Reflection
ReP.		Resource Programs
Rot	AT3	Rotation
S/En	AT3	Similarity/Enlargement
SA/V	AT3	Surface Area/Volume
Seq	AT2	Sequences
Sha	AT3	Shape
Sub	AT2	Subtraction
Top	AT3	Topology
Tr/V	AT3	Translation/Vectors
Trig	AT3	Trigonometry
UGr	AT2	Using Graphs

Other Abbreviations (lower case)
Any activity with abbreviations in **lower case** indicates that the activity is a SMILE activity.

w/s denotes worksheet

(box) SMILE activities that are not usually stored with the Workcards or Worksheets. Written in **lower case letters** in brackets.
e.g. (poster)

(Calculating) Activities which can be found in SMILE 1783 *Calculating Booklet* with page number of activity.

Other Abbreviations (UPPER CASE)
Any activity with abbreviations in **upper case** indicates that the activity is a Commercial Reference and **not included** when you purchase SMILE materials.

(ANGLE) SMILE software 'Angle Estimation'
(COORD) SMILE software 'Coordinates'
(DfEE) Software from DfEE
(DIME) Activities from Tarquin Publications
(ENRICH) SMILE software 'Enriching Number'
(GRAPH) SMILE software 'Graphing'
(INVEST) SMILE software 'Investigations'
(MA Poster) Poster from The Mathematics Association
(MATH PUZ) SMILE software 'Mathematical Puzzles'
(MOVE) SMILE software 'Movement'
(NUM) SMILE software 'Numeracy'
(PROP/NO) SMILE software 'Properties of Number'
(PROP/NO Pgx) Page number from the Student's Handbook which can be downloaded from the CD 'Properties of Number'
(SENSE/NO) SMILE software 'Sense of Number'

Please contact SMILE Mathematics (020 7598 4841) for a complete list of the commercially referenced materials on the SMILE Network.

0001 - 0299

0005	Tangram 1	AT3	Sha	4
0007	Tangram 3	AT3	Sha	5
0008	Prisms & Pyramids	AT3	Dra	4
0022	Area 1	AT3	A&P	3
0023	Area 2	AT3	A&P	4
0024	Area 3	AT3	A&P	3
0025	Area 4	AT3	A&P	4
0027	Number Squares w/s	AT2	Equ	1/2
0028	Number Squares 2 w/s	AT2	Equ	1/2
0030	Number Squares 4 w/s	AT2	Add	3
0031	Find the Number 1 w/s	AT2	Equ	1/2
0033	Find the Number 3 w/s	AT2	Equ	3
0034	Find the Number 4 w/s	AT2	Equ	4
0035	Squares and Triangles	AT3	Sha	3
0039	About Angles	AT3	APr	5
0040	Equilateral Triangle	AT3	Sha	4
0046	Domino	AT3	S/En	5
0048	Tetromino	AT3	CTr	4
0050	Dissection 1	AT3	Sha	3
0051	Dissection 2	AT3	Sha	4
0052	Dissection 3	AT3	Sha	4
0053	Dissection 4	AT3	Sha	4
0054	Dissection 5	AT3	Sha	5
0057	Fractions 3 w/s	AT2	Fra	4
0058	Fractions 4 w/s	AT2	Fra	4
0066	Napier's Rods	AT2	Mul	4
0068	Accurate Measuring	AT3	Mea	4
0069	Cardioid w/s	AT2	Seq	4
0070	Isometric Drawing	AT3	3-D	4
0071	Envelopes	AT3	Dra	3
0072	Angles of a Quadrilateral	AT3	APr	5
0073	Time/Distance Graph	AT2	UGr	5
0074	Sum & Product w/s	AT2	Mix	3
0075	Networks	AT3	Top	5
0085	Calculator Problems	AT2	Add	3
0090	More Calculator Problems	AT2	Mul	5
0092	Harder Calculator Problems	AT2	Mix	5
0098	Plaited Cube w/s	AT3	3-D	6
0099	Sum & Product Again w/s	AT2	Mix	3
0104	Number Puzzle 1	AT2	Add	4
0105	7 Piece Tangram	AT3	Sha	5
0114	Nines w/s	AT2	PaG	3
0115	Columns	AT2	PaG	1/2
0119	Area and Perimeter	AT3	A&P	5
0120	Chocolate Areas	AT3	A&P	6
0121	100 Square Patterns w/s	AT2	PaG	1/2
0123	Counter Puzzle	AT4	L&S	4
0131	Matchstick Puzzles	AT3	PSh	4
0133	Out of Line	AT3	L&S	4
0142	Volumes of cubes	AT3	SA/V	6
0143	Volumes 2	AT3	SA/V	6
0144	All out of Line	AT3	Tr/V	6
0145	Tetraflexagon	AT3	3-D	6
0151	More 100 Square Patterns	AT2	PaG	1/2
0153	Decimal Calculations	AT2	Dec	7
0155	Calculator Trial and Error	AT2	Mix	7
0159	Angles of a Triangle	AT3	APr	4
0161	The Three Coin Problem	AT4	Pro	6
0162	2, 3, 4, 5	AT2	Mix	7
0164	Patterns with 11 and 13	AT2	Div	4
0165	Cyclic Quadrilateral	AT3	APr	7
0166	Area of a Triangle	AT3	A&P	5
0167	x for Breakfast	AT2	Map	5
0168	Right Angled Triangles w/s	AT3	A&P	5
0169	Half a Rectangle	AT3	A&P	5
0170	Hex	AT4	L&S	6
0171	TV Drinks	AT2	Map	3
0172	A Match for Anyone	AT2	Map	4
0173	Mapping Machines	AT2	Map	4
0174	Gelosia	AT2	Mul	5
0177	Shearing a Triangle	AT3	A&P	6
0178	Rectangles w/s	AT3	A&P	3
0179	Four 4's	AT2	Mix	8
0181	Alf Mike or Leena	AT2	Map	5
0182	Mappings to Graphs	AT2	Gra	6
0183	Graphs to Mappings	AT2	Gra	6
0184	Number Puzzle w/s	AT2	Equ	6
0185	Which is Larger?	AT3	A&P	4
0187	x for Tea	AT2	Map	6
0188	Checking Pythagoras	AT3	Trig	6
0189	Looking for Right Angles	AT3	Trig	7
0190	Using Pythagoras	AT3	Trig	7
0191	Pythagoras Problems	AT3	Trig	7
0211	Perpendicular Bisectors	AT3	Dra	5
0212	Bisecting an Angle	AT3	Dra	5
0213	The Circumcircle	AT3	Dra	6
0214	Using a Ruler	AT3	Mea	1/2
0215	Drawing the Line	AT2	Gra	6
0220	Triangle Numbers 1	AT2	P&R	4
0221	Triangle Numbers 2	AT2	PNo	5
0224	Area of a Parallelogram	AT3	A&P	6
0226	Shearing Parallelograms	AT3	A&P	6
0227	Parallelogram Problems	AT3	A&P	6
0228	From Parallelogram to Rectangle	AT3	A&P	6
0230	Square Pegs in Round Holes	AT2	P&R	5
0232	Inscribed Circle	AT3	Dra	6
0233	Rectangle Patterns	AT2	PNo	3
0235	Finding Angles of a Triangle	AT3	APr	5
0236	Triangle Problems	AT3	A&P	6
0240	Odds and Evens Tables	AT2	PNo	5
0241	A Secret Code	AT2	Map	1/2
0242	Cracking the Code w/s	AT2	Map	3
0244	More Sorting	AT4	L&S	1/2
0245	Venn Diagrams	AT4	L&S	3
0248	Making Ten	AT2	Add	1/2
0249	How Many Ways?	AT2	Add	1/2
0250	Less Than More Than	AT2	Or/R	3
0251	Mirror Symmetry w/s	AT3	Ref	3
0255	Points and their Images	AT3	Ref	6
0257	Squidge	AT2	Seq	5
0258	Squidgeree	AT2	Seq	5
0259	Shading Fractions w/s	AT2	Fra	3
0261	Co-ordinates 1	AT3	Coo	3
0262	Co-ordinates 2	AT3	Coo	4
0263	Co-ordinates 3	AT3	Coo	4
0264	Cartoon Co-ordinates w/s	AT3	Coo	4
0265	Odd and Even	AT2	PNo	1/2
0267	Angles of a Polygon	AT3	APr	5
0268	Exterior Angles of Polygons	AT3	APr	5
0269	Finding Exterior Angles	AT3	APr	6
0272	Vehicle Survey w/s	AT4	CDa	3
0273	How Much Longer?	AT3	Mea	4
0281	Angles: The Compass	AT3	Rot	3
0284	Angles from Tessellations	AT3	APr	6
0286	Right-angles	AT3	Ang	3
0288	Rolling Two Dice w/s	AT4	Pro	4
0290	Experiments	AT4	Pro	4
0291	Which Set?	AT4	L&S	4
0292	Doubling Patterns w/s	AT2	PaG	4
0294	Measuring Lengths	AT3	Mea	3
0295	Nets of a Cube	AT3	Dra	4
0297	More Rectangle Numbers	AT2	PNo	3
0298	Square Numbers	AT2	P&R	4
0299	Three Squared	AT2	P&R	5

0301 - 0799

0307	Factors	AT2	PNo	4
0308	Prime Numbers	AT2	PNo	5
0310	Common Factors	AT2	PNo	5
0311	Factor Finder	AT2	PNo	5
0313	Spots in Sequences	AT2	Seq	3
0314	Dots in Sequences	AT2	Seq	5
0315	Staircases	AT2	Seq	6
0316	Counting On w/s	AT2	Seq	3
0317	Sequences of Numbers	AT2	Seq	4
0320	Turning Patterns	AT3	Rot	3
0322	Cutting up Rectangles	AT3	Sha	1/2
0323	Metre and Centimetre	AT3	Mea	3
0324	Rotations	AT3	Rot	3
0326	Tessellations of Quadrilaterals	AT3	Sha	6
0327	Centres of Rotation w/s	AT3	Rot	5
0330	Multiple Patterns	AT2	PNo	5
0331	Prime Factors	AT2	PNo	6
0333	Equivalent Fractions	AT2	Fra	4
0334	Egyptian Numbers	AT2	PV/N	3
0338	Summing the Odds	AT2	PNo	5
0339	Vector Messages	AT3	Tr/V	4
0340	Is It Rigid?	AT3	PSh	6
0341	Nodes w/s	AT3	Top	5
0342	About Nodes	AT3	Top	7
0344	Counter Hopping Puzzle	AT2	PaG	7
0346	Sequences in Squares w/s	AT2	Seq	4
0348	Tangram Teasers	AT3	Sha	5
0349	Tetrahedron Nets	AT3	Dra	4
0352	Table Squares w/s	AT2	Seq	4
0353	Bowling Tom	AT2	Add	1/2
0354	Tom the Bowling Champ w/s	AT2	Add	3
0355	Bowling Tom's Problem	AT2	Add	3
0359	How Many Colours? w/s	AT3	Top	4
0362	No Brakes Bruce	AT2	UGr	6
0364	Using a Triangle	AT3	PSh	6
0365	A Million	AT2	Mix	5
0366	2-Piece Square	AT3	PSh	4
0367	Fraction Wall w/s	AT2	Fra	5
0376	A Hundred	AT2	PV/N	4
0377	Vector Sea	AT3	Tr/V	4
0381	Cuboids from Matchboxes	AT3	SA/V	6
0383	Building Shapes w/s	AT2	Seq	5
0384	Changing Grids w/s	AT3	Coo	4
0386	Think of a Number	AT2	Map	4
0388	Power	AT2	P&R	6
0390	Surfaces w/s	AT4	L&S	3
0392	Circumference	AT3	CiM	5
0394	Concentric Circles	AT3	Dra	4
0396	Hexagons w/s	AT2	Fra	4
0397	Operations	AT2	Alg	8
0398	4 + 3 x 2	AT2	Mix	5
0399	Cubes	AT3	SA/V	8
0400	Folding Symmetry	AT3	Ref	1/2
0402	Adding Fractions	AT2	Fra	6
0404	Solids w/s	AT3	3-D	3
0406	Two Folds	AT3	Ref	1/2
0411	Hexagon Dissection	AT3	Sha	5
0414	Bi-Fractions	AT2	PV/N	EP
0423	Clock Arithmetic	AT2	PV/N	3
0424	How Many Routes? w/s	AT3	Top	4
0426	Traversable?	AT3	Top	6
0428	One Difference Logichains	AT4	L&S	3
0429	Squaring	AT2	P&R	5
0430	Parallel Lines	AT2	Gra	6
0432	Moving Pictures	AT3	CTr	5
0433	Acute/Obtuse	AT3	APr	6
0437	Chess	AT2	PaG	5
0439	Rectangle Diagonal	AT2	PaG	7
0443	Who Won?	AT2	Fra	6
0448	Favourite Colours w/s	AT4	DDa	1/2
0450	Trick or Treat	AT2	Seq	6
0452	Inside or Outside?	AT3	Top	5
0453	What Can I Wear?	AT4	Pro	5
0454	Post Box	AT3	Trig	EP
0455	Midpoints	AT3	PSh	5
0456	Midpoint Sequences w/s	AT3	Dra	3
0457	Number Pictures	AT2	Add	1/2
0458	Adding Numbers	AT2	Add	1/2
0459	Adding Shapes	AT2	Add	1/2
0460	Carry on Adding	AT2	Add	3
0461	Venus Clock	AT2	Alg	4
0463	Paper Power	AT2	P&R	7
0464	Subtracting	AT2	Sub	1/2
0465	Subtraction	AT2	Sub	3
0467	Subtract	AT2	Sub	1/2
0470	Nephroid w/s	AT2	Seq	5
0471	Border Patterns	AT3	Tr/V	1/2
0472	Sort the Cards	AT4	L&S	6
0474	Triominoes	AT2	PNo	4
0475	All Change	AT4	L&S	4
0476	Mapping w/s	AT2	Map	5
0477	Shunting	AT4	L&S	8
0478	Patterns with Squares	AT3	CTr	1/2
0481	Where's that Town?	AT3	Coo	5
0483	Star Puzzle	AT2	PaG	5
0484	Octahedron Nets	AT3	Dra	5
0485	Pamphlets	AT2	Equ	8
0489	Underground	AT2	Mix	4
0492	The Inseparables	AT3	Top	7
0493	Sam Shape w/s	AT3	PSh	1/2
0494	All Co-ordinates	AT3	Coo	5
0495	Routey	AT3	Top	5
0496	Junior Contig	AT2	Mix	4
0510	Radar w/s	AT3	Ang	5
0516	Adding Directed Numbers	AT2	DNo	6
0517	Subtracting Directed Numbers	AT2	DNo	7
0518	(Do it first)	AT2	Mix	5
0528	Multiplying	AT2	Mul	4
0549	Marbles	AT2	DNo	5
0550	Adding Shifts w/s	AT2	DNo	5
0557	A Special Number	AT2	PV/N	EP
0560	Symmetrical Cross Cut	AT3	Ref	6
0563	Digit Sum	AT2	Seq	8
0574	Line of Best Fit	AT4	DDa	7
0577	Reflect w/s	AT3	Ref	6
0579	Two Loops	AT4	L&S	3
0581	Using a Mirror (DIME)	AT3	Ref	6
0585	Three Loops	AT4	L&S	4
0590	Less Marks are Best!	AT3	Mea	7
0591	Counter Placing	AT4	L&S	6
0592	Powerful Rules	AT2	P&R	7
0595	Best Fitting Peg	AT3	SA/V	EP
0597	Sunita's Day	AT3	Mea	3
0600	In your Mind	AT4	L&S	7
0603	Numbering the Pages	AT2	PaG	6
0614	Powers of Ten w/s	AT2	P&R	7
0616	The Unknown Square	AT2	Alg	7
0617	Looking Around w/s	AT3	3-D	1/2
0629	Time Tiles	AT3	Mea	4
0634	Sidings	AT4	Pro	6
0674	A Hungry Death?	AT4	L&S	5
0675	Cube Cuts	AT3	CTr	7
0677	Logic Maps	AT4	L&S	5
0683	Fraction Sort	AT2	Fra	6
0684	Forty Towers	AT4	Pro	7
0689	Random Code	AT2	Equ	6
0691	And now Swahili	AT2	Equ	5
0694	Which Switches?	AT4	Pro	5
0695	Locate the Error	AT3	CTr	4
0696	Number Codex	AT2	Equ	6
0697	Hidden Shapes w/s	AT3	PSh	5
0705	Cross Puzzles w/s	AT2	Mix	3
0709	Reflection	AT3	Ref	5
0713	Jumping Jack w/s	AT2	Seq	1/2
0719	Cuboid Nets	AT3	Dra	6
0720	Nets of Pyramids	AT3	Dra	7
0721	Squares Tangram	AT3	Sha	5
0722	Prove It	AT2	Alg	EP
0725	Race Track w/s	AT3	Tr/V	6
0727	Who's Who?	AT4	L&S	5
0730	Rotation w/s	AT3	Rot	5
0731	Regular Polygons	AT3	APr	8
0732	Ruler, Pencil, Compass	AT3	Dra	5
0734	Start with a^2	AT2	Alg	8
0735	Knots w/s	AT2	Mul	3
0736	Solving Equations	AT2	Equ	7
0737	What Chance?	AT4	Pro	6
0738	Family of Quadrilaterals	AT3	PSh	8
0740	Solve it	AT2	Equ	6
0741	The 38th Triangle Number	AT2	Alg	EP
0743	Solving by Graphs	AT2	Gra	7
0744	Equations and Graphs	AT2	Gra	7
0745	Inverses	AT2	Map	7
0746	Pascal's Triangle	AT4	Pro	7
0748	The Times Crossword	AT2	PNo	7
0749	Three Numbers	AT2	Mix	5
0750	Monopoly	AT4	Pro	6
0752	Repeating Digits	AT2	Div	6
0755	Rectangles to Regions	AT2	Gra	8
0756	Points of Intersection	AT2	Equ	EP
0757	Centigrade and Fahrenheit	AT2	Equ	7
0758	Odd One Out	AT2	Div	5
0760	Quickly to Zero	AT2	Div	6
0761	Orbits	AT3	CiM	7
0772	Angle Estimation	AT3	Ang	5
0775	Measuring Angles	AT3	Ang	4
0776	Drawing Angles	AT3	Ang	4
0777	Satelite Signals w/s	AT3	Ang	5
0778	Tangrams (MA poster)	AT3	Sha	5
0780	Long Mult. Revision	AT2	Mul	5
0781	The Inverse	AT2	Map	5
0782	Number Pattern Proof	AT2	PaG	EP
0783	Cubes from Triangles	AT2	PaG	7
0784	142857 Times Table	AT2	PaG	6
0788	Free Hand Angles	AT3	Ang	5
0789	Gradient	AT2	Gra	8
0791	A Millionaire	AT2	Rat	7
0792	Wage Bargaining	AT2	Per	5
0793	Approximation and π	AT3	CiM	EP
0794	The Trapezium	AT3	A&P	7
0796	Darts Probability	AT3	CiM	EP
0797	Matrices and Transformations	AT3	CTr	8

0800 - 1430

0800	Polygons: Interior Angles	AT3	APr	6
0804	Inflation	AT2	Per	8
0805	Average Pack of Workcards	AT4	AlDa	7
0806	Trapezium to Parallelogram	AT3	A&P	7
0808	Code Breaking	AT4	AlDa	5
0809	Fold It	AT3	APr	5
0812	Irregular Areas	AT3	A&P	8
0813	Sectors of Circles	AT3	CiM	EP
0817	Straight Line Graphs	AT2	Gra	7
0818	Differences Between Squares	AT2	Alg	7
0819	Prove Your Identity	AT2	Alg	EP
0820	Equations from Squares	AT2	Alg	EP
0824	Golden Rectangle	AT2	Rat	8
0827	Clover Leaf	AT3	CiM	EP
0830	Re-Grouping	AT2	Alg	6
0831	Primes and Proof	AT2	PNo	EP
0832	Short Division	AT2	Div	3
0833	Short Division-Carrying	AT2	Div	4
0834	Dividing Strips	AT2	Div	3
0837	Inverse Mappings	AT2	Map	7
0838	Scale Factor	AT3	S/En	6
0839	Rotate this way w/s	AT3	Rot	6
0843	Very Large Numbers	AT2	P&R	8
0844	Very Small Numbers	AT2	P&R	8
0845	Negative Scale Factor	AT3	S/En	8
0849	Anywhere on the Number Line w/s	AT2	Alg	6
0850	Multiplication Problem?	AT2	Mul	5
0851	Tile Patterns	AT3	Sha	1/2
0852	Colouring Triangles	AT4	Pro	1/2
0853	Grids	AT3	Coo	4
0854	Perimeter	AT3	A&P	3
0855	How Long?	AT3	Mea	3
0857	It's Raining	AT4	AlDa	1/2
0859	Triangle Pairs	AT3	PSh	3
0860	The Same Area	AT3	A&P	4
0861	Triangle Spirals	AT2	Seq	4
0862	Square Spirals	AT2	Seq	3
0863	Deal the Cards	AT2	Div	3
0864	People in Villages	AT4	DDa	3
0866	Sharing Counters	AT2	Div	3
0867	Dividing Counters	AT2	Div	3
0868	Evens w/s	AT2	PNo	1/2
0869	Puzzle w/s	AT2	Mix	1/2
0870	Find the Stranger	AT4	L&S	4
0872	How Heavy?	AT3	Mea	3
0876	Identities	AT2	Alg	7
0877	Angle 4 Review	AT3	APr	6
0881	24 Squares w/s	AT2	Div	3
0882	Lies, Damned Lies & Statistics	AT4	AlDa	EP
0884	Positive or Negative?	AT2	DNo	6
0885	Number Noughts & Crosses	AT2	Add	3
0889	Old Oak	AT2	UGr	4
0894	Force Meet	AT3	Tr/V	8
0895	Jumps w/s	AT2	Mul	3
0896	How Thick?	AT3	Mea	6
0897	Statistics 3 Review	AT4	AlDa	5
0899	Time Bingo	AT3	Mea	1/2
0900	24 Hour Bingo	AT3	Mea	3
0903	Millions	AT2	Mix	6
0904	Carry on Subtracting	AT2	Sub	3
0905	Domino Puzzle	AT4	L&S	7
0906	Tak Tiles A (DIME)	AT3	Sha	1/2
0907	Tak Tiles B (DIME)	AT3	Sha	1/2
0908	Tak Tiles C (DIME)	AT3	Sha	1/2
0909	Tak Tiles D (DIME)	AT3	Sha	3
0982	Letters for Lengths	AT2	Equ	7
1007	Cumulative Frequency and Q'tiles	AT4	AlDa	8
1011	Dividing in a Given Ratio	AT3	Tr/V	EP
1013	Vector Magnitudes	AT3	Tr/V	8
1028	Isometries	AT3	CTr	EP
1081	Puzzles	AT2	Equ	5
1094	Volume of Prisms	AT3	SA/V	7
1095	Percentages w/s	AT2	Per	5
1096	Marks to Percentages w/s	AT2	Per	6
1097	Fractions to Percentages	AT2	Per	6
1101	Pie Charts	AT4	DDa	6
1112	Rotation	AT3	Rot	6
1115	Graphs	AT4	UGr	5
1123	Translation	AT3	Tr/V	6
1127	Time-Distance Graphs	AT2	UGr	7
1130	Journeys	AT3	Ang	7
1132	What's the Probability?	AT4	Pro	5
1136	Solving Equations	AT2	Equ	7
1137	Solving Harder Equations	AT2	Equ	8
1156	Transformations	AT3	CTr	8
1170	Compass Constructions	AT3	Dra	6
1177	Vectors	AT3	Tr/V	EP
1178	More Vectors	AT3	Tr/V	EP
1179	Column Vectors	AT3	Tr/V	EP
1202	Significant Figures	AT2	Or/R	7
1208	Percentage Sales	AT2	Per	7
1233	Frequency Graphs	AT4	AlDa	6
1257	Volume of Cuboids	AT3	SA/V	7
1258	The Biggest Vase	AT3	SA/V	8
1259	Lengths of Similar Objects	AT3	S/En	8
1261	Similar Solids	AT3	S/En	EP
1267	Cum. Freq. from Grouped Data	AT4	AlDa	8
1269	Probability	AT4	Pro	7
1272	Comb Probs from Tree Diagrams	AT4	Pro	EP
1275	Vol and Surface Area of Cylinders	AT3	SA/V	7
1278	Multiplying Directed Numbers.	AT2	DNo	7
1279	Dividing Directed Numbers	AT2	DNo	7
1281	Using Gradients	AT2	UGr	EP
1287	Equilateral Construction	AT3	Dra	5
1292	Sampling Shoes	AT4	CDa	5
1294	Cooking Numbers	AT2	Rat	5
1295	Second-hand Cars	AT4	DDa	6
1299	Tangram Arrows w/s	AT3	Sha	4
1300	Measuring Windows	AT2	Dec	5
1301	Three in a Line	AT4	L&S	4
1302	Logi Puzzle	AT4	L&S	6
1304	An Honourable Problem	AT4	L&S	4
1305	Factorials!	AT2	Mix	EP
1306	Decimal Estimation	AT2	Div	5
1307	Sections	AT2	PaG	5
1308	Problems	AT2	Equ	8
1309	More Vector Messages w/s	AT3	Tr/V	5
1312	Matchstick Sequences	AT2	Seq	3
1313	Match Patterns	AT2	Seq	6
1315	International Paper Sizes	AT2	Rat	7
1316	Halving	AT2	Or/R	5
1317	Mult & Div by 10, 100 & 1000 w/s	AT2	Dec	5
1319	Consecutives	AT2	PNo	7
1320	Rectangle Areas	AT3	A&P	6
1321	Prism or Pyramid? w/s	AT3	3-D	4
1322	Solid Shapes	AT3	3-D	3
1323	Tak Tile Areas	AT2	Alg	EP
1324	Pegboard Sums	AT2	Add	1/2
1328	Room to Move	AT3	Mea	5
1329	Journeys	AT3	Tr/V	7
1331	Equal Angles (DIME)	AT3	APr	5
1332	Rotation (DIME)	AT3	Ang	6
1333	Directions (DIME)	AT3	Ang	8
1334	Recognising Solids (DIME)	AT3	3-D	5
1335	Sketching Solids (DIME)	AT3	3-D	6
1336	Turning and Toppling (DIME)	AT3	CTr	6
1337	Reflections (DIME)	AT3	Ref	7
1338	Wedges (DIME)	AT3	CTr	8
1339	Flags (DIME)	AT2	Map	5
1340	Pattern and Notation (DIME)	AT2	Equ	7
1341	Number Machines (DIME)	AT2	Map	6
1342	Mappings and Graphs (DIME)	AT2	Gra	7
1343	Simple Mappings (DIME)	AT2	Map	6
1344	Further Mappings (DIME)	AT2	Map	7
1345	Mastermind	AT4	L&S	8
1348	Look and Guess	AT3	Mea	3
1349	Time Line	AT3	Mea	1/2
1352	Wheels	AT3	Rot	5
1353	A Number of Things	AT2	Mix	3
1354	Euler Solids (MA Poster)	AT3	3-D	7
1355	Halves and Quarters w/s	AT2	Fra	1/2
1356	How Much?	AT2	Add	1/2
1357	Missing Signs	AT2	Mix	4
1358	Joining Multiples w/s	AT2	PNo	1/2
1359	Joining Odds and Evens w/s	AT2	PNo	1/2
1360	Pictures from Multiples w/s	AT2	PNo	3
1361	Three in Line	AT2	Add	3
1365	Number Snap	AT2	Mul	3
1366	Pairs	AT2	Mul	1/2
1367	Lines	AT2	PNo	3
1369	Infinity	AT2	Seq	EP
1376	Jobs in Order	AT4	L&S	1/2
1377	Dice	AT3	3-D	4
1378	Mappings	AT2	Map	6
1379	Fishing w/s	AT3	Coo	4
1381	Money	AT2	Mix	1/2
1382	Paper Folding	AT3	PSh	6
1383	Good Guesswork	AT3	Mea	4
1384	Diagonals	AT3	PSh	3
1385	Times Square	AT2	Mul	1/2
1388	Double-Up	AT3	S/En	5
1389	Converging Sequences	AT2	PaG	EP
1390	Multiplication Facts w/s	AT2	Mul	4
1394	Turn the Tables	AT2	PNo	6
1395	Multiplication Table Patterns	AT2	PNo	6
1396	Two Digit Sums	AT2	Alg	EP
1398	Trigg	AT3	Tr/V	6
1399	Babylonian Method	AT2	PV/N	EP
1400	A Transformation Technique	AT3	CTr	EP
1404	Action Equations	AT2	Equ	4
1405	Jump Equations	AT2	Equ	4
1406	Equality and Inequality	AT2	Equ	5
1408	Thermometer Readings	AT3	Mea	4
1409	The Mean	AT4	AlDa	4
1411	Roman Numerals	AT2	PV/N	5
1412	Algebra Puzzle	AT2	Map	7
1413	Twelve Inch Perimeter	AT3	A&P	4
1415	Simple Quadratics	AT2	Equ	8
1417	Tens	AT2	Add	1/2
1418	Series Geometrically	AT2	Seq	EP
1419	Versa-Tiles	AT3	APr	6
1420	Perpendicular Proof	AT2	Alg	EP
1422	Rectangles in Circles	AT3	PSh	4
1423	Calculator Guesses	AT2	Or/R	3
1424	Dividing by Guessing	AT2	Div	5
1426	Decimal Lines	AT2	Dec	4
1427	Triangles in Circles	AT3	PSh	4
1429	Multiples of 3 and 9	AT2	Div	5
1430	Bounce	AT2	Mix	1/2

1432 - 1799

1432	Triangle Patterns	AT2	Seq	6
1433	Base -2	AT2	PV/N	EP
1434	Bearings and Scale Drawing	AT3	Ang	6
1435	Back Bearings	AT3	Ang	7
1436	Block Problems	AT3	SA/V	4
1437	Four Consecutive Numbers	AT2	Alg	EP
1438	Patterns in Pascal's Triangle	AT2	PaG	'7
1439	Geometric Progressions	AT2	PaG	EP
1454	ISBN's and Errors	AT2	Div	6
1456	Matrices for Rotations	AT3	Rot	EP
1457	Combining Rotations	AT3	Rot	EP
1458	Reflection Matrices Investigation	AT3	Ref	EP
1459	Matrices for Shears Investigation	AT3	CTr	EP
1460	Diophantine Equations	AT2	Equ	EP
1461	Figures for Words	AT2	PV/N	4
1462	Missing Keys	AT2	Mix	4
1463	Using brackets w/s	AT2	Mix	6
1482	Tricky Sum (MA Poster)	AT2	PaG	6
1484	Decimal Patterns	AT2	Dec	5
1485	Limits	AT2	Seq	EP
1486	Threes and Sevens	AT2	PaG	8
1487	Thinking in Three Dimensions	AT3	Trig	EP
1488	Angles between Planes	AT3	Trig	EP
1500	Subject of a Formula	AT2	Alg	EP
1501	Changing the Subject	AT2	Alg	EP
1504	Areas under Graphs	AT2	UGr	EP
1511	Defining Regions	AT2	Gra	8
1517	Trig Problems	AT3	Trig	EP
1520	Differences Game	AT2	Sub	1/2
1522	Eight Cubes	AT3	3-D	1/2
1523	A Red Cube	AT3	3-D	4
1524	4 Cube Solids	AT3	3-D	5
1525	Economical Weaving w/s	AT3	Top	4
1528	Fraction Wall 2	AT2	Fra	6
1533	Proportion	AT2	Rat	EP
1537	Sim Equations & Inequalities	AT2	Gra	8
1538	Solving Simultaneous Equations	AT2	Equ	7
1540	Is There a Solution?	AT2	Equ	7
1541	Cones	AT3	SA/V	EP
1543	Composite Functions	AT2	Map	EP
1555	Mystic Rose w/s	AT2	PaG	5
1556	19 Piece Jigsaw	AT2	PV/N	1/2
1557	Spirals w/s	AT3	Dra	3
1559	Areas of Similar Shapes	AT3	S/En	7
1560	Similarity Problems	AT3	S/En	8
1561	Combining Transformations	AT3	CTr	7
1562	Combined Reflections	AT3	Ref	8
1565	Symmetry w/s	AT3	Ref	4
1566	Finding Square Roots	AT2	P&R	5
1568	Velocity from Dist-Time Graphs	AT2	UGr	EP
1569	Distance, Velocity & Acceleration	AT2	UGr	EP
1570	Pounds and Pence w/s	AT2	Dec	5
1572	50% is Half Marks	AT2	Per	5
1589	Square Roots Investigation	AT2	P&R	7
1591	Domino Sums	AT2	Add	5
1592	Two Cuts Investigation w/s	AT3	PSh	4
1604	Nim (MATH PUZ)	AT2	PV/N	8
1605	Guess (SENSE/NO)	AT2	Or/R	1/2
1606	Guess D (SENSE/NO)	AT2	Or/R	5
1607	Elephant (COORD)	AT3	Coo	6
1608	Reverse (MATH PUZ)	AT2	PaG	5
1609	Maze (MOVE)	AT3	CTr	1/2
1613	Calculating Kitty	AT2	Seq	5
1614	Probability Kitty	AT4	Pro	7
1615	Logical Kitty	AT4	L&S	5
1618	Number Names	AT2	PNo	6
1620	Bounce (DfEE)	AT2	PaG	6
1621	Rhino (COORD)	AT3	Coo	4
1622	Vectmeet (MOVE)	AT3	Tr/V	8
1624	Snooker(ANGLE)	AT3	Ang	5
1625	Box (SENSE/NO)	AT2	PV/N	1/2
1626	Boat (MATH PUZ)	AT4	L&S	5
1627	Self Portrait w/s	AT4	L&S	4
1628	Eight Squares	AT3	A&P	3
1629	Pentagons w/s	AT3	Dra	4
1630	Along the Line	AT2	Mix	4
1631	Target 100	AT2	Dec	6
1632	Marked Buttons	AT2	Add	4
1634	Colouring the Dots	AT3	Top	4
1635	The Key to Success w/s	AT2	Mix	3
1636	Calculator Flags w/s	AT2	Mix	3
1637	Squares and Other Powers	AT2	P&R	EP
1638	Tri-umph	AT2	Div	6
1639	Quarto	AT2	Dec	7
1641	Lines (COORD)	AT3	Coo	5
1643	Lucky Dip	AT4	Pro	4
1646	Probability Kitty	AT4	Pro	8
1647	Weaving w/s	AT3	Sha	7
1648	Number Clues	AT2	PNo	3
1649	Walking to School	AT2	Rat	4
1650	Take Part (DfEE)	ReP		
1651	Frogs (MATH PUZ)	AT2	PaG	5
1652	Jugs (MATH PUZ)	AT2	Seq	7
1653	Master (MATH PUZ)	AT4	L&S	7
1654	Race Game (MOVE)	AT3	Tr/V	7
1655	The Factor Game	AT2	PNo	5
1656	The Lost Divide	AT2	Div	6
1657	The Great Divide	AT2	Div	7
1658	The Smith Family Circus	AT2	PNo	7
1659	Mind Reversal	AT2	PaG	5
1660	The Champion Flea	AT2	Rat	7
1662	Get to One	AT2	Mix	5
1663	Largest and Smallest	AT2	PV/N	3
1665	$(x+1)^2$	AT2	Alg	7
1666	Tower (SENSE/NO)	AT2	Fra	6
1667	Pilot (MOVE)	AT3	Ang	6
1668	Mapping Puzzle	AT2	Map	4
1669	Sim w/s	AT3	PSh	1/2
1670	Find the Fakes	AT4	Pro	8
1671	Multiplication Jigsaw (box)	AT2	Mul	1/2
1672	Soma Solids	AT3	3-D	6
1673	HCF and LCM	AT2	PNo	7
1675	Board Order	AT3	CTr	4
1676	Pythagorean Triples	AT2	Equ	EP
1677	Proof by Contradiction	AT2	PNo	EP
1679	Spheres	AT3	3-D	EP
1680	Reflect-a-Bug	AT3	Ref	1/2
1681	Folding	AT3	PSh	EP
1682	Number Jumble	AT2	Alg	8
1683	A Square Puzzle (box)	AT2	Div	3
1684	A Problem of Power	AT2	P&R	8
1685	Milk Crate	AT4	L&S	6
1686	Square	AT3	A&P	7
1687	Change	AT2	Add	3
1688	Square Jigsaw (box)	AT3	CTr	8
1689	Fraction Flags	AT2	Fra	5
1690	Logical Kitty	AT4	Pro	4
1691	Predict (PROP/NO)	AT2	PaG	7
1696	Car Trial Results	AT2	Rat	6
1697	Motor Cycle Ratios	AT2	UGr	8
1698	Identikit	AT3	PSh	5
1699	Fifteen Game	AT2	Add	3
1700	Fitting	AT3	Sha	3
1701	Posthalf (poster)	O.R.		
1702	Circle (INVEST)	ReP.		
1703	Find the Uncle w/s	AT4	L&S	3
1704	Combined Probability	AT4	Pro	8
1706	Think	AT4	L&S	7
1707	Graph Matching	AT2	Gra	8
1708	Factor (PROP/NO)	AT2	PNo	6
1709	Ratio Problems	AT2	Rat	6
1710	Pencils	AT2	Rat	4
1711	Missing Digits w/s	AT2	Mix	6
1712	Four Signs w/s	AT2	Mix	7
1713	Sub-zero	AT2	Sub	4
1714	Queens (MOVE Pg 33)	AT3	Tr/V	6
1715	Locate (COORD)	AT3	Coo	6
1716	Unibond Mixtures	AT2	Rat	7
1717	Add-a-Square w/s	AT3	Ref	5
1718	Line Symmetry A 1-4 (DIME)	AT3	Ref	5
1719	Line Symmetry A 5-10 (DIME)	AT3	Ref	6
1720	Centicube Surprise	AT3	SA/V	5
1721	Angle 90°(ANGLE)	AT3	Ang	4
1722	How Many Cubes?	AT3	SA/V	1/2
1723	Getting Closer	AT2	Div	6
1724	Digit Division	AT2	Dec	6
1725	Closest Product	AT2	Mul	6
1726	Dividing Pairs	AT2	Div	6
1727	Point Circles	AT2	PNo	5
1728	BoxD (SENSE/NO)	AT2	Dec	5
1729	Minimax(SENSE/NO & DfEE)	AT2	PV/N	5
1730	Wall (SENSE/NO)	AT2	Fra	4
1731	Rose (INVEST)	AT2	PaG	6
1732	3-D Maze (MOVE)	AT3	3-D	6
1733	An Even Code w/s	AT2	Map	3
1734	An Islamic Design w/s	AT4	L&S	7
1735	Centimetres	AT3	Mea	1/2
1736	Algebra Pairs	AT2	Alg	8
1737	Route Six	AT2	Fra	6
1738	Calcumaze	AT2	Mul	6
1740	About How Much?	AT3	Mea	4
1741	Make Half	AT3	A&P	5
1742	The Game of 20	AT2	Mul	6
1743	Decimal Products	AT2	Dec	5
1744	Yes/No	AT3	PSh	6
1745	Identify (PROP/NO)	AT2	PNo	5
1746	Define (PROP/NO)	AT2	PNo	6
1747	Darts (NUM)	AT2	Sub	4
1749	Decimal Jigsaw	AT2	Dec	5
1750	Layers	AT3	SA/V	4
1751	Decimal Lists	AT2	Dec	4
1752	Under a Magnifying Glass	AT2	Rat	5
1753	Matching Pairs w/s	AT3	Mea	4
1754	Chinese Number Puzzle (box)	AT2	PV/N	6
1755	Hopslide (MATH PUZ)	AT4	L&S	4
1756	Tadpoles (MATH PUZ)	AT2	PaG	4
1757	Airline Networks	AT3	Top	5
1758	Co-ordinate Messages w/s	AT3	Coo	3
1759	Shapes That Can Grow w/s	AT3	S/En	6
1760	One Straight Cut w/s	AT3	Sha	6
1761	Gelosia Problems w/s	AT2	Mul	6
1762	From A to B	AT3	Trig	7
1763	Circles Triangles and Hexagons	AT3	CiM	EP
1764	Tangled Quadrilaterals	AT3	PSh	6
1765	Two by Two	AT3	3-D	3
1766	Flying Engineers	AT4	L&S	7
1767	Addsupto (NUM)	AT2	Add	5
1768	Zig Zags w/s	AT3	Mea	3
1770	The Lewis Family	AT4	L&S	6
1771	Early Egyptian Fractions	AT2	Fra	7
1772	Four Triangles	AT3	PSh	6
1773	Two Triangles	AT3	PSh	6
1774	Modelling with Graphs	AT2	UGr	8
1775	Partners	AT2	Alg	EP
1776	Spirals (INVEST)	ReP.		
1777	Avoid Each Other (MOVE Pg 30)	AT3	Tr/V	7
1778	Jumping (MATH PUZ)	AT2	PaG	6
1779	Lineover (GRAPH)	AT2	Gra	EP
1782	To be Continued	AT2	Mul	5
1783	Calculating Booklet	O.R.		
1784	Big Wheel	AT3	Trig	EP
1785	Invest. Queens (MOVE Pg 32)	AT2	PaG	7
1786	Which Number?	AT2	PV/N	5
1787	Angle 360° (ANGLE)	AT3	Ang	5
1788	Blocked (poster)	AT4	L&S	8
1790	The Chinese Triangle	AT2	PaG	7
1791	Getting Into Shape (box)	AT3	PSh	4
1792	Feeling Hungry?	AT4	DDa	5
1793	Cuneiform Numbers	AT2	PV/N	EP
1794	Building Cubes	AT3	3-D	6
1795	Identical Halves w/s	AT3	PSh	EP
1796	Plotter (GRAPH)	ReP.		
1798	Quilts (INVEST)	AT2	PaG	6
1799	Boxes w/s	AT2	DNo	4

1800 - 2099

1800	Gelosia for Decimals	AT2	Dec	7
1812	Find Four Squares w/s	AT3	PSh	3
1813	Crossword w/s	AT2	Mix	3
1818	Helicopter Photographs	AT2	UGr	7
1820	Parallels (GRAPH)	AT2	Gra	7
1821	Overtaking	AT2	UGr	7
1822	Product of Primes	AT2	Mul	7
1824	Silver Earrings w/s	AT3	A&P	4
1825	Exactly Ten	AT2	Add	4
1826	y=mx (GRAPH)	AT2	Gra	6
1828	Find the Shape w/s	AT3	PSh	3
1830	The 'Smoothing Out' Principle	AT2	UGr	8
1832	Minimum Information	AT3	Dra	EP
1833	Magic (NUM)	AT2	Mix	6
1834	Tenners (NUM)	AT2	Dec	5
1835	Magnify (SENSE/NO)	AT2	PV/N	5
1836	3 in a Line (COORD)	AT3	Coo	6
1839	Which Card is Missing?	AT4	L&S	1/2
1840	Point And Lines (GRAPH)	AT2	Gra	EP
1841	Interlocking Squares (DIME)	AT3	PSh	1/2
1842	Shapes Jigsaw (DIME)	AT3	PSh	1/2
1843	Polygons and Right Angles	AT3	PSh	8
1844	Straight Lines w/s	AT3	Dra	4
1845	Shading Strips	AT4	Pro	4
1847	Symmetrical Triangles w/s	AT3	Ref	4
1848	Three by Three	AT4	L&S	4
1849	100 Search w/s	AT2	Add	3
1851	Regions (GRAPH)	ReP.		
1852	Foxes & Chickens (GRAPH)	AT2	UGr	EP
1853	Pinball (INVEST)	ReP.		
1855	Quadratic Mappings (DIME)	AT2	Map	7
1856	What Shapes? w/s	AT3	PSh	1/2
1857	The Other Side	AT3	3-D	8
1858	Bengali ৯৯ Piece Puzzle (box)	AT2	PV/N	5
1861	Dipsticks	AT3	SA/V	7
1862	Even Animal w/s	AT2	PNo	1/2
1866	Mirror Match (DIME)	AT3	Ref	5
1867	Four Cubes	AT3	3-D	1/2
1868	Symmetry Match w/s	AT3	Ref	1/2
1872	Back to Back	AT3	3-D	4
1873	Polygon Symmetries	AT3	PSh	7
1874	Sevens Out	AT2	PV/N	3
1875	Urdu Multiples	AT2	PV/N	6
1876	Fill the Shape (DIME)	AT3	3-D	3
1877	Add a Cube or Two (DIME)	AT3	3-D	5
1878	Two Blocks (DIME)	AT3	3-D	4
1879	Build and Balance (DIME)	AT3	3-D	7
1880	More than Two Blocks (DIME)	AT3	3-D	6
1881	Hindi Additions	AT2	PV/N	7
1882	Wedges 1 (DIME)	AT3	3-D	6
1883	Wedges 2 (DIME)	AT3	3-D	8
1885	Optimising	AT3	SA/V	EP
1886	World View	AT3	A&P	6
1889	Regular Tilings 1 (DIME)	AT3	Sha	5
1890	Regular Tilings 2 (DIME)	AT3	Sha	6
1891	Regular Tilings 3 (DIME)	AT3	Sha	6
1892	Line Symmetry B 1-3 (DIME)	AT3	Ref	5
1893	Line Symmetry B 4-6 (DIME)	AT3	Ref	7
1894	Line Symmetry B 7-10 (DIME)	AT3	Ref	7
1896	Spatial Reasoning (DIME)	AT3	Sha	4
1897	Who is the Schoolkeeper?	AT4	L&S	5
1898	Who has the Microcomputer?	AT4	L&S	7
1899	Number Words	AT2	PaG	3
1902	Short, Middle, Long	AT3	Trig	6
1903	Numbers (PROP/NO)	ReP		
1904	Find the Operation w/s	AT2	Alg	7
1905	Sorting Triangles	AT3	S/En	4
1907	About How Long? w/s	AT3	Mea	3
1908	Pattern Pack A (DIME)	AT3	CTr	1/2
1909	Pattern Pack B (DIME)	AT3	CTr	1/2
1911	Dissection Pairs w/s	AT3	Sha	7
1912	Painted Tyres	AT3	Dra	7
1913	Bengali Numbers	AT2	PV/N	5
1914	Adding Counters w/s	AT3	Ref	5
1916	A Domino Trick	AT2	Equ	8
1917	Rising Gradients	AT3	Trig	7
1918	The Coin Problem	AT4	L&S	EP
1919	How many Cm Squares? w/s	AT3	A&P	1/2
1920	Pattern Spotting (PROP/NO Pg 16)	AT2	PNo	3
1921	Trig Lines	AT3	Trig	8
1922	Matrices and Area	AT3	S/En	EP
1927	Pentomino Puzzles	AT3	A&P	5
1928	Four Pentominoes	AT3	S/En	7
1929	Nine Pentominoes	AT3	S/En	8
1931	Which Scripts? (poster)	AT2	PV/N	6
1934	Translations	AT3	Tr/V	7
1935	Angles in a Semi-circle	AT3	APr	7
1936	Many Grids (PROP/NO Pg 25)	AT2	PaG	5
1937	Panjabi Numbers	AT2	PV/N	7
1938	Olympic Medals	AT4	DDa	6
1939	Sin and Cos Graphs	AT3	Trig	EP
1940	Dividing Investigation	AT2	Div	6
1941	Differences	AT2	Seq	8
1942	Growing Patterns w/s	AT3	Dra	1/2
1945	Square Diagonals w/s	AT2	Seq	3
1946	A Problem of Division	AT2	Div	5
1947	3-D Frameworks	AT3	Top	6
1948	$y = ax^2$	AT2	Gra	7
1949	Compass Game	AT3	Rot	3
1950	Diagonal Multiples (PROP/NO Pg 26)	AT2	PNo	7
1951	When x is?	AT2	Gra	8
1952	Reciprocal Graphs	AT2	Gra	8
1953	Sets of Signs	AT4	L&S	6
1954	Line Symmetry	AT3	Ref	5
1955	Rotational Symmetry	AT3	Rot	6
1956	Thinking and Braking	AT2	UGr	8
1958	Ealing Broadway	AT3	Top	6
1959	Making One w/s	AT2	Fra	3
1961	One Million (TARQUIN Poster)	AT2	Mix	6
1966	Curve Stitching (TARQUIN Poster)	O.R.		
1967	One Dice (DIME)	AT4	Pro	6
1968	Numbers Up (DIME)	AT4	Pro	7
1969	Two Dice (DIME)	AT4	Pro	6
1970	Five Beads (DIME)	AT4	Pro	7
1971	Seven Beads (DIME)	AT4	Pro	8
1999	Equiangular Spirals	AT3	Ang	7
2000	Fibonacci & Square Root Spirals	AT2	P&R	8
2002	Real Spirals	O.R.		
2003	Birthday Dates	AT2	Add	1/2
2004	54% is a little more than Half Marks	AT2	Per	6
2006	A Mountain Walk	AT2	Rat	7
2008	Curves of Pursuit (TARQUIN P)	O.R.		
2009	Three Counters (DIME)	AT4	Pro	6
2010	Six Beads (DIME)	AT4	Pro	6
2011	Four Beads (DIME)	AT4	Pro	5
2012	Tessellating Patterns (TARQUIN P)	AT3	Sha	6
2013	Round the Bend	AT3	CiM	6
2014	Probably Probable? (INVESTPg 43)	AT4	Pro	EP
2016	Target 24 - a 3 Digit Problem	AT2	Mix	8
2017	Fair Play	AT4	Pro	4
2018	Drawing the Curve	AT2	Gra	7
2019	Power Match w/s	AT2	P&R	6
2020	High Powered Matching w/s	AT2	P&R	7
2022	Fewest Keys	AT2	Mix	6
2023	Alphabet Symmetry w/s	AT3	CTr	5
2024	Excess Luggage	AT2	Per	7
2027	Similar Triangles	AT3	S/En	8
2028	Integer Graphs	AT2	Gra	EP
2029	Strings	AT2	Seq	8
2031	Spiralling Squares Patterns	AT3	Dra	7
2032	DIY Earrings	AT3	CiM	8
2033	Is it True?	AT4	CDa	5
2034	Likely or unlikely?	AT4	Pro	3
2035	Symmetry Codes w/s	AT3	Ref	5
2036	Fabric Designs	AT3	CiM	EP
2037	3 in 1 Maze (poster)	AT4	L&S	4
2038	Percentage Problems	AT2	Per	EP
2039	Finding Equivalent Fractions	AT2	Fra	5
2040	x^y Experiment	AT2	P&R	7
2041	Going Scientific	AT2	P&R	8
2042	Ans and Exe	AT2	Seq	7
2043	Unit Fraction Patterns	AT2	Fra	7
2044	Matching Graphs	AT2	Gra	EP
2045	Hot and Cold w/s	AT2	DNo	4
2047	Pegs in Squares	AT2	P&R	4
2049	Unpredictable Patterns?	AT2	Seq	8
2050	Vector Areas	AT3	Tr/V	EP
2051	The Log Button	AT2	Mix	EP
2052	Pythagoras Dissection	AT2	Rat	8
2053	Odd Add	AT2	Add	5
2054	Four Sides	AT3	PSh	3
2055	Ellipses by Folding	AT3	Dra	7
2056	Surrounding Right Angled Tris w/s	AT3	Trig	6
2058	Tie w/s	AT3	Dra	7
2059	Domino Patterns	AT2	Map	5
2060	Kit Bag	AT3	CiM	6
2061	Convince Yourself	AT2	Mix	7
2062	Angles in Circles	AT3	APr	8
2063	Islamic Designs	AT3	Dra	5
2064	Russian Multiplication	AT2	Mul	7
2065	Shrinking Earth	AT2	Rat	7
2067	Jeans	AT2	Rat	7
2069	Turn it Over!	AT4	L&S	8
2070	Card Towers	AT2	Seq	6
2071	Half a Cuboid	AT3	3-D	4
2072	Nepali Numbers	AT2	Mix	5
2073	Tricubes (DIME)	AT3	3-D	4
2074	Building with Tricubes (DIME)	AT3	3-D	5
2075	Tricube Plans (DIME)	AT3	3-D	5
2076	Building on a Square (DIME)	AT3	3-D	6
2077	Making a 3 x 3 x 3 Cube (DIME)	AT3	3-D	6
2078	Fibonacci-type Sequences	AT2	Seq	7
2079	A Sketchy Activity	AT2	Gra	8
2081	Inventing Mazes	AT4	L&S	6
2082	Opposite, Adjacent & Hypotenuse	AT3	Trig	8
2083	All about Circles	AT3	CiM	5
2084	Polygon Areas	AT3	A&P	7
2085	Scale Maps	AT3	CTr	EP
2086	Circles to Polygons (INVEST Pg 10)	AT2	PaG	4
2088	What's the Difference? w/s	AT4	L&S	5
2089	Oxford Street w/s	AT3	Top	1/2
2090	Black & Red Triangle Patterns	AT2	PNo	5
2092	What's Recurring?	AT2	Fra	EP
2093	Islamic Patterns in Logo	AT3	CTr	EP
2094	Squares (INVEST Pg 4)	AT2	PNo	3
2095	Squares, Cubes and Roots w/s	AT2	P&R	6
2096	Fraction Playing Cards	O.R.		
2097	Fraction Families	AT2	Fra	4

2100 - 2399

2100	Putting it to the test	AT4	Pro	7
2101	Logiblock Sets	AT4	L&S	7
2103	Circle Packing	AT3	CiM	8
2105	Equal Fraction Pairs	AT2	Fra	3
2106	Party Solutions	AT2	UGr	EP
2107	Oxfam Collection w/s	AT2	Add	4
2109	Another Trig Line	AT3	Trig	8
2110	Number Sort w/s	AT2	PV/N	1/2
2111	Rotational Symmetry Jigsaws	AT3	Rot	4
2112	Imaginings (Teacher)	O.R.		
2113	Mystery (Calculating Pg 3)	AT2	Mix	3
2114	2 Puzzles (Calculating Pg 5)	AT2	Mix	4
2115	Missing Digit (Calculating Pg 8)	AT2	Mix	6
2116	Operations (Calculating Pg 9)	AT2	Mix	4
2117	Rumour (Calculating Pg 10)	AT4	CDa	6
2118	Ticket Sales (Calculating Pg 11)	AT2	Mix	4
2119	Patterns (Calculating Pg 12/13)	AT2	Seq	5
2120	Productive (Calculating Pg 14)	AT2	Mul	5
2121	Hot and Cold (Calculating Pg 15)	AT4	AlDa	4
2122	Target 200 (Calculating Pg 16)	AT2	Mix	5
2123	Missing Signs (Calculating Pg 17)	AT2	Mix	6
2124	Date of Birth (Calculating Pg 18/19)	AT2	Mix	5
2125	Escape (Calculating Pg 20/21)	AT2	PaG	5
2126	Problems (Calculating Pg 22/23)	AT2	Or/R	6
2127	Tricube Codes	AT3	3-D	6
2128	Stacking	AT2	PaG	4
2129	Tens and fives w/s	AT2	Mul	3
2130	A Disappearing Act	AT2	Mix	EP
2131	Filing Cards w/s	AT2	PV/N	3
2132	Cutting Corners	AT3	3-D	7
2133	Out of 100 w/s	AT2	Per	3
2134	Similar Rectangles?	AT2	Rat	6
2135	Grey Areas	AT3	CiM	EP
2136	What could x be?	AT2	Equ	7
2137	Using Sine and Cosine 1	AT3	Trig	8
2138	Which Hand Works Hardest?	AT4	CDa	6
2139	Tricube Symmetries	AT3	Ref	6
2140	Quadratic Solutions	AT2	Gra	EP
2141	Constructive Designs	AT3	Dra	7
2142	Making Circles	AT3	CiM	5
2143	Percentages of Money w/s	AT2	Per	4
2144	Using Sine and Cosine 2	AT3	Trig	8
2145	Cross Stitch	AT3	CTr	7
2146	It's not Fair!	AT3	CiM	4
2147	Odd Animal w/s	AT2	PNo	1/2
2148	Transforming Triangles	AT3	CTr	8
2149	Circle Coverage	AT3	CiM	6
2150	Pizza Paradise	AT3	CiM	7
2151	The Root of the Problem	AT2	P&R	6
2152	How Likely?	AT4	Pro	4
2153	£1 Search w/s	AT2	Add	1/2
2154	Sum Dice	AT2	Mix	6
2155	Visualising	AT3	PSh	5
2156	Fraction Squares	AT2	Fra	6
2157	Some Sums for your Mind w/s	AT2	Mix	7
2158	Turning Green w/s	AT4	L&S	1/2
2159	Permutating Tricubes	AT4	Pro	8
2160	Folding Fractions	AT2	Fra	5
2161	Shape Names w/s	AT3	PSh	5
2162	Angles and Triangles	AT3	APr	6
2163	Geometry Facts	O.R.		
2164	Information Displayed	AT4	DDa	5
2166	Matching Equations	AT2	Gra	8
2167	Range of Area	AT3	Or/R	8
2168	Cube Root Calculator	AT2	P&R	6
2169	Pop of Britain 1880 and 1980	AT4	DDa	7
2170	Shape Up	AT3	PSh	6
2171	Pie Chart Match w/s	AT4	DDa	5
2172	Two Down	AT2	Or/R	4
2173	Unmarked Angles w/s	AT3	APr	6
2174	The Mode w/s	AT4	AlDa	4
2175	Grouping Data	AT4	AlDa	7
2176	Talking (poster)	O.R.		
2177	Population Projections	AT4	AlDa	5
2178	Volumes	AT3	SA/V	5
2179	Shakes and Adders	AT2	DNo	5
2181	Big Hand ... Big Foot?	AT4	CDa	5
2182	Shongo Networks	AT2	PaG	7
2183	Using Standard Form	AT2	P&R	8
2184	Powers of Integers	AT2	P&R	8
2186	Missing Pieces w/s	AT2	Mul	1/2
2187	Pythagoras Plus	AT3	Trig	8
2188	Population Pyramids	AT4	DDa	7
2189	Strange Dice Game	AT4	Pro	4
2190	Twice as Many	AT2	Rat	3
2191	Calculator Graphs	AT2	Gra	7
2192	Solving Quadratic Equations	AT2	Equ	EP
2193	Number Square Words w/s	AT2	PV/N	3
2194	Tossing Coins (INVEST Pg 38 - 40)	AT4	Pro	7
2195	The Higher the Better	AT2	PV/N	1/2
2197	Blue in the Face	AT3	3-D	7
2198	*Testing Dice*	AT4	AlDa	5
2199	Percentage Estimation w/s	AT2	Per	4
2200	Pie Charts for Breakfast	AT4	DDa	5
2201	Vectors and Squares	AT3	Tr/V	7
2202	Visiting Every Point (INVEST Pg 8)	AT2	PNo	5
2203	Algebra Match w/s	AT2	Alg	7
2205	Making 25p	AT2	Add	1/2
2206	Exploring Sine Curves	AT3	Trig	EP
2207	Pinball Experiments	AT4	Pro	7
2208	Best Marks	AT4	AlDa	7
2209	Short Orders	AT2	Alg	5
2210	Handspan	AT4	AlDa	3
2211	Equivalent Expressions w/s	AT2	Alg	7
2212	10 Search w/s	AT2	Add	1/2
2213	Sum Message w/s	AT2	Mix	1/2
2214	Shape Sequences	AT3	CTr	7
2215	Identicubes	AT2	Alg	8
2216	From Matches to Mappings w/s	AT2	Map	5
2217	Magic Circles	AT2	Add	5
2218	Origami Dodecahedron	AT3	3-D	7
2219	Origami Cube	AT3	3-D	5
2220	Trig for any Triangle	AT3	Trig	EP
2221	Jigsaws	AT2	PaG	5
2222	Equal Area? w/s	AT3	A&P	6
2223	Fractions to Decimals Match w/s	AT2	Dec	6
2224	Shajjad's Collection	AT2	Mix	3
2225	Wildlife Collection	AT2	Mix	3
2226	Sum Number Cards	O.R.		
2227	5p a line	AT2	Add	1/2
2228	Vector Match	AT3	Tr/V	6
2229	Quadratics and Primes	AT2	PNo	8
2230	Which has the Largest Area? w/s	AT3	A&P	1/2
2231	Hexiamonds	AT3	PSh	5
2232	Cut a Cube	AT3	3-D	7
2233	Cafe Menu	AT2	Mix	1/2
2234	Defining Regions	AT2	Gra	8
2235	Headlines	AT4	DDa	6
2236	25% of What?	AT2	Per	5
2237	Words Won't Fail Me w/s	AT2	Alg	6
2238	What is the perimeter?	AT3	A&P	1/2
2239	Putting in Order w/s	AT2	PV/N	3
2240	Ask Me Another w/s	AT3	PSh	6
2241	Cuts to Pieces	AT2	PaG	5
2242	Decimal Flags w/s	AT2	Dec	6
2243	Who's Rule, Okay?	AT2	Alg	7
2244	Packing Balls	AT3	SA/V	EP
2245	Rows and Columns	AT2	Add	4
2246	Sieve of Eratosthenes	AT2	PNo	5
2247	More Than, Less Than	AT2	Equ	6
2248	Snails' Trails	AT3	Mea	1/2
2249	Gradients and Intercepts	AT2	Gra	8
2250	A Puzzling Walk (poster)	AT4	L&S	6
2251	Put them in their Place w/s	AT2	Mix	7
2252	Something and a Half w/s	AT2	Fra	1/2
2253	Solving Inequalities	AT2	Equ	7
2254	Calculator Brackets	AT2	Mix	6
2255	Adding One	AT2	Fra	6
2256	Matching Fractions w/s	AT2	Fra	3
2257	Right Angled Triangular Prisms	AT3	SA/V	5
2258	Substituting into Formulae	AT2	Equ	8
2259	Multiplication Flags w/s	AT2	Alg	4
2261	Shape-Tiles w/s	AT3	Tr/V	1/2
2262	Find the Route w/s	AT2	Mix	3
2263	Spreadsheet Squares	AT2	Mul	6
2264	Plus and Minus Grids w/s	AT2	Mix	3
2265	Rational Numbers	AT2	PNo	8
2266	Irrational Numbers	AT2	PNo	EP
2267	Introducing Ratio	AT2	Rat	5
2268	Logo is Amazing	AT3	Ang	4
2269	Amazing Logo	AT3	Ang	5
2270	Measuring Pencils	AT3	Mea	4
2271	I've got the Power	AT2	P&R	8
2272	Lines, Regions and Inequalities	AT2	Gra	7
2273	Looping Chains	AT2	Seq	5
2274	abc w/s	AT2	Alg	5
2275	Algebra Problems	AT2	Equ	8
2276	Curvy Tiles in LOGO	AT3	Dra	6
2277	Brackets	AT2	Alg	7
2278	Mapping Jigsaw w/s	AT2	Map	3
2279	Island Game	AT3	Tr/V	1/2
2280	Equal Angles	AT3	Ang	3
2281	Simultaneous Match	AT2	Gra	7
2283	Jumping	AT3	Mea	3
2284	BoxN (SENSE/NO)	AT2	Or/R	4
2285	GuessN (SENSE/NO)	AT2	Or/R	5
2286	Quadrants and Squares (DIME)	AT2	Alg	4
2287	Add & Sub Squs & Quads (DIME)	AT2	Alg	6
2288	Algebra Tak-Tiles on a Grid (DIME)	AT2	Alg	6
2289	Alg Tak-Tiles without a Grid (DIME)	AT2	Alg	7
2290	A New Unit of Area (DIME)	AT2	Alg	7
2291	Comparing Areas (DIME)	AT2	Alg	7
2292	Towers (box)	O.R.		
2293	Negative Sequences	AT2	Seq	5
2294	Sum, product & difference	AT2	Mix	4
2295	Histograms	AT4	DDa	8
2296	Mapping Rectangles w/s	AT2	Map	3
2297	Harder Negative Sequences	AT2	DNo	7
2300	Fraction Bingo	AT2	Fra	5
2301	Sim Equations from Graphs	AT2	Gra	7
2302	Bearings	AT3	Ang	5
2303	Hundred Fit (box)	AT2	Seq	4
2304	Favourite Ice Cream	AT4	AlDa	3
2305	Hexagon Puzzle w/s	AT2	PV/N	1/2
2306	Patterns on a Line w/s	AT3	CTr	1/2
2307	Triangle Sums Game	AT2	Add	1/2
2308	Word Match w/s	AT3	PSh	1/2
2309	Rangoli Patterns	AT3	Ref	5
2310	Sequences Jigsaw w/s	AT2	Seq	4
2311	Start with 60°	AT3	Dra	6
2312	Number Challenge	AT2	PNo	7
2313	Turning the Cards	AT4	Pro	3
2314	Describing Sequences	AT2	Seq	3
2315	With a ruler	AT3	Mea	3
2318	A Mean Challenge!	AT4	AlDa	7
2319	Pizza or Pasta?	AT4	Pro	4
2320	Patterns in Spirals	AT2	Seq	5
2321	The Algebra Game	AT2	Alg	6
2322	The Algebra Game 2	AT2	Alg	7
2323	Statistical Invs Helpbook	O.R.		
2324	Reckonings (Teacher)	O.R.		
2325	Grouped Data, Reviewed	AT4	AlDa	8
2326	Hanoi (MATH PUZ)	AT2	PaG	7
2327	Hats (MATH PUZ)	AT4	L&S	5
2328	Quadratic Rules	AT2	Alg	7
2329	The Median	AT4	AlDa	4
2330	Missing Angles w/s	AT3	APr	5
2332	Decimals on a Number Line w/s	AT2	Dec	3
2333	Quiz Times w/s	AT2	Mul	3
2334	Beat the code	AT2	Alg	5
2335	Using Decimals	AT2	Dec	3
2336	Comparing Ratios	AT2	Rat	5
2338	Decimal Search w/s	AT2	Dec	4
2339	2 x Table w/s	AT2	Mul	1/2
2340	3 x Table w/s	AT2	Mul	3
2341	4 x Table w/s	AT2	Mul	3
2342	5 x Table w/s	AT2	Mul	3
2343	6 x Table w/s	AT2	Mul	3
2344	7 x Table w/s	AT2	Mul	4
2345	8 x Table w/s	AT2	Mul	4
2346	9 x Table w/s	AT2	Mul	3
2347	10 x Table w/s	AT2	Mul	3
2348	11 x Table w/s	AT2	Mul	3
2349	12 x Table w/s	AT2	Mul	4
2350	End of level Review	AT2/3/4		3
2351	End of level Review	AT2/3/4		4
2352	End of level Review	AT2/3/4		5
2353	End of level Review	AT2/3/4		6
2354	End of level Review	AT2/3/4		7
2355	End of level Review	AT2/3/4		8
2356	End of level Review	AT2/3/4		EP
2357	Matching Algebraic Exps w/s	AT2	Alg	7
2358	Angle Fit w/s	AT3	APr	4
2359	Approximate Solutions	AT2	Or/R	5
2360	Rotational & Line Symmetry Review	AT3	CTr	5
2361	Right-angle or not?	AT3	Ang	1/2
2362	Decimal Routes w/s	AT2	Dec	5
2363	Conversion Pack 1	AT3	Rat	5
2364	Decimal Playing Cards	O.R.		
2365	Higher Decimal Win	AT2	Or/R	5
2366	Decimal Difference	AT2	Dec	6
2367	Sixteen Quadrilaterals	AT3	PSh	5
2368	Matching Decimals	AT2	Or/R	4
2369	Decimal Sort	AT2	Dec	4
2370	Conversion Pack 2	AT3	Rat	6
2371	Rounding to 10	AT2	Or/R	3
2372	Powers of Ten Flags w/s	AT2	Dec	5
2373	Queens (MOVE)	ReP.		
2374	Equivalent Fractions Pairs	AT2	Fra	5
2375	Polygons in Circles	AT3	Dra	6
2376	Maths in Your Head	O.R.		
2377	TenSprint(NUM)	AT2	Add	1/2
2378	Matching Fractions(NUM)	AT2	Fra	5
2379	Ordering Fractions (NUM)	AT2	Fra	5
2380	Number Lines (NUM)	AT2	Rat	4
2381	Number LinesD (NUM)	AT2	Rat	6
2382	Areas of Polygons w/s	AT3	A&P	5
2383	Solid Expressions	AT3	SA/V	8
2384	Angles in a Regular Hexagon w/s	AT3	APr	5
2385	Nine Nine Nine	AT2	PaG	4
2386	Multiplication Review	AT2	Mul	6
2387	Multiples of Ten w/s	AT2	Add	3
2388	Six Pyramids	AT3	Trig	7
2389	Percentages Puzzles w/s	AT2	Per	6
2390	Consecutive Products	AT2	Mul	5
2391	Matching Weights w/s	AT3	Mea	3
2392	Sensible Answers	AT2	Or/R	5
2393	Equivalent Pairs (ENRICH)	AT2	Per	4
2394	Make that Number (ENRICH)	AT2	Per	5
2395	Maximum Remainder (ENRICH)	AT2	Div	5
2396	Find The Line (GRAPH)	AT2	Gra	8
2397	Guess Inequality (GRAPH)	AT2	Gra	8
2398	Decimal Places Match w/s	AT2	Or/R	6
2399	Number Stories	AT2	Mix	3

2400 - 2403

2400	Circle Cut w/s	AT3	CiM	8
2401	Play Your Cards Right	AT2	PNo	3
2402	Equivalent Fractions Sort w/s	AT2	Fra	5
2403	Missing the Point	AT2	Dec	5

SMILE MATHEMATICS

Name _____

Network 1 – 5

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						
Year 9						

Key Stage 3

TA	SAT's

Key Stage 4 Assessment

Year 10						
Year 11						

Target Grade

Predicted Grade

Numbers and the Number System

Place Value, Ordering and rounding

Place Value/ Number Systems

19-Piece Jigsaw
1556

The Higher the Better
2195

Box (SENSE/NO)
1625

Hexagon Puzzle w/s
2305

Number Sort w/s
2110

Ordering and Rounding

Guess (SENSE/NO)
1605

Integers, Powers and Roots

Powers and Roots

Properties of Number

Odd and Even
0265

Even Animal w/s
1862

Odd Animal w/s
2147

Joining Odds and Evens w/s
1359

Evens w/s
0868

Joining Multiples w/s
1358

Directed Number

Fractions, Decimals, Percentages, Ratio and Proportion

Fractions

Halves and Quarters w/s
1355

Something and a Half w/s
2252

Decimals

Percentages

Ratio

Number Operations, C

Addition

Pegboard Sums
1324

Tens
1417

Making Ten
0248

How Many Ways?
0249

Adding Numbers
0458

Adding Shapes
0459

Triangle Sums Game
2307

Birthday Dates
2003

Number Pictures
0457

Bowling Tom
0353

TenSprint (NUM)
2377

10 Search w/s
2212

5p a Line
2227

£1 Search w/s
2153

How Much?
1356

Making 25p
2205

Subtraction

Subtracting
0464

Differences Game
1520

Subtract
0467

Levels 1/2

Filing Cards w/s
2131

Largest and Smallest
1663

Sevens Out
1874 (*)

Number Square Words w/s
2193

Putting in Order w/s
2239

Egyptian Numbers
0334

Clock Arithmetic
0423

Calculator Guesses
1423

Rounding to 10
2371

Less Than More Than
0250

Pictures from Multiples w/s
1360

Rectangle Patterns
0233

More Rectangle Numbers
0297

Pattern Spotting (PROP/NO Pg16)
1920

Number Clues
1648

Lines
1367

Play Your Cards Right
2401

Squares (INVEST Pg4)
2094

Matching Fractions w/s
2256

Shading Fractions w/s
0259

Making One w/s
1959

Equal Fraction Pairs
2105

Using Decimals
2335

Decimals on a Number Line w/s
2332

Out of 100 w/s
2133

Twice as Many
2190

Carry on Adding
0460

100 Search w/s
1849

Number Noughts and Crosses
0885

Number Squares 4 w/s
0030

Multiples of Ten w/s
2387

Fifteen Game
1699

Three in Line
1361

Change
1687

Tom the Bowling Champ w/s
0354

Bowling Tom's Problem
0355

Calculator Problems
0085

Subtraction
0465

Carry on Subtracting
0904

Level 3

Level 4

A Hundred
0376

Figures for Words
1461

Two Down
2172

BoxN (SENSE/NO)
2284

Matching Decimals
2368

Square Numbers
0298

Triangle Numbers 1
0220

Pegs in Squares
2047

Factors
0307

Triominoes
0474

Hot and Cold w/s
2045

Boxes w/s
1799

Hexagons w/s
0396

Fractions 4 w/s
0058

Fraction Families
2097

Equivalent Fractions
0333

Wall (SENSE/NO)
1730

Fractions 3 w/s
0057

Decimal Sort
2369

Decimal Lines
1426

Decimal Lists
1751

Decimal Search w/s
2338

Percentage Estimation w/s
2199

Percentages of Money w/s
2143

Equivalent Pairs (ENRICH)
2393

Pencils
1710

Walking to School
1649

NumberLines (NUM)
2380

Exactly Ten
1825

Multiples of Ten w/s
2387

Marked Buttons
1632 (2)

Number Puzzle 1
0104

Rows and Columns
2245

Oxfam Collection w/s
2107

Darts (NUM)
1747

Sub-zero
1713

Level 5

Roman Numerals
1411

Bengali Piece Puzzle (box)
1858

Which Number?
1786

Bengali Numbers
1913

Magnify (SENSE/NO)
1835

Minimax (SENSE/NO)
1729

Sensible Answers
2392

GuessN (SENSE/NO)
2285

GuessD (SENSE/NO)
1606

Halving
1316

Higher Decimal Win
2365

Approximate Solutions
2359

Three Squared
0299

Square Pegs in Round Holes
0230

Finding Square Roots
1566

Squaring
0429

Prime Numbers
0308

Multiple Patterns
0330 (2)

Sieve of Eratosthenes
2246

Identify (PROP/NO)
1745

Visiting Every Point (INVEST Pg8)
2202

Point Circles
1727 (*)

Triangle Numbers 2
0221

Black and Red Triangle Patterns
2090

The Factor Game
1655

Common Factors
0310

Factor Finder
0311

Odds and Evens Tables
0240

Summing the Odds
0338

Shakes and Adders
2179

Adding Shifts w/s
0550

Marbles
0549

Fraction Bingo
2300

Finding Equivalent Fractions
2039

Matching Fractions (NUM)
2378

Fraction Wall w/s
0367

Equivalent Fraction Pairs
2374

Folding Fractions
2160

Ordering Fractions (NUM)
2379

Fraction Flags
1689 (2)

Measuring Windows
1300

Pounds and Pence w/s
1570

Mult & Div by 10, 100 & 1000 w/s
1317 (2)

Tenners (NUM)
1834

Missing the Point
2403

Powers of Ten Flags w/s
2372

BoxD (SENSE/NO)
1728

Decimal Routes w/s
2362

Decimal Jigsaw
1749

Decimal Products
1743

Decimal Patterns
1484 (2)

50% is Half Marks
1572

Make That Number (ENRICH)
2394

25% of What?
2236

Wage Bargaining
0792

Percentages w/s
1095

Under a Magnifying Glass
1752

Cooking Numbers
1294 (2)

Introducing Ratio
2267

Comparing Ratios
2336

Conversion Pack 1
2363

Magic Circles
2217 (*)

Addsupto (NUM)
1767

Odd Add
2053

Domino Sums
1591

culations

ntal, Written and Calculator Methods

Algebra

Equations, Formulae and Identities

Sequences, Functions and Graphs

Multiplication	Division	Mixed	Algebraic Structure	Equations	Sequences	Pattern/ Generalisation	Mapping	Graphs	Using Gr
Multiplication Jigsaw (box) 1671		Bounce 1430		Number Squares w/s 0027	Jumping Jack w/s 0713	Columns 0115	A Secret Code 0241		
x Table w/s 2339 (2)		Money 1381		Number Squares 2 w/s 0028		100 Square Patterns w/s 0121			
Missing Pieces w/s 2186		Sum Message w/s 2213		Find the Number 1 w/s 0031		More 100 Square Patterns 0151			
Pairs 1366		Café Menu w/s 2233							
Times Square 1385		Puzzle w/s 0869 (2)							

x Table w/s 2340 (2)	Dividing Strips 0834	Find the Route w/s 2262	Sum and Product Again w/s 0099	Find the Number 3 w/s 0033	Counting On w/s 0316	Nines w/s 0114	TV Drinks 0171		
x Table w/s 2342 (2)	24 Squares w/s 0881	Wildlife Collection 2225	Shajjad's Collection 2224		Square Diagonals w/s 1945 (*)	Number Words 1899 (*)	Cracking the Code w/s 0242		
0 x Table w/s 2347 (2)	Deal the Cards 0863	A Number of Things 1353	Mystery (Calculating Pg 3) 2113		Matchstick Sequences 1312		An Even Code w/s 1733		
Tens and Fives w/s 2129	Sharing Counters 0866	Number Stories 2399	Calculator Flags w/s 1636		Describing Sequences 2314		Mapping Jigsaw w/s 2278		
Jumps w/s 0895	A Square Puzzle (box) 1683	Cross Puzzle w/s 0705			Square Spirals 0862		Mapping Rectangles w/s 2296		
Number Snap 1365	Dividing Counters 0867	The Key to Success w/s 1635			Spots in Sequences 0313				
x Table w/s 2341 (2)	Short Division 0832	Crossword w/s 1813							
x Table w/s 2346 (2)		Plus and Minus Grids w/s 2264							
1 x Table w/s 2348 (2)		Sum and Product w/s 0074							
Knots w/s 0735									
Quiz Times w/s 2333									
x Table w/s 2343 (2)									

of level review: Number and Algebra 2350 (2)

x Table w/s 2344 (2)	Short Division Carrying 0833	Sum product & difference 2294	2 Puzzles (Calculating Pg 5) 2114 (*)	Venus Clock 0461	Action Equations 1404	Triangle Spirals 0861	Doubling Patterns w/s 0292	Mapping Puzzle 1668 (2)	Old Oak 0889
x Table w/s 2345 (2)	Patterns with 11 and 13 0164	Operations (Calculating Pg 9) 2116	Underground 0489	Multiplication Flags w/s 2259	Jump Equations 1405	Sequences of Numbers 0317	Stacking 2128 (*)	Think of a Number 0386	
Multiplication Facts w/s 1390		Missing Signs 1357		Quadrants and Squares (DIME) 2286	Find the Number 4 w/s 0034	Hundred Fit (box) 2303	Tadpoles (MATH PUZ) 1756	Mapping Machines 0173	
2 x Table w/s 2349 (2)		Missing Keys 1462				Sequences in Squares w/s 0346	Circles to Polygons (INVEST Pg10) 2086	A Match for Anyone 0172	
Napier's Rods 1066		Along the Line 1630				Sequences Jigsaw w/s 2310	Nine Nine Nine 2385		
Multiplying 1528		Junior Contig 0496				Table Squares w/s 0352			
		Ticket Sales (Calculating Pg 11) 2118				Cardioid w/s 0069			

of level review: Number and Algebra 2351 (2)

To be Continued 1782 (2)	A Problem of Division 1946	(Do it first) 0518 (2)	Date of Birth (Calculating Pg 18/19) 2124	Short Orders 2209	And Now Swahili 0691	Patterns in Spirals 2320	Cuts to Pieces 2241	The Inverse 0781	Graphs 1115
Celosia 1174	Odd One Out 0758	4 + 3 x 2 0398		Beat the Code 2334	Equality and Inequality 1406	Negative Sequences 2293	Many Grids (PROP/NO Pg25) 1936 (*)	Mapping w/s 0476	Time/ Distance Graph 0073
Long Multiplication Revision 1780	Multiples of 3 and 9 1429 (2)	Three Numbers 0749		abc w/s 2274	Puzzles 1081	Nephroid w/s 0470	Mind Reversal 1659	Alf, Mike or Leena 0181	
Multiplication Problem? 1850	Dividing by Guessing 1424	Nepali Numbers 2072				Dots in Sequences 0314	Sections 1307 (*)	Domino Patterns 2059	
More Calculator Problems 1090	Decimal Estimation 1306	Harder Calculator Problems 0092				Patterns (Calculating Pg 12/13) 2119	Mystic Rose w/s 1555 (*)	From Matches to Mappings w/s 2216	
Consecutive Products 1390	Maximum Remainder (ENRICH) 2395	Get to One 1662				Looping Chains 2273 (*)	Frogs (MATH PUZ) 1651 (*)	x for Breakfast 0167	
Productive Calculating (Pg14) 2120		Target 200 (Calculating Pg 16) 2122				Calculating Kitty 1613	Chess 0437	Flags (DIME) 1339 (3)	
		A Million 0365				Squidge 0257	Jigsaws 2221 (*)		
						Squidgeree 0258	Reverse (MATH PUZ) 1608		
						Building Shapes w/s 0383	Star Puzzle 0483		
							Escape (Calculating Pg 20/21) 2125 (*)		

of level review: Number and Algebra 2352 (2)

Geometrical Reasoning

3-D

Eight Cubes
1522

Looking Around w/s
0617

Four Cubes
1867

Shape

Tak Tiles A (DIME)
0906 (2)

Tak Tiles B (DIME)
0907 (2)

Tak Tiles C (DIME)
0908 (2)

Cutting up Rectangles
0322

Tile Patterns
0851

Properties of Shape

Sam Shape w/s
0493

Word Match w/s
2308

Interlocking Squares (DIME)
1841

Shapes Jigsaw (DIME)
1842

What Shapes? w/s
1856

Sim w/s
1669

Angle Properties

Topology

Oxford Street w/s
2089

Similarity/ Enlargement

Transformations

Rotation

Reflection

Folding Symmetry
0400

Two Folds
0406

Symmetry Match w/s
1868

Reflect -a-bug
1680

Translation/ Vectors

Border Patterns
0471

Island Game
2279

Shape Tiles w/s
2261

Combined Transformations

Patterns on a line w/s
2306

Maze (MOVE)
1609

Patterns with Squares
0478

Pattern Pack A (DIME)
1908 (4)

Pattern Pack B (DIME)
1909 (4)

Coordinates

Co-ordinates

Construction & Loci

Drawing

Growing Patterns w/s
1942

Me

Usi Rul 02

Sna Tra 22

Cer 17

Tim 13

Tim 08

Fill the Shapes (DIME)
1876 (2)

Solids w/s
0404

Solid Shapes
1322

Two by Two
1765

Dissection 1
0050

Tak Tiles D (DIME)
0909 (2)

Fitting
1700

Squares and Triangles
0035

Triangle Pairs
0859

Diagonals
1384

Find Four Squares w/s
1812

Four Sides
2054

Find the Shape w/s
1828

Turning Patterns
0320

Rotations
0324

Angles: The Compass
0281

Compass Game
1949

Mirror Symmetry w/s
0251

Co-ordinate Messages w/s
1758

Co-ordinates 1
0261

Envelopes
0071

Midpoint Sequences w/s
0456

Spirals w/s
1557

Zig 17

Hov 08

Witl 23

Jurr 22

Met Cer 03

Mat w/s 23

Abo Lon 19

24 I 09

Loo Gue 13

Mea Len 02

Sun 05

Hov 08

End of level review: Shape, Space and Measurements 2350

Tricubes (DIME)
2073

Back to Back
1872

Two Blocks (DIME)
1878 (3)

A Red Cube
1523

Half a Cuboid
2071

Prism or Pyramid? w/s
1321

Dice
1377

Isometric Drawing
0070

Dissection 2
0051

Dissection 3
0052

Dissection 4
0053 (3)

Tangram 1
0005

Tangram Arrows w/s
1299 (2)

Spatial Reasoning (DIME)
1896 (3)

Equilateral Triangle
0040

Two Cuts Investigation w/s
1592

Rectangles in Circles
1422 (2)

Triangles in Circles
1427 (2)

2-Piece Square
0366

Getting into Shape (box)
1791

Matchstick Puzzles
0131

Angles of a Triangle
0159

Angle Fit w/s
2358

How Many Colours? w/s
0359

Colouring the Dots
1634 (*)

Economical Weaving w/s
1525

How Many Routes? w/s
0424

Sorting Triangles
1905

Rotation Symmetry Jigsaws
2111

Symmetrical Triangles w/s
1847

Symmetry w/s
1565

Vector Messages
0339

Vector Sea
0377

Locate the Error
0695

Board Order
1675

Tetromino
0048

Co-ordinates 3
0263

Rhino (COORD)
1621

Grids
0853

Changing Grids w/s
0384

Cartoon Co-ordinates w/s
0264 (2)

Co-ordinates 2
0262

Fishing w/s
1379

Concentric Circles
0394

Nets of a Cube
0295

Prisms and Pyramids
0008

Straight Lines w/s
1844

Pentagons w/s
1629

Tetrahedron Nets
0349

Acc Mea 00

Mea Per 22

How Lon 02

Tim 06

Mat w/s 17

Abo Muc 17

Goo 13

The Rea 14

Add a Cube or Two (DIME)
1877 (3)

Building with Tricubes (DIME)
2074

4 Cube Solids
1524 (2)

Tricube Plans (DIME)
2075

Recognising Solids (DIME)
1334 (4)

Origami Cube
2219

Dissection 5
0054

Tangram 3
0007

Hexagon Dissection
0411

Tangrams (MA Poster)
0778

7 Piece Tangram
0105 (2)

Regular Tilings 1 (DIME)
1889 (4)

Tangram Teasers
0348

Squares Tangram
0721

Shape Names w/s
2161

Hidden Shapes w/s
0697

Visualising
2155

Sixteen Quadrilaterals
2367 (*)

Hexiamonds
2231

Identikit
1698

Midpoints
0455 (*)

Finding Angles of a Triangle
0235

Angles of a Quadrilateral
0072

About Angles
0039

Angles in a Regular Hexagon w/s
2384

Angles of a Polygon
0267

Exterior Angles of Polygons
0268

Equal Angles (DIME)
1331 (2)

Fold it
0809

Missing Angles w/s
2330

Networks
0075

Airline Networks
1757

Routey
0495

Nodes w/s
0341

Inside or Outside?
0452

Domino
0046

Double Up
1388

Rotations w/s
0730

Centres of Rotation w/s
0327

Wheels
1352

Line Symmetry A 1–4 (DIME)
1718

Add-a-Square w/s
1717

Symmetry Codes w/s
2035

Reflection
0709

Adding Counters w/s
1914

Mirror Match (DIME)
1866 (3)

Line Symmetry B 1–3 (DIME)
1892 (2)

Line Symmetry
1954

Rangoli Patterns
2309

More Vector Messages w/s
1309 (2)

Moving Pictures
0432 (2)

Alphabet Symmetry w/s
2023

Rotational and Line Symmetry Review
2360

Where's that Town?
0481

All Co-ordinates
0494

Lines (COORD)
1641

Octahedron Nets
0484

Ruler, Pencil and Compass
0732

Equilateral Construction
1287

Perpendicular Bisectors
0211

Bisecting an Angle
0212 (2)

Islamic Designs
2063

Roo Mov 13

End of level review: Shape, Space and Measurements 2351 (3)

End of level review: Shape, Space and Measurements 2352 (2)

Handling Data

Measurements and Mensuration

:rement	Area/ Perimeter	Circle Measurement	Surface Area/ Volume	Angle	Trigonometry
	Which has the Largest Area? w/s 2230		How Many Cubes? 1722	Right-angle or not? 2361	
	How Many Centimetre Squares? w/s 1919				
-es	What is the Perimeter? 2238				
(2)					

Planning & Collecting Data

Logic and Sets	Collecting Data
Turning Green w/s 2158	
More Sorting 0244	
Which Card is Missing? 1839	
Jobs in Order 1376	

Processing, Representing & Interpreting Data

Displaying Data	Analysing & Interpreting Data
Favourite Colours w/s 0448	It's Raining 0857

Probability

Probability
Colouring Triangles 0852

Levels 1/2

-s	Area 1 0022			Equal Angles 2280	Find the Uncle w/s 1703	Vehicle Survey w/s 0272 (2)	People in Villages 0864	Handspan 2210 (*)	Likely or Unlikely? 2034	Turning the Cards 2313
-er	Area 3 0024			Right-Angles 0286	One Difference Logichains 0428			Favourite Ice Cream 2304		
	Eight Squares 1628				Two Loops 0579					
	Rectangles w/s 0178				Venn Diagrams 0245					
Weights	Perimeter 0854				Surfaces w/s 0390					
Bingo (2)										
(2)										
Day										

Level 3

	Area 2 0023	It's not Fair! 2146	Layers 1750	Angle 90° (ANGLE) 1721	Three by Three 1848 (*)	Which Set? 0291	Hot and Cold (Calculating Pg 15) 2121	Logical Kitty 1690	Experiments 0290		
	Twelve Inch Perimeter 1413		Block Problems 1436	Measuring Angles 0775	All Change 0475	Three in a Line 1301	The Mode w/s 2174	Shading strips 1845 (*)	Rolling two dice w/s 0288		
	The Same Area 0860			Drawing Angles 0776	Counter Puzzle 0123	3 in 1 Maze (poster) 2037	The Median 2329		Strange Dice Game 2189		
	Which is Larger? 0185			Logo is Amazing 2268	Out of Line 0133	An Honourable Problem 1304	The Mean 1409		Pizza or pasta? 2319		
Pairs	Silver Earrings w/s 1824				Hopslide (MATH PUZ) 1755				Lucky Dip 1643		
w	Area 4 0025				Self-Portrait w/s 1627				Fair Play 2017		
esswork					Find the Stranger 0870				How Likely? 2152		
eter (2)					Three Loops 0585						

End of level review: Handling Data 2350

End of level review: Handling Data 2351 (2)

Level 4

(*)	Pentomino Puzzles 1927 (2)	Circumference 0392 (2)	Volumes 2178	Amazing Logo 2269	Boat (MATH PUZ) 1626 (*)	Big Hand .. Big Foot? 2181	Feeling Hungry? 1792	Testing Dice 2198	Which Switches? 0694	What's the Probability? 1132	
	Area and Perimeter 0119	Making Circles 2142	Right Angled Triangular Prisms 2257	Snooker (ANGLE) 1624	Logical Kitty 1615	Sampling Shoes 1292	Information Displayed 2164	Statistics 3 Review 0897 (2)		What Can I Wear? 0453	
	Right Angled Triangles w/s 0168	All About Circles 2083	Centicube Surprise 1720	Satellite Signals w/s 0777	Who's Who? 0727	Is it true? 2033 (*)	Pie Chart Match w/s 2171	Population Projections 2177		Four Beads (DIME) 2011 (2)	
	Areas of Polygons w/s 2382			Angle 360° (ANGLE) 1787	Logic Maps 0677		Pie Charts for Breakfast 2200	Code Breaking 0808			
	Make Half 1741 (2)			Angle Estimation 0772	Who is the Schoolkeeper? 1897						
	Half a Rectangle 0169			Free Hand Angles 0788	What's the Difference? w/s 2088						
	Area of a Triangle 0166			Radar w/s 0510	A Hungry Death? 0674						
				Bearings 2302	Hats (MATH PUZ) 2327						

End of level review: Handling Data 2352 (2)

Level 5

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

*

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids — To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources — SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

SMILE MATHEMATICS

Name _____

Network 4 - 7

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						
Year 9						

Key Stage 3

TA	SAT's

Key Stage 4 Assessment

						Target Grade
Year 10						
Year 11						**Predicted Grade**

Numbers and the Number System

Place Value, Ordering and rounding

Integers, Powers and Roots

Fractions, Decimals, Percentages, Ratio and Proportion

C

Number Operations,

Place Value/ Number Systems

Ordering and Rounding

Powers and Roots

Properties of Number

Directed Number

Fractions

Decimals

Percentages

Ratio

Addition

Subtraction

Level 4

A Hundred
0376

Figures for Words
1461

Two Down
2172

BoxN (SENSE/NO)
2284

Matching Decimals
2368

Square Numbers
0298

Triangle Numbers 1
0220

Pegs in Squares
2047

Factors
0307

Triominoes
0474

Hot and Cold w/s
2045

Boxes w/s
1799

Hexagons w/s
0396

Fractions 4 w/s
0058

Fraction Families
2097

Equivalent Fractions
0333

Wall (SENSE/NO)
1730

Fractions 3 w/s
0057

Decimal Sort
2369

Decimal Lines
1426

Decimal Lists
1751

Decimal Search w/s
2338

Percentage Estimation w/s
2199

Percentages of Money w/s
2143

Equivalent Pairs (ENRICH)
2393

Pencils
1710

Walking to School
1649

NumberLines (NUM)
2380

Exactly Ten
1825

Multiples of Ten w/s
2387

Marked Buttons
1632 (2)

Number Puzzle 1
0104

Rows and Columns
2245

Oxfam Collection w/s
2107

Darts (NUM)
1747

Sub-zero
1713

Level 5

Roman Numerals
1411

Bengali Piece Puzzle (box)
1858

Which Number?
1786

Bengali Numbers
1913

Magnify (SENSE/NO)
1835

Minimax (SENSE/NO)
1729

Sensible Answers
2392

GuessN (SENSE/NO)
2285

GuessD (SENSE/NO)
1606

Halving
1316

Higher Decimal Win
2365

Approximate Solutions
2359

Three Squared
0299

Square Pegs in Round Holes
0230

Finding Square Roots
1566

Squaring
0429

Prime Numbers
0308

Multiple Patterns
0330 (2)

Sieve of Eratostenes
2246

Identify (PROP/NO)
1745

Visiting Every Point (INVEST Pg8)
2202

Point Circles
1727 (★)

Triangle Numbers 2
0221

Black and Red Triangle Patterns
2090

The Factor Game
1655

Common Factors
0310

Factor Finder
0311

Odds and Evens Tables
0240

Summing the Odds
0338

Shakes and Adders
2179

Adding Shifts w/s
0550

Marbles
0549

Fraction Bingo
2300

Finding Equivalent Fractions
2039

Matching Fractions (NUM)
2378

Fraction Wall w/s
0367

Equivalent Fraction Pairs
2374

Folding Fractions
2160

Ordering Fractions (NUM)
2379

Fraction Flags
1689 (2)

Measuring Windows
1300

Pounds and Pence w/s
1570

Mult & Div by 10, 100 & 1000 w/s
1317 (2)

Tenners (NUM)
1834

Missing the Point
2403

Powers of Ten Flags w/s
2372

BoxD (SENSE/NO)
1728

Decimal Routes w/s
2362

Decimal Jigsaw
1749

Decimal Products
1743

Decimal Patterns
1484 (2)

50% is Half Marks
1572

Make That Number (ENRICH)
2394

25% of What?
2236

Wage Bargaining
0792

Percentages w/s
1095

Under a Magnifying Glass
1752

Cooking Numbers
1294 (2)

Introducing Ratio
2267

Comparing Ratios
2336

Conversion Pack 1
2363

Magic Circles
2217 (★)

Addsupto (NUM)
1767

Odd Add
2053

Domino Sums
1591

Level 6

Urdu Multiples
1875

Chinese Number Puzzle (box)
1754

Which Scripts? (poster)
1931

Problems (Calculating Pg 22/23)
2126

Decimal Place Match w/s
2398

Power
0388 (2)

Power Match w/s
2019

The Root of the Problem
2151

Squares, Cubes and Roots w/s
2095

Cube Root Calculator
2168

Turn the Tables
1394 (2)

Factor (PROP/NO)
1708

Define (PROP/NO)
1746

Multiplication Table Patterns
1395 (2)

Prime Factors
0331

Number Names
1618

Adding Directed Numbers
0516

Positive or Negative?
0884

Fraction Squares
2156

Tower (SENSE/NO)
1666

Who Won?
0443

Adding One
2255

Route Six
1737

Adding Fractions
0402

Fraction Sort
0683

Fraction Wall 2
1528

Fractions to Decimals Match w/s
2223

Decimal Difference
2366

Target 100
1631

Digit Division
1724

Decimal Flags w/s
2242

54% is a little more than Half Marks
2004

Percentage Puzzle w//s
2389

Marks to Percentages w/s
1096

Fractions to Percentages
1097

Ratio Problems
1709 (2)

Conversion Pack 2
2370

Similar Rectangles?
2134

Number Lines D (NUM)
2381

Car Trial Results
1696

Level 7

Hindi Additions
1881

Panjabi Numbers
1937

Significant Figures
1202

Square Roots Investigation
1589

Powerful Rules
0592 (3)

High Powered Matching w/s
2020

Paper Power
0463

Powers of Ten w/s
0614

x^y Experiment
2040

Diagonal Multiples (PROP/NO Pg26)
1950

Consecutives
1319 (★)

The Smith Family Circus
1658 (2)

The 'Times' Crossword
0748 (2)

Number Challenge
2312 (★)

HCF & LCM
1673

Subtracting Directed Numbers
0517

Harder Negative Sequences
2297

Multiplying Directed Numbers
1278

Dividing Directed Numbers
1279

Early Egyptian Fractions
1771 (3)

Unit Fraction Patterns
2043

Gelosia for Decimals
1800

Quarto
1639

Decimal Calculations
0153

Excess Luggage
2024

Percentage Sales
1208

Shrinking Earth
2065

A Mountain Walk
2006

Unibond Mixtures
1716 (2)

Jeans
2067

A Millionaire
0791

The Champion Flea
1660

International Paper Sizes
1315 (2)

:ulations

ıtal, Written and Calculator Methods

Algebra

Equations, Formulae and Identities

Sequences, Functions and Graphs

lultiplication	Division	Mixed	Algebraic Structure	Equations	Sequences	Pattern/ Generalisation	Mapping	Graphs	Using Gra
x Table w/s 2344 (2)	Short Division Carrying 0833	Sum product & difference 2294	Venus Clock 0461	Action Equations 1404	Triangle Spirals 0861	Doubling Patterns w/s 0292	Mapping Puzzle 1668 (2)		Old Oak 0889
x Table w/s 2345 (2)	Patterns with 11 and 13 0164	Operations (Calculating Pg 9) 2116	Multiplication Flags w/s 2259	Jump Equations 1405	Sequences of Numbers 0317	Stacking 2128 (*)	Think of a Number 0386		
lultiplication acts w/s 1390		Missing Signs 1357	Quadrants and Squares (DIME) 2286	Find the Number 4 w/s 0034	Hundred Fit (box) 2303	Tadpoles (MATH PUZ) 1756	Mapping Machines 0173		
2 x Table w/s 2349 (2)		Missing Keys 1462			Sequences in Squares w/s 0346	Circles to Polygons (INVEST Pg10) 2086	A Match for Anyone 0172		
lapier's lods 1066		Along the Line 1630			Sequences Jigsaw w/s 2310	Nine Nine Nine 2385			
lultiplying 1528		Junior Contg 0496			Table Squares w/s 0352				
		Ticket Sales (Calculating Pg 11) 2118			Cardioid w/s 0069				

2 Puzzles (Calculating Pg 5) 2114 (*)

Underground 0489

of level review: Number and Algebra 2351 (2)

o be ontinued 1782 (2)	A Problem of Division 1946	(Do it first) 0518 (2)	Short Orders 2209	And Now Swahili 0691	Patterns in Spirals 2320	Cuts to Pieces 2241	The Inverse 0781	Graphs 1115
elosia 0174	Odd One Out 0758	4 + 3 x 2 0398	Beat the Code 2334	Equality and Inequality 1406	Negative Sequences 2293	Many Grids (PROP/NO Pg25) 1936 (*)	Mapping w/s 0476	Time/ Distance Graph 0073
ong ultiplication levision 1780	Multiples of 3 and 9 1429 (2)	Three Numbers 0749	abc w/s 2274	Puzzles 1081	Nephroid w/s 0470	Mind Reversal 1659	Alf, Mike or Leena 0181	
lultiplication roblem? 1850	Dividing by Guessing 1424	Nepali Numbers 2072			Dots in Sequences 0314	Sections 1307 (*)	Domino Patterns 2059	
lore Calculator roblems 1090	Decimal Estimation 1306	Harder Calculator Problems 0092			Patterns (Calculating Pg 12/13) 2119	Mystic Rose w/s 1555 (*)	From Matches to Mappings w/s 2216	
onsecutive roducts 1390	Maximum Remainder (ENRICH) 2395	Get to One 1662			Looping Chains 2273 (*)	Frogs (MATH PUZ) 1651 (*)	x for Breakfast 0167	
roductive Calculating g14) 2120		Target 200 (Calculating Pg 16) 2122			Calculating Kitty 1613	Chess 0437	Flags (DIME) 1339 (3)	
		A Million 0365			Squidge 0257	Jigsaws 2221 (*)		
					Squidgeree 0258	Reverse (MATH PUZ) 1608		
					Building Shapes w/s 0383	Star Puzzle 0483		

Date of Birth (Calculating Pg 18/19) 2124

Escape (Calculating Pg 20/21) 2125 (*)

of level review: Number and Algebra 2352 (2)

elosia roblems w/s 761	Dividing Investigation 1940 (*)	Calculator Brackets 2254	Add and Subtract Squares and Quadrants (DIME) 2287 (2)	Random Code 0689	Staircases 0315	Numbering the Pages 0603	Number Machines (DIME) 1341 (3)	Mappings to Graphs 0182	No Brakes Bruce 0362
losest Product 725	Dividing Pairs 1726	Using Brackets w/s 1463	Anywhere on the Number Line w/s 0849	Number Puzzle w/s 0184	Match Patterns 1313	Tricky Sum (MA Poster) 1482	x for Tea 0187	Graphs to Mappings 0183	
he Game 20 742	Tri-Umph 1638	Sum Dice 2154	Re-Grouping 0830	More Than, Less Than 2247	Triangle Patterns 1432	Jumping (MATH PUZ) 1778	Simple Mappings (DIME) 1343 (2)	Drawing the Line 0215	
ultiplication eview 386	Getting Closer 1723	One Million (TARQUIN Poster) 1961	Words won't fail me w/s 2237	Number Codex 0696	Trick or Treat 0450 (*)	Quilts (INVEST) 1798	Mappings 1378	y=mx (GRAPH) 1826	
alcumaze 738	The Lost Divide 1656	Missing Digit (Calculating Pg 8) 2115	The Algebra Game 2321	Solve it 0740 (2)	Card Towers 2070	Rose (INVEST) 1731		Parallel Lines 0430	
preadsheet quares 263	Repeating Digits 0752	Missing Digits w/s 1711	Algebra Tak-tiles on a Grid (DIME) 2288 (4)			142857 Times Table 0784			
	Quickly to Zero 0760	Magic (NUM) 1833				Bounce (DIEE) 1620 (*)			
	ISBN's and Errors 1454 (2)	Missing Signs (Calculating Pg 17) 2123							

Millions 0903 (3)

Fewest Keys 2022

of level review: Number and Algebra 2353 (2)

ussian ultiplication 064	The Great Divide 1657	Put them in their Place w/s 2251	Who's Rule Okay? 2243	Solving Equations 0736	Is There a Solution? 1540	Jugs (MATH PUZ) 1652	The Chinese Triangle 1790	Hanoi (MATH PUZ) 2326 (*)	Algebra Puzzle 1412	Drawing the Curve 2018	$y=ax^2$ 1948 (2)	Helicopter Photographs 1818 (2
oduct of mes 822		Four Signs w/s 1712	Algebra Match w/s 2203	Pattern and Notation (DIME) 1340 (3)	Solving Simultaneous Equations 1538	Fibonacci Type Sequences 2078	Cubes from Tnangles 0783 (*)		Inverse Mappings 0837	Mappings and Graphs (DIME) 1342 (4)	Equations and Graphs 0744	Overtaking 1821
		Some Sums for Your Mind w/s 2157	Algebra Tak-Tiles without a Grid (DIME) 2289 (4)	Letters for Length 0982		Ans and Exe 2042	Patterns in Pascal's Triangle 1438 (2)		Inverses 0745	Solving by Graphs 0743 (2)	Straight Line Graphs 0817 (2)	Time Distance Graphs 1127
		Calculator Trial and Error 0155	$(x+1)^2$ 1665	Centigrade and Farenheit 0757 (2)			Shongo Networks 2182 (*)		Further Mappings (DIME) 1344 (2)	Simultaneous Equations from Graphs 2301		
		2, 3, 4, 5 0162	Identities 0876 (2)	Solving Equations 1136 (2)			Investigating Queens (MOVE Pg32) 1785 (*)		Quadratic Mappings (DIME) 1855 (3)	Parallels (GRAPH) 1820		
		Convince Yourself 2061	Differences Between Squares 0818 (3)	Solving Inequalities 2253			Predict (PROP/NO) 1691			Calculator Graphs 2191		
			The Unknown Square 0616	What could x be? 2136			Counter Hopping Puzzle 0344			Lines, Regions and Inequalities 2272		
			Equivalent Expressions w/s 2211				Rectangle Diagonal 0439			Simultaneous Match 2281		

The Algebra Game 2 2322

A New Unit of Area (DIME) 2290 (4)

Find the Operation w/s 1904

Matching Algebraic Expressions w/s 2357

Brackets 2277

Comparing Areas (DIME) 2291 (3)

Quadratic Rules 2328

of level review: Number and Algebra 2354 (2)

Geometrical Reasoning

3-D

Tricubes (DIME) 2073

Back to Back 1872

Two Blocks (DIME) 1878 (3)

A Red Cube 1523

Half a Cuboid 2071

Prism or Pyramid? w/s 1321

Dice 1377

Isometric Drawing 0070

Shape

Dissection 2 0051

Dissection 3 0052

Dissection 4 0053 (3)

Tangram 1 0005

Tangram Arrows w/s 1299 (2)

Spatial Reasoning (DIME) 1896 (3)

Equilateral Triangle 0040

Properties of Shape

Two Cuts Investigation w/s 1592

Rectangles in Circles 1422 (2)

Triangles in Circles 1427 (2)

2-Piece Square 0366

Getting into Shape (box) 1791

Matchstick Puzzles 0131

Angle Properties

Angles of a Triangle 0159

Angle Fit w/s 2358

Topology

How Many Colours? w/s 0359

Colouring the Dots 1634 (★)

Economical Weaving w/s 1525

How Many Routes? w/s 0424

Transformations

Similarity/ Enlargement

Sorting Triangles 1905

Rotation

Rotation Symmetry Jigsaws 2111

Reflection

Symmetrical Triangles w/s 1847

Symmetry w/s 1565

Translation/ Vectors

Vector Messages 0339

Vector Sea 0377

Combined Transformations

Locate the Error 0695

Board Order 1675

Tetromino 0048

Coordinates

Co-ordinates

Co-ordinates 3 0263

Rhino (COORD) 1621

Grids 0853

Changing Grids w/s 0384

Cartoon Co-ordinates w/s 0264 (2)

Co-ordinates 2 0262

Fishing w/s 1379

Construction & Loci

Drawing

Concentric Circles 0394

Nets of a Cube 0295

Prisms and Pyramids 0008

Straight Lines w/s 1844

Pentagons w/s 1629

Tetrahedron Nets 0349

Mea

Accu Mea 006

Mea Perc 227

How Long 027

Time 062

Matc w/s 175

Abou Much 174

Good 138

Ther Reac 140

End of level review: Shape, Space and Measurements 2351 (3)

Add a Cube or Two (DIME) 1877 (3)

Building with Tncubes (DIME) 2074

4 Cube Solids 1524 (2)

Tricube Plans (DIME) 2075

Recognising Solids (DIME) 1334 (4)

Origami Cube 2219

Dissection 5 0054

Tangram 3 0007

Hexagon Dissection 0411

Tangrams (MA Poster) 0778

7 Piece Tangram 0105 (2)

Regular Tilings 1 (DIME) 1889 (4)

Tangram Teasers 0348

Squares Tangram 0721

Shape Names w/s 2161

Hidden Shapes w/s 0697

Visualising 2155

Sixteen Quadrilaterals 2367 (★)

Hexiamonds 2231

Identikit 1698

Midpoints 0455 (★)

Finding Angles of a Tnangle 0235

Angles of a Quadrilateral 0072

About Angles 0039

Angles in a *Regular Hexagon* w/s 2384

Angles of a *Polygon* 0267

Exterior Angles of *Polygons* 0268

Equal Angles (DIME) 1331 (2)

Fold it 0809

Missing Angles w/s 2330

Networks 0075

Airline Networks 1757

Routey 0495

Nodes w/s 0341

Inside or Outside? 0452

Domino 0046

Double Up 1388

Rotations w/s 0730

Centres of Rotation w/s 0327

Wheels 1352

Line Symmetry A 1–4 (DIME) 1718

Add-a-Square w/s 1717

Symmetry Codes w/s 2035

Reflection 0709

Adding Counters w/s 1914

Mirror Match (DIME) 1866 (3)

Line Symmetry B 1–3 (DIME) 1892 (2)

Line Symmetry 1954

Rangoli Patterns 2309

More Vector Messages w/s 1309 (2)

Moving Pictures 0432 (2)

Alphabet Symmetry w/s 2023

Rotational and Line Symmetry Review 2360

Where's that Town? 0481

All Co-ordinates 0494

Lines (COORD) 1641

Octahedron Nets 0484

Ruler, Pencil and Compass 0732

Equilateral Construction 1287

Perpendicular Bisectors 0211

Bisecting *an Angle* 0212 (2)

Islamic Designs 2063

Roo Mov 13

End of level review: Shape, Space and Measurements 2352 (2)

Wedges 1 (DIME) 1882 (3)

More Than Two Blocks (DIME) 1880 (3)

Soma Solids 1672 (2)

Tricube Codes 2127

3-D Maze (MOVE) 1732

Building Cubes 1794

Making a 3 x 3 x 3 Cube (DIME) 2077

Plaited Cube w/s 0098

Tetra-flexagon 0145 (2)

Building on a Square (DIME) 2076

Sketching Solids (DIME) 1335 (4)

Tessellations of Quadrilaterals 0326 (2)

Regular Tilings 2 (DIME) 1890

One Straight Cut w/s 1760

Regular Tilings 3 (DIME) 1891 (4)

Tessellating Patterns (TARQUIN Poster) 2012

Is It Rigid? 0340

Tangled Quadrilaterals 1764

Shape Up 2170

Four Triangles 1772

Two Triangles 1773

Using a Triangle 0364

Yes/No 1744

Paper Folding 1382 (5)

Ask Me Another w/s 2240

Finding Exterior Angles 0269

Versa-Tiles 1419 (2)

Angles from Tessellations 0284

Angles and Triangles 2162

Unmarked Angles w/s 2173

Angle 4 Review 0877 (3)

Acute/Obtuse 0433

Polygons; Interior Angles 0800 (2)

3-D Frameworks 1947

Traversable? 0426

Ealing Broadway 1958 (★)

Shapes that can grow w/s 1759

Scale Factor 0838 (2)

Rotational Symmetry 1955

Rotation 1112 (2)

Rotate This Way w/s 0839

Using a Mirror (DIME) 0581 (3)

Reflect w/s 0577

Tricube Symmetries 2139

Symmetncal Cross Cut 0560

Points and their Images 0255

Line Symmetry A 5–10 (DIME) 1719 (3)

Translation 1123 (2)

Vector Match 2228

Race Track w/s 0725

All out of line 0144

Trigg 1398

Queens (MOVE Pg33) 1714

Turning and Toppling (DIME) 1336 (5)

Locate (COORD) 1715

3 in a line (COORD) 1836

Elephant (COORD) 1607

Cuboid Nets 0719

Start with 60° 2311

The Circumcircle 0213 (2)

Inscribed Circle 0232

Compass Constructions 1170 (2)

Polygons in Circles w/s 2375

Curvy Tiles in Logo 2276 (2)

How 089

End of level review: Shape, Space and Measurements 2353 (3)

Blue in the Face 2197 (★)

Build and Balance (DIME) 1879 (3)

Euler Solids (MA Poster) 1354 (3)

Cutting Corners 2132

Cut a Cube 2232

Origami Dodecahedron 2218

Dissection Pairs w/s 1911

Weaving w/s 1647

Polygon Symmetries 1873 (★)

Angles in a Semi-circle 1935

Cyclic Quadrilateral 0165

About Nodes 0342

The Inseparables 0492 (★)

Four Pentominoes 1928 (2)

Areas of Similar Shapes 1559 (2)

Line Symmetry B 4–6 (DIME) 1893 (2)

Line Symmetry B 7–10 (DIME) 1894 (2)

Reflections (DIME) 1337 (5)

Translations 1934

Race Game (MOVE) 1654

Journeys 1329

Vectors and Squares 2201

Avoiding Each Other (MOVE Pg30) 1777

Combining Transformations 1561 (2)

Shape Sequences 2214 (★)

Cube Cuts 0675 (★)

Cross Stitch 2145 (★)

Nets of Pyramids 0720

Spiralling Squares Patterns 2031

Constructive Designs 2141 (3)

Tie w/s 2058 (2)

Ellipses by Folding 2055

Painted Tyres 1912 (★)

Less are B 059

End of level review: Shape, Space and Measurements 2354 (2)

Handling Data

Measurements and Mensuration

ement

Area/ Perimeter

Area 2
0023

Twelve Inch Perimeter
1413

The Same Area
0860

Which is Larger?
0185

airs

Silver Earrings w/s
1824

Area 4
0025

sswork

ter

(2)

Circle Measurement

It's not Fair!
2146

Surface Area/ Volume

Layers
1750

Block Problems
1436

Angle

Angle 90° (ANGLE)
1721

Measuring Angles
0775

Drawing Angles
0776

Logo is Amazing
2268

Trigonometry

Handling Data

Planning & Collecting Data

Logic and Sets

Three by Three
1848 (*)

All Change
0475

Counter Puzzle
0123

Out of Line
0133

Hopslide (MATH PUZ)
1755

Self-Portrait w/s
1627

Find the Stranger
0870

Three Loops
0585

Which Set?
0291

Three in a Line
1301

3 in 1 Maze (poster)
2037

An Honourable Problem
1304

Collecting Data

Processing, Representing & Interpreting Data

Displaying Data

Analysing & Interpreting Data

Hot and Cold (Calculating Pg 15)
2121

The Mode w/s
2174

The Median
2329

The Mean
1409

Probability

Logical Kitty
1690

Shading strips
1845 (*)

Experiments
0290

Rolling two dice w/s
0288

Strange Dice Game
2189

Pizza or pasta?
2319

Lucky Dip
1643

Fair Play
2017

How Likely?
2152

End of level review: Handling Data 2351 (2)

Level 4

Level 5

*)

Pentomino Puzzles
1927 (2)

Area and Perimeter
0119

Right Angled Triangles w/s
0168

Areas of Polygons w/s
2382

Make Half
1741 (2)

Half a Rectangle
0169

Area of a Triangle
0166

Circumference
0392 (2)

Making Circles
2142

All About Circles
2083

Volumes
2178

Right Angled Triangular Prisms
2257

Centicube Surprise
1720

Amazing Logo
2269

Snooker (ANGLE)
1624

Satellite Signals w/s
0777

Angle 360° (ANGLE)
1787

Angle Estimation
0772

Free Hand Angles
0788

Radar w/s
0510

Bearings
2302

Boat (MATH PUZ)
1626 (*)

Logical Kitty
1615

Who's Who?
0727

Logic Maps
0677

Who is the Schoolkeeper?
1897

What's the Difference? w/s
2088

A Hungry Death?
0674

Hats (MATH PUZ)
2327

Big Hand .. Big Foot?
2181

Sampling Shoes
1292

Is it true?
2033 (*)

Feeling Hungry?
1792

Information Displayed
2164

Pie Chart Match w/s
2171

Pie Charts for Breakfast
2200

Testing Dice
2198

Statistics 3 Review
0897 (2)

Population Projections
2177

Code Breaking
0808

Which Switches?
0694

What's the Probability?
1132

What Can I Wear?
0453

Four Beads (DIME)
2011 (2)

End of level review: Handling Data 2352 (2)

Level 6

World View
1886

Chocolate Areas
0120

Rectangle Areas
1320

Area of a Parallelogram
0224

From Parallelogram to Rectangle
0228

Equal Area? w/s
2222

Triangle Problems
0236 (2)

Shearing Parallelograms
0226

Parallelogram Problems
0227

Shearing a Triangle
0177

Round the Bend
2013

Circle Coverage
2149

Kit Bag
2060

Volume of Cubes
0142

Cuboids from Matchboxes
0381

Volumes 2
0143

Bearings and Scale Drawings
1434 (2)

Pilot (MOVE)
1667

Rotation (DIME)
1332 (3)

Surrounding Right Angled Triangles w/s
2056

Short, Middle, Long
1902

Checking Pythagoras
0188

Inventing Mazes
2081 (2)

The Lewis Family
1770

Counter Placing
0591

Hex
0170 (*)

Sets of Signs
1953

Logi-Puzzle
1302

Milk Crate
1685

Sort the Cards
0472

A Puzzling Walk (poster)
2250 (*)

Rumour (Calculating Pg 10)
2117

Which Hand Works Hardest?
2138

Secondhand Cars
1295 (2)

Headlines
2235

Olympic Medals
1938

Pie Charts
1101 (2)

Frequency Graphs
1233 (2)

Sidings
0634 (2)

The 3 Coin Problem
0161

What Chance?
0737

Monopoly
0750

Three Counters (DIME)
2009

Six Beads (DIME)
2010

One Dice (DIME)
1967

Two Dice (DIME)
1969 (2)

End of level review: Handling Data 2353 (2)

Level 7

Square
1686 (*)

Polygon Areas
2084

Trapezium to Parallelogram
0806

The Trapezium
0794

Pizza Paradise
2150

Orbits
0761

Volume of Cuboids
1257

Volume of Prisms
1094 (2)

Dipsticks
1861

Volumes and Surface Areas of Cylinders
1275 (2)

Equiangular Spirals
1999 (3)

Back Bearings
1435

Journeys
1130 (2)

Using Pythagoras
0190

Looking for Right-Angles
0189

Pythagoras Problems
0191

Six Pyramids
2388 (3)

Rising Gradients
1917

From A to B
1762 (*)

Master (MATH PUZ)
1653

An Islamic Design w/s
1734

Flying Engineers
1766 (2)

Logblock Sets
2101

Think
1706

Who has the Microcomputer?
1898

In Your Mind
0600

Domino Puzzle
0905 (2)

Line of Best Fit
0574

Population Pyramids
2188 (2)

Population of Britain
2169 (3)

Best Marks
2208

Average Pack of Workcards
0805 (3)

A Mean Challenge!
2318

Grouping Data
2175 (2)

Forty Towers
0684

Pascal's Triangle
0746 (4)

Pinball Experiments
2207

Putting it to the test
2100

Probability
1269 (2)

Probability Kitty
1614

Tossing Coins (INVEST Pg 38-40)
2194 (2)

Numbers Up (DIME)
1968 (2)

Five Beads (DIME)
1970 (2)

End of level review: Handling Data 2354 (3)

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

*

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids — To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources — SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

Teacher resources from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1701 Post Half Posters	Good display poster to encourage project work on area and fractions.
2112 Imaginings	A collection of lesson starters and enders, based upon 3-D visualisation.
2176 Talking Poster	Good display poster to encourage mathematical discussion.
2292 Towers (box)	A game for revision for Key Stages 3 & 4, based upon Trivial Pursuit.
2324 Reckonings	A collection of lesson starters and enders, based upon mental mathematics
2376 Maths in Your Head	A collection of lesson starters and enders, based upon mental mathematics

Support materials for students from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1783 Calculating Booklet	Each activity in this booklet has been referenced on the SMILE Network from SMILE 2113 to SMILE 2126.
2002 Real Spirals	A good resource for project work on spirals.
2096 Fraction Playing Cards	A resource for students, also needed for SMILE 2097 and SMILE 2105.
2163 Geometry Facts	This is referenced on many SMILE activities where students need to find definitions of shapes and angles.
2226 Number Playing Cards	A resource for students which is referenced on many SMILE activities where students require number cards.
2323 Statisical Inv. Help Book	A resource for students.
2364 Decimal Playing Cards	A resource for students, also needed for SMILE 2365, SMILE 2366, SMILE 2368 and SMILE 2369.

Additional resources available from SMILE Mathematics

The following SMILE materials do not come as part of the classroom materials, but are for use as whole class lessons, to aid group work and differentiation.

Bridging Units	2 units suitable for Year 7.
Nice Ideas in one place V. 1 & 2	Contains 25 and 20 activities respectively for KS 3 and 4.
Reasonings	Contains 27 activities suitable for KS 3.
Revision through Groupwork	9 topics allowing for differentiation.
Whole Class Projects	8 projects, suitable for KS 3 and 4.

Additional resources from SMILE Mathematics for Assessment

The following pack does not come as part of the classroom materials.

Assessment Pack	Provides starting activities and diagostic tests for Levels 2 to 6

Resource programs from SMILE Mathematics

The following programs do not come as part of the classroom materials.

1650 Take Part (DfEE)
1702 Circle (INVEST)
1776 Spirals (INVEST)
1796 Plotter (GRAPH)
1851 Regions (GRAPH)
1853 Pinball (INVEST)
1903 Numbers (PROP/NO)
2373 Queens (MOVE)

SMILE MATHEMATICS

Name _____

Network 6 - EP

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						**Key Stage 3**
Year 9						TA / SAT's

Key Stage 4 Assessment

						Target Grade
Year 10						
Year 11						**Predicted Grade**

Numbers and the Number System

Level 6

Place Value, Ordering and rounding

Place Value/ Number Systems

Urdu Multiples
1875

Chinese Number Puzzle (box)
1754

Which Scripts? (poster)
1931

Ordering and Rounding

Problems (Calculating Pg 22/23)
2126

Decimal Place Match w/s
2398

Integers, Powers and Roots

Powers and Roots

Power
0388 (2)

Power Match w/s
2019

The Root of the Problem
2151

Squares, Cubes and Roots w/s
2095

Cube Root Calculator
2168

Properties of Number

Turn the Tables
1394 (2)

Factor (PROP/NO)
1708

Define (PROP/NO)
1746

Multiplication Table Patterns
1395 (2)

Prime Factors
0331

Number Names
1618

Directed Number

Adding Directed Numbers
0516

Positive or Negative?
0884

Fractions, Decimals, Percentages, Ratio and Proportion

Fractions

Fraction Squares
2156

Tower (SENSE/NO)
1666

Who Won?
0443

Adding One
2255

Route Six
1737

Adding Fractions
0402

Fraction Sort
0683

Fraction Wall 2
1528

Decimals

Fractions to Decimals Match w/s
2223

Decimal Difference
2366

Target 100
1631

Digit Division
1724

Decimal Flags w/s
2242

Percentages

54% is a little more than Half Marks
2004

Percentage Puzzle w/s
2389

Marks to Percentages w/s
1096

Fractions to Percentages
1097

Ratio

Ratio Problems
1709 (2)

Conversion Pack 2
2370

Similar Rectangles?
2134

Number Lines D (NUM)
2381

Car Trial Results
1696

Number Operations,

Addition

Subtractio

Level 7

Hindi Additions
1881

Panjabi Numbers
1937

Significant Figures
1202

Square Roots Investigation
1589

Powerful Rules
0592 (3)

High Powered Matching w/s
2020

Paper Power
0463

Powers of Ten w/s
0614

x^y Experiment
2040

Diagonal Multiples (PROP/NO Pg26)
1950

Consecutives
1319 (*)

The Smith Family Circus
1658 (2)

The 'Times' Crossword
0748 (2)

Number Challenge
2312 (*)

HCF & LCM
1673

Subtracting Directed Numbers
0517

Harder Negative Sequences
2297

Multiplying Directed Numbers
1278

Dividing Directed Numbers
1279

Early Egyptian Fractions
1771 (3)

Unit Fraction Patterns
2043

Gelosia for Decimals
1800

Quarto
1639

Decimal Calculations
0153

Excess Luggage
2024

Percentage Sales
1208

Shrinking Earth
2065

A Mountain Walk
2006

Unibond Mixtures
1716 (2)

Jeans
2067

A Millionaire
0791

The Champion Flea
1660

International Paper Sizes
1315 (2)

Level 8

Nim (MATH PUZ)
1604

Range of Area
2167 (*)

Very Large Numbers
0843 (2)

Very Small Numbers
0844

Going Scientific
2041

Using Standard Form
2183

I've got the Power
2271

Fibonacci and Square Root Spirals
2000 (2)

A Problem of Power
1684 (*)

Powers of Integers
2184 (*)

Quadratics and Primes
2229

Rational Numbers
2265

Inflation
0804 (3)

Pythagoras Dissection
2052

Golden Rectangle
0824 (4)

Exceptional Performance

Cuneiform Numbers
1793

Bi-Fractions
0414 (*)

A Special Number
0557

Base -2
1433 (*)

Babylonian Method
1399 (2)

Squares and Other Powers
1637

Irrational Numbers
2266

Proof By Contradiction
1677

Primes and Proof
0831 (4)

What's Recurring?
2092 (*)

Percentage Problems
2038

Proportion
1533 (2)

ntal, Written and Calculator Methods

Multiplication

Gelosia Problems w/s
1761

Closest Product
1725

The Game of 20
1742

Multiplication Review
2386

Calcumaze
1738

Spreadsheet Squares
2263

Division

Dividing Investigation
1940 (*)

Dividing Pairs
1726

Tri-Umph
1638

Getting Closer
1723

The Lost Divide
1656

Repeating Digits
0752

Quickly to Zero
0760

ISBN's and Errors
1454 (2)

Mixed

Calculator Brackets
2254

Using Brackets w/s
1463

Sum Dice
2154

One Million (TARQUIN Poster)
1961

Missing Digit (Calculating Pg 8)
2115

Missing Digits w/s
1711

Magic (NUM)
1833

Missing Signs (Calculating Pg 17)
2123

Millions
0903 (3)

Fewest Keys
2022

Equations, Formulae and Identities

Algebraic Structure

Add and Subtract Squares and Quadrants (DIME)
2287 (2)

Anywhere on the Number Line w/s
0849

Re-Grouping
0830

Words won't fail me w/s
2237

The Algebra Game
2321

Algebra Tak-tiles on a Grid (DIME)
2288 (4)

Equations

Random Code
0689

Number Puzzle w/s
0184

More Than, Less Than
2247

Number Codex
0696

Solve it
0740 (2)

Sequences, Functions and Graphs

Sequences

Staircases
0315

Match Patterns
1313

Triangle Patterns
1432

Trick or Treat
0450 (*)

Card Towers
2070

Pattern/ Generalisation

Numbering the Pages
0603

Tricky Sum (MA Poster)
1482

Jumping (MATH PUZ)
1778

Quilts (INVEST)
1798

Rose (INVEST)
1731

142857 Times Table
0784

Bounce (DIEE)
1620 (*)

Mapping

Number Machines (DIME)
1341 (3)

x for Tea
0187

Simple Mappings (DIME)
1343 (2)

Mappings
1378

Graphs

Mappings to Graphs
0182

Graphs to Mappings
0183

Drawing the Line
0215

y=mx (GRAPH)
1826

Parallel Lines
0430

Using Gr

No Brakes Bruce
0362

l of level review: Number and Algebra 2353 (2)

Russian Multiplication
2064

Product of Primes
1822

The Great Divide
1657

Put them in their Place w/s
2251

Four Signs w/s
1712

Some Sums for Your Mind w/s
2157

Calculator Trial and Error
0155

2, 3, 4, 5
0162

Convince Yourself
2061

Who's Rule Okay?
2243

Algebra Match w/s
2203

Algebra Tak-Tiles without a Grid (DIME)
2289 (4)

$(x+1)^2$
1665

Identities
0876 (2)

Differences Between Squares
0818 (3)

The Unknown Square
0616

Equivalent Expressions w/s
2211

The Algebra Game 2
2322

A New Unit of Area (DIME)
2290 (4)

Find the Operation w/s
1904

Matching Algebraic Expressions w/s
2357

Brackets
2277

Comparing Areas (DIME)
2291 (3)

Quadratic Rules
2328

Solving Equations
0736

Pattern and Notation (DIME)
1340 (3)

Letters for Length
0982

Centigrade and Farenheit
0757 (2)

Solving Equations
1136 (2)

Solving Inequalities
2253

What could x be?
2136

Is There a Solution?
1540

Solving Simultaneous Equations
1538

Jugs (MATH PUZ)
1652

Fibonacci Type Sequences
2078

Ans and Exe
2042

The Chinese Triangle
1790

Cubes from Triangles
0783 (*)

Patterns in Pascal's Triangle
1438 (2)

Shongo Networks
2182 (*)

Investigating Queens (MOVE Pg32)
1785 (*)

Predict (PROP/NO)
1691

Counter Hopping Puzzle
0344

Rectangle Diagonal
0439

Hanoi (MATH PUZ)
2326 (*)

Algebra Puzzle
1412

Inverse Mappings
0837

Inverses
0745

Further Mappings (DIME)
1344 (2)

Quadratic Mappings (DIME)
1855 (3)

Drawing the Curve
2018

Mappings and Graphs (DIME)
1342 (4)

Solving by Graphs
0743 (2)

Simultaneous Equations from Graphs
2301

Parallels (GRAPH)
1820

Calculator Graphs
2191

Lines, Regions and Inequalities
2272

Simultaneous Match
2281

$y=ax^2$
1948 (2)

Equations and Graphs
0744

Straight Line Graphs
0817 (2)

Helicopter Photographs
1818 (

Overtaking
1821

Time Distanc Graphs
1127

l of level review: Number and Algebra 2354 (2)

Four 4's
0179 (2)

Target 24-a Three Digit Problem
2016

Start with a^2
0734 (3)

Identicubes
2215

Operations
0397 (2)

Algebra Pairs
1736 (2)

Number Jumble
1682

Solving Harder Equations
1137 (2)

Pamphlets
0485 (2)

Problems
1308 (3)

Substituting into Formulae
2258

Algebra Problems
2275

A Domino Trick
1916

Simple Quadratics
1415 (3)

Digit Sum
0563

Differences
1941 (*)

Unpredictable Patterns
2049

Strings
2029

Threes and Sevens
1486 (*)

Rectangles to Regions
0755

Defining Regions
2234

Gradient
0789 (2)

Matching Equations
2166

Defining Regions
1511 (2)

Gradients and Intercepts
2249

Find The Line (GRAPH)
2396

Graph Matching
1707 (2)

When x is?
1951 (2)

Guess Inequality (GRAPH)
2397

Reciprocal Graphs
1952 (2)

A Sketchy Activity
2079

Sim. Equations & Inequalities
1537

Thinking and Braking
1956

The 'Smooth Out' Principle
1830

Motor-Cycle Ratios
1697 (

Modelling wit Graphs
1774 (

of level review: Number and Algebra 2355 (3)

Factorials!
1305

A Disappearing Act
2130

The Log Button
2051

Two Digit Sums
1396 (2)

Equations from Squares
0820 (3)

Tak Tile Areas
1323

Prove your Identity
0819 (2)

The 38th Triangle Number
0741

Prove it
0722

Subject of a Formula
1500

Perpendicular Proof
1420

Partners
1775

Changing the Subject
1501

Four Consecutive Numbers
1437

Points of Intersection
0756 (3)

Solving Quadratic Equations
2192 (3)

Pythagorean Triples
1676 (2)

Diophantine Equations
1460 (3)

Infinity
1369 (7)

Limits
1485 (2)

Series Geometrically
1418 (3)

Number Pattern Proof
0782

Geometric Progression
1439 (2)

Converging Sequences
1389 (2)

Composite Functions
1543 (2)

Quadratic Solutions
2140

Matching Graphs
2044

Lineover (GRAPH)
1779

PointAndLines (GRAPH)
1840

Integer Graphs
2028

Using Gradients
1281

Foxes and Chickens (GRAPH)
1852

Party Solutions
2106

Areas Under Graphs
1504 (

Velocity from Distance Time Graphs
1568 (

Distance, Velocity and Acceleration
1569

of level review: Number and Algebra 2356 (3)

Geometrical Reasoning

3-D

Wedges 1 (DIME) 1882 (3)

More Than Two Blocks (DIME) 1880 (3)

Soma Solids 1672 (2)

Tricube Codes 2127

3-D Maze (MOVE) 1732

Building Cubes 1794

Making a 3 x 3 x 3 Cube (DIME) 2077

Plaited Cube w/s 0098

Tetra-flexagon 0145 (2)

Building on a Square (DIME) 2076

Sketching Solids (DIME) 1335 (4)

Shape

Tessellations of Quadrilaterals 0326 (2)

Regular Tilings 2 (DIME) 1890

One Straight Cut w/s 1760

Regular Tilings 3 (DIME) 1891 (4)

Tessellating Patterns (TARQUIN Poster) 2012

Properties of Shape

Is It Rigid? 0340

Tangled Quadrilaterals 1764

Shape Up 2170

Four Triangles 1772

Two Triangles 1773

Using a Triangle 0364

Yes/No 1744

Paper Folding 1382 (5)

Ask Me Another w/s 2240

Angle Properties

Finding Exterior Angles 0269

Versa-Tiles 1419 (2)

Angles from Tessellations 0284

Angles and Triangles 2162

Unmarked Angles w/s 2173

Angle 4 Review 0877 (3)

Acute/Obtuse 0433

Polygons; Interior Angles 0800 (2)

Topology

3-D Frameworks 1947

Traversable? 0426

Ealing Broadway 1958 (★)

Similarity/ Enlargement

Shapes that can grow w/s 1759

Scale Factor 0838 (2)

Transformations

Rotation

Rotational Symmetry 1955

Rotation 1112 (2)

Rotate This Way w/s 0839

Reflection

Using a Mirror (DIME) 0581 (3)

Reflect w/s 0577

Tricube Symmetries 2139

Symmetrical Cross Cut 0560

Points and their Images 0255

Line Symmetry A 5–10 (DIME) 1719 (3)

Translation/ Vectors

Translation 1123 (2)

Vector Match 2228

Race Track w/s 0725

All out of line 0144

Tngg 1398

Queens (MOVE Pg33) 1714

Combined Transformations

Turning and Toppling (DIME) 1336 (5)

Coordinates

Co-ordinates

Locate (COORD) 1715

3 in a line (COORD) 1836

Elephant (COORD) 1607

Construction & Loci

Drawing

Cuboid Nets 0719

Start with 60° 2311

The Circumcircle 0213 (2)

Inscribed Circle 0232

Compass Constructions 1170 (2)

Polygons in Circles w/s 2375

Curvy Tiles in Logo 2276 (2)

Hov 08

Blue in the Face 2197 (★)

Build and Balance (DIME) 1879 (3)

Euler Solids (MA Poster) 1354 (3)

Cutting Corners 2132

Cut a Cube 2232

Origami Dodecahedron 2218

Dissection Pairs w/s 1911

Weaving w/s 1647

Polygon Symmetries 1873 (★)

Angles in a Semi-circle 1935

Cyclic Quadrilateral 0165

About Nodes 0342

The Inseparables 0492 (★)

Four Pentominoes 1928 (2)

Areas of Similar Shapes 1559 (2)

Line Symmetry B 4–6 (DIME) 1893 (2)

Line Symmetry B 7–10 (DIME) 1894 (2)

Reflections (DIME) 1337 (5)

Translations 1934

Race Game (MOVE) 1654

Journeys 1329

Vectors and Squares 2201

Avoiding Each Other (MOVE Pg30) 1777

Combining Transformations 1561 (2)

Shape Sequences 2214 (★)

Cube Cuts 0675 (★)

Cross Stitch 2145 (★)

Nets of Pyramids 0720

Spiralling Squares Patterns 2031

Constructive Designs 2141 (3)

Tie w/s 2058 (2)

Ellipses by Folding 2055

Painted Tyres 1912 (★)

Les are 05

End of level review: Shape, Space and Measurements 2353 (3)

Wedges 2 (DIME) 1883 (3)

The Other Side 1857

Family of Quadrilaterals 0738

Polygons and Right Angles 1843 (★)

Regular Polygons 0731 (2)

Angles in Circles 2062

Similar Tnangles 2027

Lengths of Similar Objects 1259 (2)

Nine Pentominoes 1929 (2)

Similanty Problems 1560

Negative Scale Factor 0845 (2)

Combined Reflections 1562 (2)

Vectmeet (MOVE) 1622

Force Meet 0894 (2)

Vector Magnitudes 1013

Transforming Tnangles 2148

Matrices and Transformations 0797 (2)

Square Jigsaw (box) 1688 (2)

Wedges (DIME) 1338 (5)

Transformations 1156 (2)

End of level review: Shape, Space and Measurements 2354 (2)

Spheres 1679 (4)

Folding 1681

Identical Halves w/s 1795

Similar Solids 1261

Matrices and Area 1922 (2)

Matrices for Rotations 1456

Combining Rotations 1457

Reflection Matrices Investigation 1458

Vectors 1177

More Vectors 1178 (2)

Column Vectors 1179 (2)

Dividing in a Given Ratio 1011 (2)

Vector Areas 2050

Islamic Patterns in Logo 2093

A Transformation Technique 1400 (3)

Scale Maps 2085

Isometries 1028

Matrices for Shears Investigation 1459

Minimum Information 1832

End of level review: Shape, Space and Measurements 2355

End of level review: Shape, Space and Measurements 2356 (3)

Measurements and Mensuration

Area/ Perimeter

- World View 1886
- Chocolate Areas 0120
- Rectangle Areas 1320
- Area of a Parallelogram 0224
- From Parallelogram to Rectangle 0228
- Equal Area? w/s 2222
- Triangle Problems 0236 (2)
- Shearing Parallelograms 0226
- Parallelogram Problems 0227
- Shearing a Triangle 0177

Circle Measurement

- Round the Bend 2013
- Circle Coverage 2149
- Kit Bag 2060

Surface Area/ Volume

- Volume of Cubes 0142
- Cuboids from Matchboxes 0381
- Volumes 2 0143

Angle

- Bearings and Scale Drawings 1434 (2)
- Pilot (MOVE) 1667
- Rotation (DIME) 1332 (3)

Trigonometry

- Surrounding Right Angled Triangles w/s 2056
- Short, Middle, Long 1902
- Checking Pythagoras 0188

Handling Data

Logic and Sets

- Inventing Mazes 2081 (2)
- The Lewis Family 1770
- Counter Placing 0591
- Hex 0170 (*)
- Sets of Signs 1953
- Logi-Puzzle 1302
- Milk Crate 1685
- Sort the Cards 0472
- A Puzzling Walk (poster) 2250 (*)

Planning & Collecting Data

Collecting Data

- Rumour (Calculating Pg 10) 2117
- Which Hand Works Hardest? 2138

Processing, Representing & Interpreting Data

Displaying Data

- Secondhand Cars 1295 (2)
- Headlines 2235
- Olympic Medals 1938
- Pie Charts 1101 (2)

Analysing & Interpreting Data

- Frequency Graphs 1233 (2)

Probability

Probability

- Sidings 0634 (2)
- The 3 Coin Problem 0161

- What Chance? 0737
- Monopoly 0750
- Three Counters (DIME) 2009
- Six Beads (DIME) 2010
- One Dice (DIME) 1967
- Two Dice (DIME) 1969 (2)

Level 6

Area/ Perimeter

- Square 1686 (*)
- Polygon Areas 2084
- Trapezium to Parallelogram 0806
- The Trapezium 0794

Circle Measurement

- Pizza Paradise 2150
- Orbits 0761

Surface Area/ Volume

- Volume of Cuboids 1257
- Volume of Prisms 1094 (2)
- Dipsticks 1861
- Volumes and Surface Areas of Cylinders 1275 (2)

Angle

- Equiangular Spirals 1999 (3)
- Back Bearings 1435
- Journeys 1130 (2)

Trigonometry

- Using Pythagoras 0190
- Looking for Right-Angles 0189
- Pythagoras Problems 0191
- Six Pyramids 2388 (3)
- Rising Gradients 1917
- From A to B 1762 (*)

End of level review: Handling Data 2353 (2)

Logic and Sets

- Master (MATH PUZ) 1653
- An Islamic Design w/s 1734
- Flying Engineers 1766 (2)
- Logiblock Sets 2101
- Think 1706
- Who has the Microcomputer? 1898
- In Your Mind 0600
- Domino Puzzle 0905 (2)

Processing, Representing & Interpreting Data

Displaying Data

- Line of Best Fit 0574
- Population Pyramids 2188 (2)
- Population of Britain 2169 (3)

Analysing & Interpreting Data

- Best Marks 2208
- Average Pack of Workcards 0805 (3)
- A Mean Challenge! 2318
- Grouping Data 2175 (2)

Probability

Probability

- Forty Towers 0684
- Pascal's Triangle 0746 (4)
- Pinball Experiments 2207

- Putting it to the test 2100
- Probability 1269 (2)
- Probability Kitty 1614
- Tossing Coins (INVEST Pg 38-40) 2194 (2)
- Numbers Up (DIME) 1968 (2)
- Five Beads (DIME) 1970 (2)

Level 7

Area/ Perimeter

- Irregular Areas 0812 (2)

Circle Measurement

- DIY Earrings 2032
- Circle Cut w/s 2400
- Circle Packing 2103

Surface Area/ Volume

- Solid Expressions 2383 (2)
- The Biggest Vase 1258 (2)
- Cubes 0399 (*)

Angle

- Directions (DIME) 1333 (4)

Trigonometry

- Trig Lines 1921 (2)
- Opposite, Adjacent and Hypotenuse 2082
- Pythagoras Plus... 2187 (*)
- Another Trig Line 2109
- Using Sine and Cosine 1 2137
- Using Sine and Cosine 2 2144

End of level review: Handling Data 2354 (3)

Logic and Sets

- Blocked (poster) 1788
- Turn it Over 2069
- Mastermind 1345
- *Shunting* 0477

Processing, Representing & Interpreting Data

Displaying Data

- Histograms 2295

Analysing & Interpreting Data

- Cumulative Frequency from Grouped Data 1267 (2)
- Grouped Data, Reviewed 2325 (2)
- Cumulative Frequency and Quartiles 1007 (2)

Probability

Probability

- Permutating Tricubes 2159

- Seven Beads (DIME) 1971 (2)
- Find the Fakes 1670
- Probability Kitty 1646
- Combined Probability 1704 (2)

Level 8

End of level review: Handling Data 2355

Area/ Perimeter

- Clover Leaf 0827 (2)
- Circles, Triangles and Hexagons 1763 (2)
- Sectors of Circles 0813 (2)
- Darts Probability 0796 (2)
- Approximation and π 0793 (2)
- Fabric Designs 2036
- Grey Areas 2135 (*)

Surface Area/ Volume

- Cones 1541 (2)
- Packing Balls 2244
- Best Fitting Peg 0595 (*)
- Optimising 1885

Trigonometry

- Trig for Any Triangle 2220
- Big Wheel 1784
- Sin and Cos Graphs 1939 (3)
- Exploring Sine Curves 2206(*)
- Thinking in Three Dimensions 1487 (2)
- Angles Between Planes 1488 (2)
- Post Box 0454 (*)
- *Trig Problems* 1517 (2)

End of level review: Handling Data 2356

Logic and Sets

- The Coin Problem 1918 (*)

Processing, Representing & Interpreting Data

Analysing & Interpreting Data

- Lies, Damned Lies and Statistics 0882 (2)

Probability

Probability

- Combined Probabilities from Tree Diagrams 1272 (2)
- Probably Probable? (INVEST Pg43) 2014

Exceptional Performance

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students.
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids

To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources

SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

Teacher resources from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1701 Post Half Posters	Good display poster to encourage project work on area and fractions.
2112 Imaginings	A collection of lesson starters and enders, based upon 3-D visualisation.
2176 Talking Poster	Good display poster to encourage mathematical discussion.
2292 Towers (box)	A game for revision for Key Stages 3 & 4, based upon Trivial Pursuit.
2324 Reckonings	A collection of lesson starters and enders, based upon mental mathematics
2376 Maths in Your Head	A collection of lesson starters and enders, based upon mental mathematics

Support materials for students from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1783 Calculating Booklet	Each activity in this booklet has been referenced on the SMILE Network from SMILE 2113 to SMILE 2126.
2002 Real Spirals	A good resource for project work on spirals.
2096 Fraction Playing Cards	A resource for students, also needed for SMILE 2097 and SMILE 2105.
2163 Geometry Facts	This is referenced on many SMILE activities where students need to find definitions of shapes and angles.
2226 Number Playing Cards	A resource for students which is referenced on many SMILE activities where students require number cards.
2323 Statisical Inv. Help Book	A resource for students.
2364 Decimal Playing Cards	A resource for students, also needed for SMILE 2365, SMILE 2366, SMILE 2368 and SMILE 2369.

Additional resources available from SMILE Mathematics

The following SMILE materials do not come as part of the classroom materials, but are for use as whole class lessons, to aid group work and differentiation.

Bridging Units	2 units suitable for Year 7
Nice Ideas in one place V. 1 & 2	Contains 25 and 20 activities respectively for KS 3 and 4.
Reasonings	Contains 27 activities suitable for KS 3.
Revision through Groupwork	9 topics allowing for differentiation.
Whole Class Projects	8 projects, suitable for KS 3 and 4.

Additional resources from SMILE Mathematics for Assessment

The following pack does not come as part of the classroom materials.

Assessment Pack	Provides starting activities and diagostic tests for Levels 2 to 6

Resource programs from SMILE Mathematics

The following programs do not come as part of the classroom materials.

1650 Take Part (DfEE)
1702 Circle (INVEST)
1776 Spirals (INVEST)
1796 Plotter (GRAPH)
1851 Regions (GRAPH)
1853 Pinball (INVEST)
1903 Numbers (PROP/NO)
2373 Queens (MOVE)

1828 Find the Shape
1844 Straight Lines
1847 Symmetrical Triangles
1849 100 Search
1856 What Shapes?
1862 Even Animal
1868 Symmetry Match (A3)
1902a (Short Middle Long)
1904 Find the Operation
1907 About How Long?
1911 Dissection Pairs
1914 Adding Counters
1919 How many Centimetre Squares?
1931a (Which Scripts?)
1942 Growing Patterns
1945 Square Diagonals
1959a-d (Making One)
1999a (Equiangular worksheet)
2003a* (Birthday Dates)
2019 Power Match
2020 High Powered Matching
2022a (Fewest Keys)
2023 Alphabet Symmetry
2031a+ (Spiralling Squares)
2034a (Likely or Unlikely)
2035 Symmetry Codes
2037a (3 in 1 Maze)
2045 Hot and Cold
2054a (4 Sides)
2056 Surrounding Right-angled Tri.
2058 Tie
2079a (Sketchy Activity)
2082a (Opp, Adj and Hypotenuse)
2088 What's the Difference?
2089 Oxford Street
2095 Squares, Cubes and Roots
2107 Oxfam Collection
2110 Number Sort
2111a-c+ (Rot Symmetry Jigsaws)
2129 Tens and Fives
2131 Filing Cards
2133 Out of 100
2134a (Similar Rectangles)
2143 Percentages of Money
2147 Odd Animal
2151a (The Root of the Problem)
2153 £1 Search
2154a (Sum Dice Number Cards)
2155a (Visualising)
2157 Some Sums for your mind
2158a-c Turning Green
2160a (Fraction Ruler)
2161 Shape Names
2171 Pie Chart Match
2173 Unmarked Angles
2174 The Mode
2178a (Volumes)
2186 Missing Pieces
2188a-b (Population Pyramids)
2193 Number Square Words
2199 Percentage Estimation
2203 Algebra Match
2205a (Making 25p)
2206a (Exploring Sine Curves)
2207a (Pinball Experiments)
2211 Equivalent Expressions
2212 10 Search
2213 Sum Message
2216 From Matches to Mappings
2219a (Origami Cube)
2220a (Trig for any Triangle)
2222 Equal Areas?
2223 Fraction to Decimal Match
2224a (Shajjad's Collection)
2225a (Wildlife Collection)
2230 Which has the Largest Area?
2233 (Cafe Menu)
2237 Words Won't Fail Me?
2239 Putting in Order
2240 Ask me Another
2242 Decimal Flags
2247a (More Than, Less Than)
2251 Put them in their Place
2252 Something and a Half
2256 Matching Fractions
2258a (Substititing into Formulae)
2259 Multiplication Flags
2261 Shape-Tiles
2262 Find the Route
2264 Plus and Minus Grids
2267a (Introducing Ratio)
2274 abc
2278 Mapping Jigsaw
2279c-d (Island Game)
2292a (Towers)
2296 Mapping Rectangles
2305 Hexagon Puzzle
2306 Patterns on a Line
2308 Word Match
2310 Sequences Jigsaw
2321a (The Algebra Game)
2330 Missing Angles
2332 Decimals on a Number Line
2333 Quiz Times
2336a (Comparing Ratios)
2338 Decimal Search
2339** 2 x Table
2340** 3 x Table
2341** 4 x Table
2342** 5 x Table
2343** 6 x Table
2344** 7 x Table
2345** 8 x Table
2346** 9 x Table
2347** 10 x Table
2348** 11 x Table
2349** 12 x Table
2357 Matching Algebraic Exps
2358 Angle Fit
2360 Rotational & Line Symmetry Review
2362 Decimal Routes
2372 Powers of Ten Flags
2382 Areas of Polygons
2384 Angles in a Regular Hexagon
2387 Multiples of Ten
2389 Percentage Puzzle
2391 Matching Weights
2398 Decimal Places Match
2400 Circle Cut
2401a (Play Your Cards Right)
2402 Equivalent Fractions Sort

DIME produced worksheets

These are available from Tarquin Publications. See Commercial Reference Sheet

1331 (Equal Angles)
1332 (Rotation)
1333 (Directions)
1339 (Flags)
1340 (Pattern and Notation)
1341 (Number Machines)
1342 (Mappings and Graphs)
1343 (Simple Mappings)
1344 (Further Mappings)
1866 (Reflection Activities)
2073 A1, A2, A3, A4
2074 B2, B6, B10
2075 C1, C5, C6, C8
2076 D1, D5, D8, D10
2077 E3, E7, E10

} Tricube Puzzles

2286 A3, A4
2287 A5, A6
2288 B1- B6
2289 C1- C6
2290 D1 - D6
2291 E1, E3, E4

} Algebra through Geometry

SMILE MATHEMATICS

Worksheet List

0001 - 2403

April 2001

The SMILE Worksheet pack contains one copy of the following worksheets for duplication in school.
Those marked with:

* should be duplicated onto card so that it can be used to make models, to play a game, to use as a template, etc.

\+ should be duplicated onto coloured paper.

**should be made up into an 8 page booklet.

Where the name of the activity is in brackets, this indicates that an additional card is needed.

0027	Number Squares
0028	Number Squares 2
0030	Number Squares 4
0031	Find the Number 1
0033	Find the Number 3
0034	Find the Number 4
0057	Fractions 3
0058	Fractions 4
0066a*	(Napiers Rods)
0069	Cardioid
0074	Sum and Product
0098	Plaited Cube
0099	Sum and Product Again
0114	Nines
0121	100 Square Patterns
0168	Right Angled Triangles
0178	Rectangles
0184	Number Puzzle
0242	Cracking the Code
0251	Mirror Symmetry
0259	Shading Fractions
0264	Cartoon Co-ordinates
0272	A Vehicle Survey
0288	Rolling Two Dice
0292	Doubling Patterns
0316	Counting On/Back
0327	Centres of Rotation
0330a	(Multiple Patterns)
0341	Nodes
0346	Sequences in Squares
0352	Table Squares
0354	Tom the Bowling Champ
0359	How Many Colours?
0367	Fraction Wall
0383	Building Shapes
0384	Changing Grids
0390	Surfaces
0396	Hexagons
0397a*	(Operations)
0404	Solids
0424	How Many Routes?
0448	Favourite Colours
0456	Midpoint Sequences
0470	Nephroid
0475c	(All Change)
0476	Mappings
0493	Sam Shape
0510	Radar
0550	Adding Shifts
0577	Reflect
0579a	(Cut-outs for Two Loops)
0592a	(Powerful Rules)
0614	Powers of Ten
0617	Looking Around
0696a	(Number Codex)
0697	Hidden Shapes
0705	Cross Puzzles
0713	Jumping Jack
0725	Race Track
0730	Rotations
0735	Knots
0738a	(Family of Quadrilaterals)
0777	Satellite Signals
0808a	(Code Breaking)
0824h	Pentagram (Golden Rectangle)
0824j	Rectangle (Golden Rectangle)
0839	Rotate This Way
0845a	(Negative Scale Factor)
0849	Anywhere on the Number Line
0852a	(Colouring Triangles)
0853a	(Grids)
0868	Evens
0869	Puzzle Worksheet
0881	24 Squares
0894b	(Force Meet Pack)
0895	Jumps
0905a	(Domino Puzzle)
1095	Percentages
1096	Marks to Percentages
1278a	(Multiplying Directed Numbers)
1299	Tangram Arrows
1309	More Vector Messages
1317**	Mult & Div by 10, 100, 1000
1321	Prism or Pyramid?
1355	Halves and Quarters
1358	Joining Multiples
1359	Joining Odds and Evens
1360	Pictures from Multiples
1376a	(Jobs in Order)
1379	Fishing
1390	Multiplication Table Facts
1417a*	(Tens Counters)
1419a+	(Versa-Tiles)
1422a	(8/12/16 - point circles)
1463	Use Brackets!
1525	Economical Weaving
1555	Mystic Rose
1557	Spirals
1565	Symmetry
1570	Pounds and Pence
1592	Two Cuts Investigation
1627	Self Portrait
1628a*	(Eight Squares cut-out)
1629	Pentagons
1635	The Key to Success
1636	Calculator Flags
1643a*	Cards (Lucky Dip)
1643b	Score Sheet (Lucky Dip)
1647	Weaving
1668a	(Mapping Puzzle)
1669	Sim
1679d- f	(Spheres)
1703	Find the Uncle
1711	Missing Digits
1712	Four Signs
1717	Add-a-square
1733	An Even Code
1734	An Islamic Design
1749a	(Decimal Jigsaw)
1753	Matching Pairs
1758	Co-ordinate Messages
1759	Shapes That Can Grow
1760	One Straight Cut
1761	Gelosia Problems
1768	Zigzag
1792a	(Feeling Hungry)
1795	Identical Halves
1799	Boxes
1812	Find Four Squares
1813	Crossword
1818a	(Helicopter Photographs)
1824	Silver Earrings

SMILE MATHEMATICS

EQUIPMENT LIST

SMILE 0001 - 2403
April 2001

The following are likely to be needed for many of the SMILE activities.

angle indicators
box of coins
box of shapes (labelled with names)
box of solids
calculators (4 function, scientific and graphic)
centicubes
compasses
computer
counters
dice
DIME solids
dominoes
drawing pins
elastic bands
glue
logiblocks (Attribute blocks)
maps - (LT map etc.)
matches
match boxes
metre rule
mirrors
multilink cubes
pack of cards
paper clips
pegs
pegboards
pentominoes
pinboards
protractors
rotograms
rulers (mm and cm)
scissors
sellotape
set square
Tak-Tiles (DIME)
tape measure

The following are needed specifically for only one or two SMILE activities.

ball
base 10 apparatus
cocktail sticks
dice labelled:

0	0	1	1	2	2
1	2	3	4	5	6

} red and white

N	E	NE	NW	NW	SW
S	W	SW	SE	NE	SE

Highway Code
Karnaugh map (4 x 4 grid to accommodate logiblocks)
2 loop and 3 loop boards
marbles
Napier's Rods (optional)
newspapers
probability maze
shopping catalogue
Soma Cube
stop clock
thermometer
Tricubes (DIME)
weights

The following types of paper will be required.

1cm square paper
1cm square dotty paper
2cm square paper
1cm isometric paper
1cm isometric dotty paper
2cm isometric paper
100 squares
multiplication squares
plain paper
tracing paper
gummed paper
card
graph paper (1mm and 2mm)
paper circles (filter papers)
gummed strips

Materials to support the use of technology in the mathematics classroom.

LOGO, a spreadsheet and a geometry drawing package.

Spreadsheets from SMILE

Teachers' book (SMILE)
Hints and Answers Book (SMILE)

For a list of commercially published materials which are referred to on the 2001 SMILE Network, please see the Commercial Reference Sources sheet obtainable from SMILE Mathematics.

SMILE MATHEMATICS
Isaac Newton Centre
108A Lancaster Road
London W11 1QS
Tel. 020 7598 4841
Fax. 020 7598 4838
Email. info@smilemathematics.co.uk
Web. www.smilemathematics.co.uk

SMILE Mathematics
Numbered Set 37 (red file)

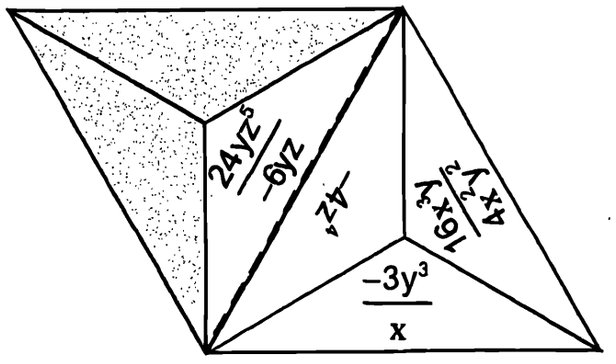
2350 - 2403

Matching Algebraic Expressions

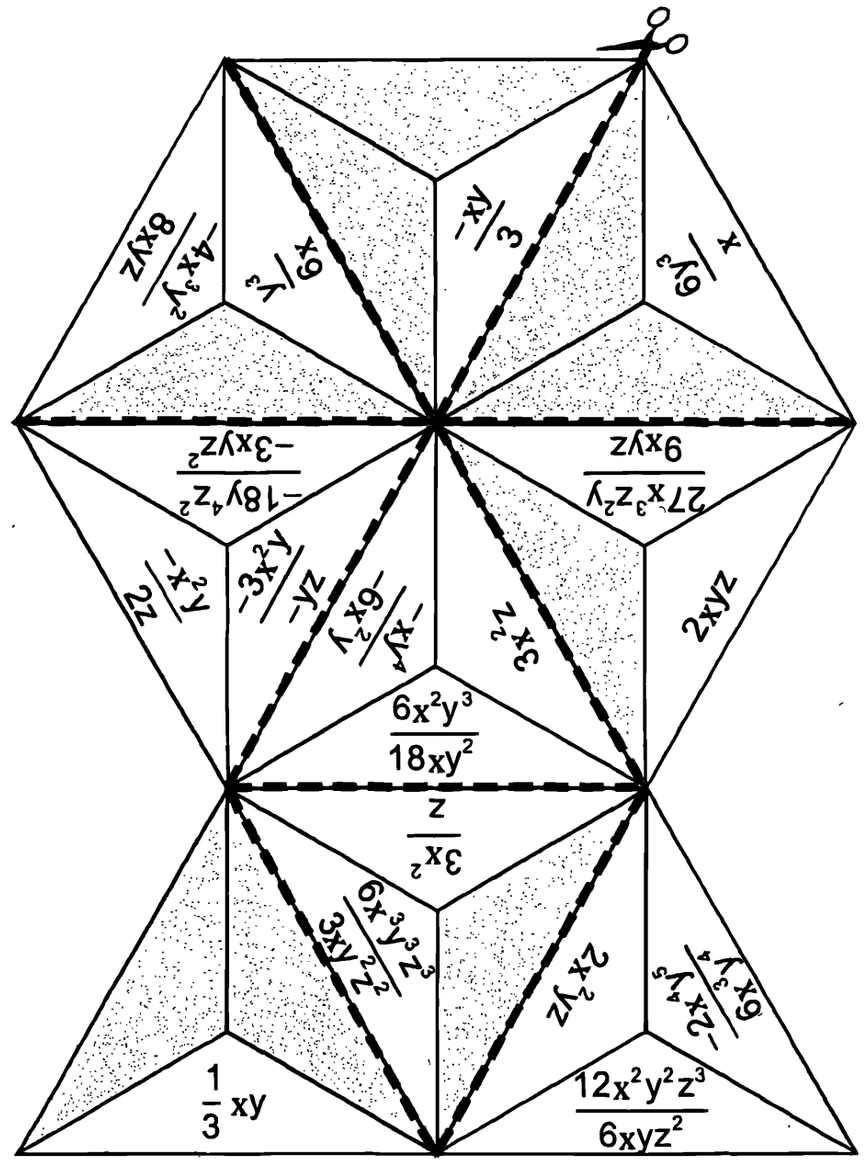
1. Cut out the 9 equilateral triangles along the dotted lines.
2. Match the equivalent algebraic expressions:

Example: $\dfrac{24yz^5}{-6yz} = \dfrac{24 \times y \times z \times z \times z \times z \times z \times z}{-6 \times y \times z}$

$= -4z^4$

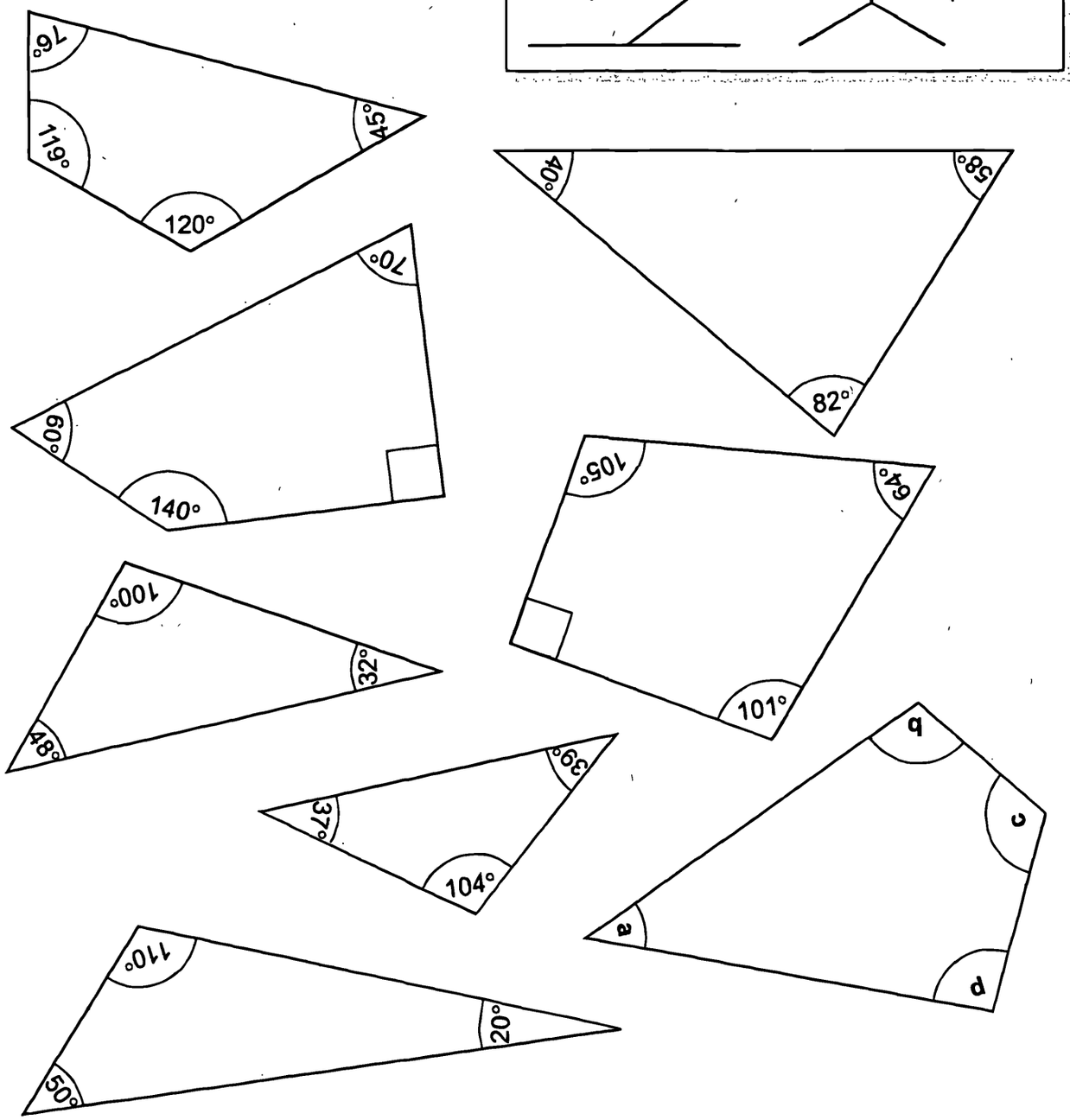


3. Record your working out in your book.
4. Fit the equilateral triangles together to make one large triangle. The shaded sections mark the edges of the triangle.



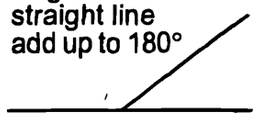
Angle Fit

Carefully cut out the following shapes.

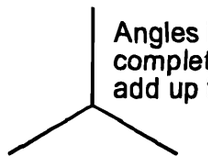


The following angle facts might help:

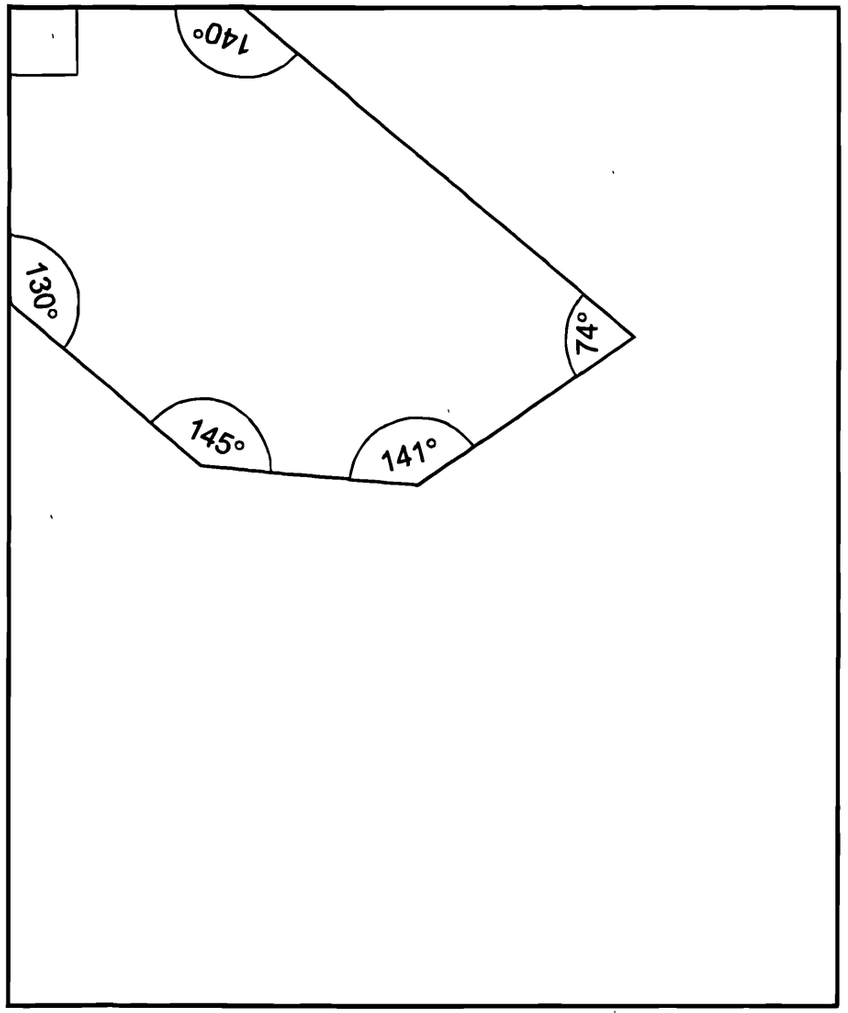
Angles on a straight line add up to 180°



Angles in a complete turn add up to 360°



1. By looking at the size of the angles, fit them in this rectangle.



2. Calculate angles **a**, **b**, **c** and **d**.

a =

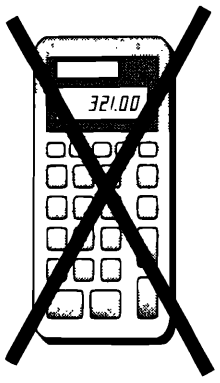
b =

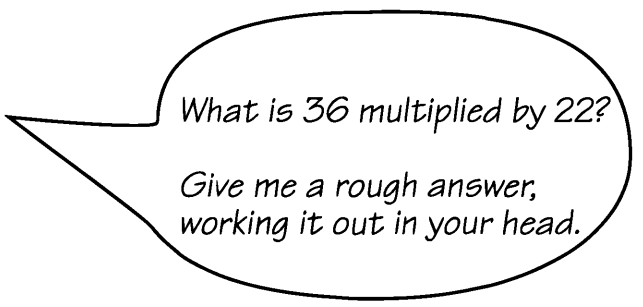
c =

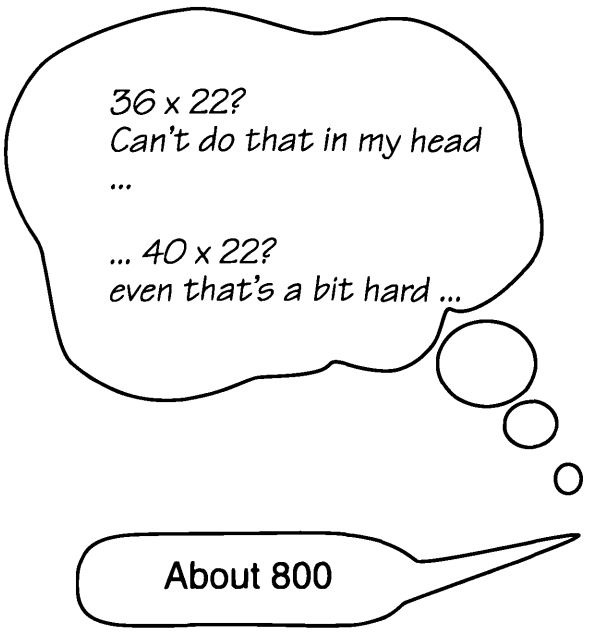
d =

Approximate Solutions

Smile **2359**



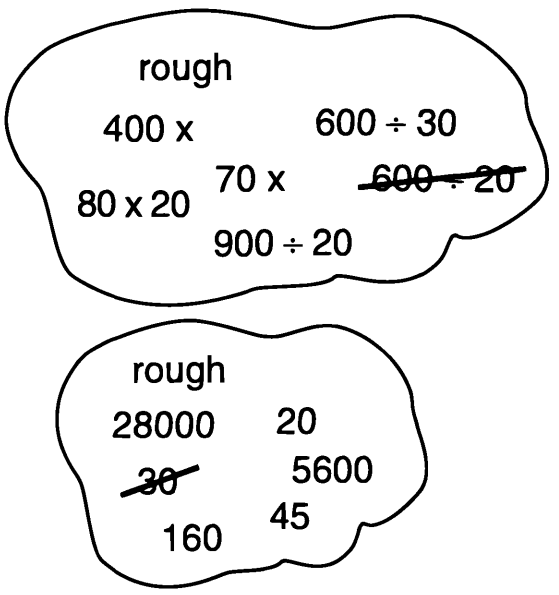




1. What is 46 x 17?
Give a rough answer, using the same method.
What calculation did you use?

2. Copy and complete this table:

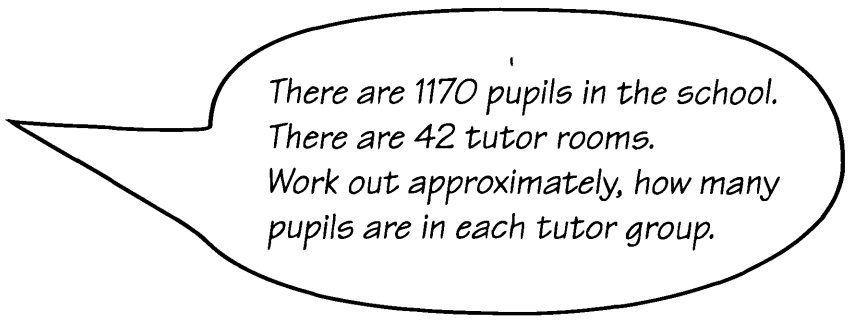
calculations	rough calculations	rough answers
583 ÷ 18	600 ÷ 20	30
408 x 68		
875 ÷ 23		
79 x 22		
576 ÷ 27		
67 x 81		

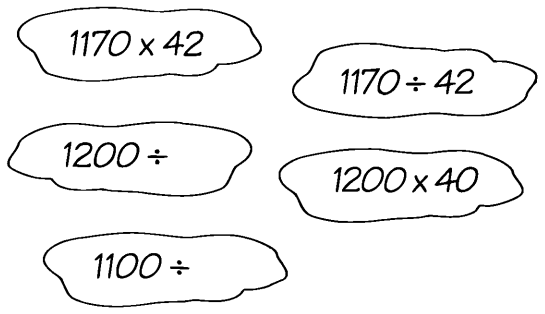


3. Choose your own rough calculations to complete this table:

calculations	rough calculations (approximations)	rough answers (approximate solutions)
71 x 88		
383 ÷ 53		
49 x 48		

4. Here is a problem ... ... and some calculations.





a) Which two calculations must be wrong?
b) Which two calculations give **approximate solutions** to the problem?
c) Which calculation would you use?

5. Copy and complete this table in your book.

	problems	calculations	approximations	approximate solutions
a)	There are 36 eggs in a tray. A box of eggs contains 12 trays of eggs. About how many eggs are in a box?			
b)	About how many 62 seater coaches are needed to take a school of 1796 students on a trip?			
c)	A bottle of cola contains 1950ml. About how many millilitres in 11 bottles?			
d)	A bottle of cola contains 1950ml. 205ml are needed to fill a cup. About how many cups can be filled?			

6. A job pays £214 per week.
About how much is this in one year (52 weeks)?

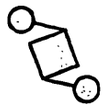
7. Each student needs 27 centicubes to build a larger cube.
There are 29 students in the class.
About how many centicubes are needed?

8. One pint of milk is sufficient for 22 cups of tea.
About how many pints are needed for 485 cups of tea?

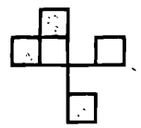
Rotational and line symmetry review

An activity for two. You will both need a copy of this worksheet.

Some shapes have line symmetry 

Some shapes have rotational symmetry 

Some shapes have both 

Some shapes have neither 

1. On your own:

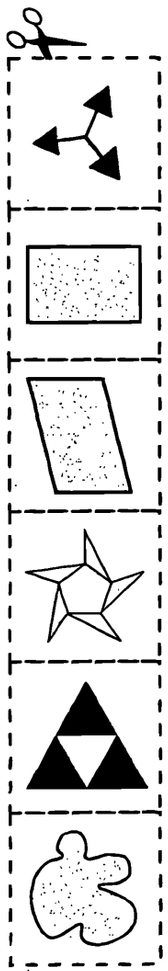
- Cut out the shapes below.
- Arrange them in the correct regions on the Venn diagram.

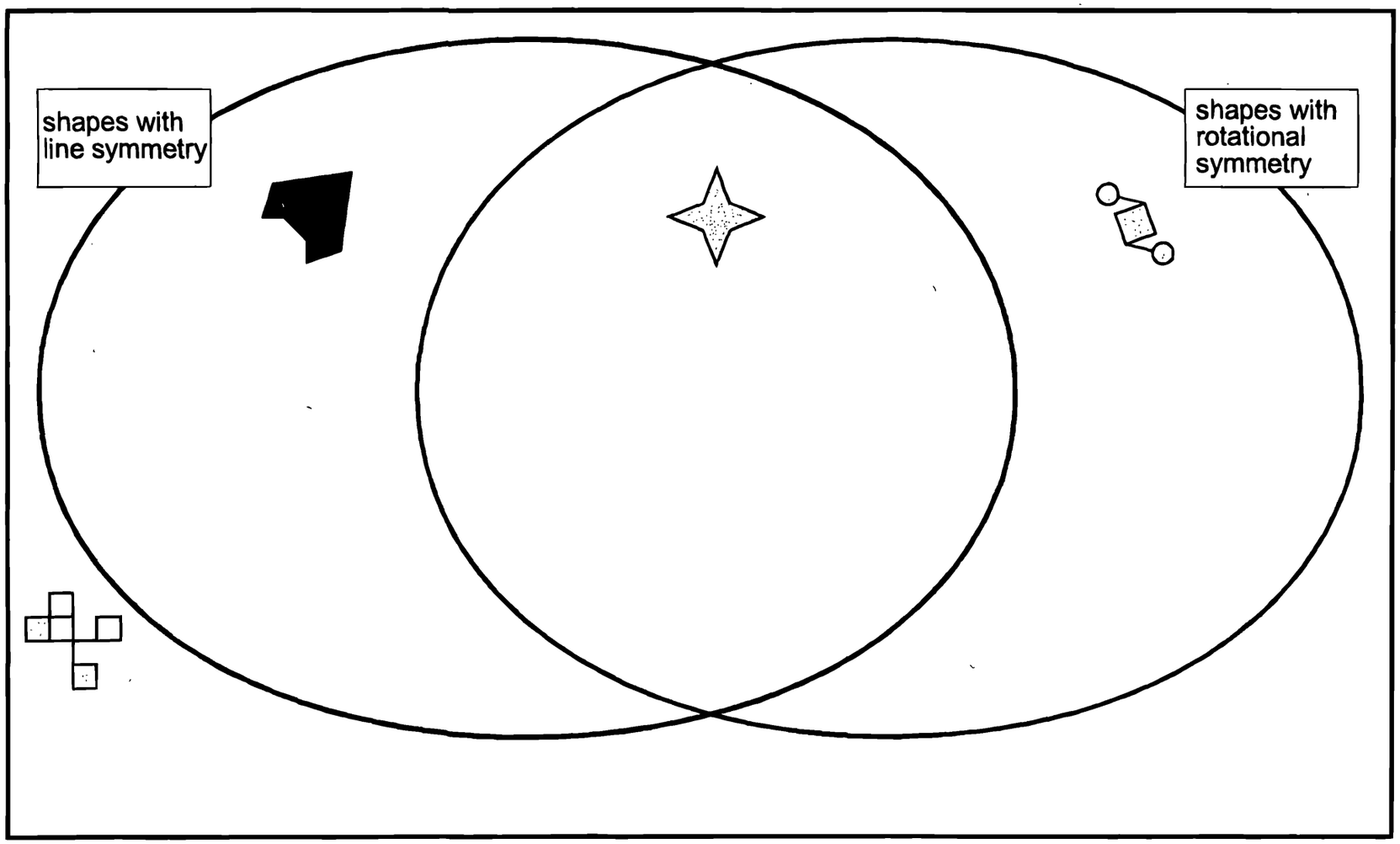
1. On your own:

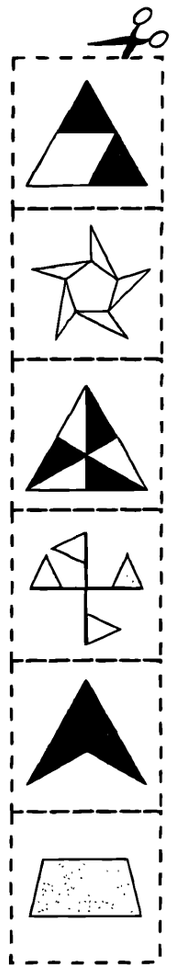
- Compare your answers.
- When you have agreed, stick them down.

1. On your own:

- Draw 4 shapes of your own, one to go in each region.







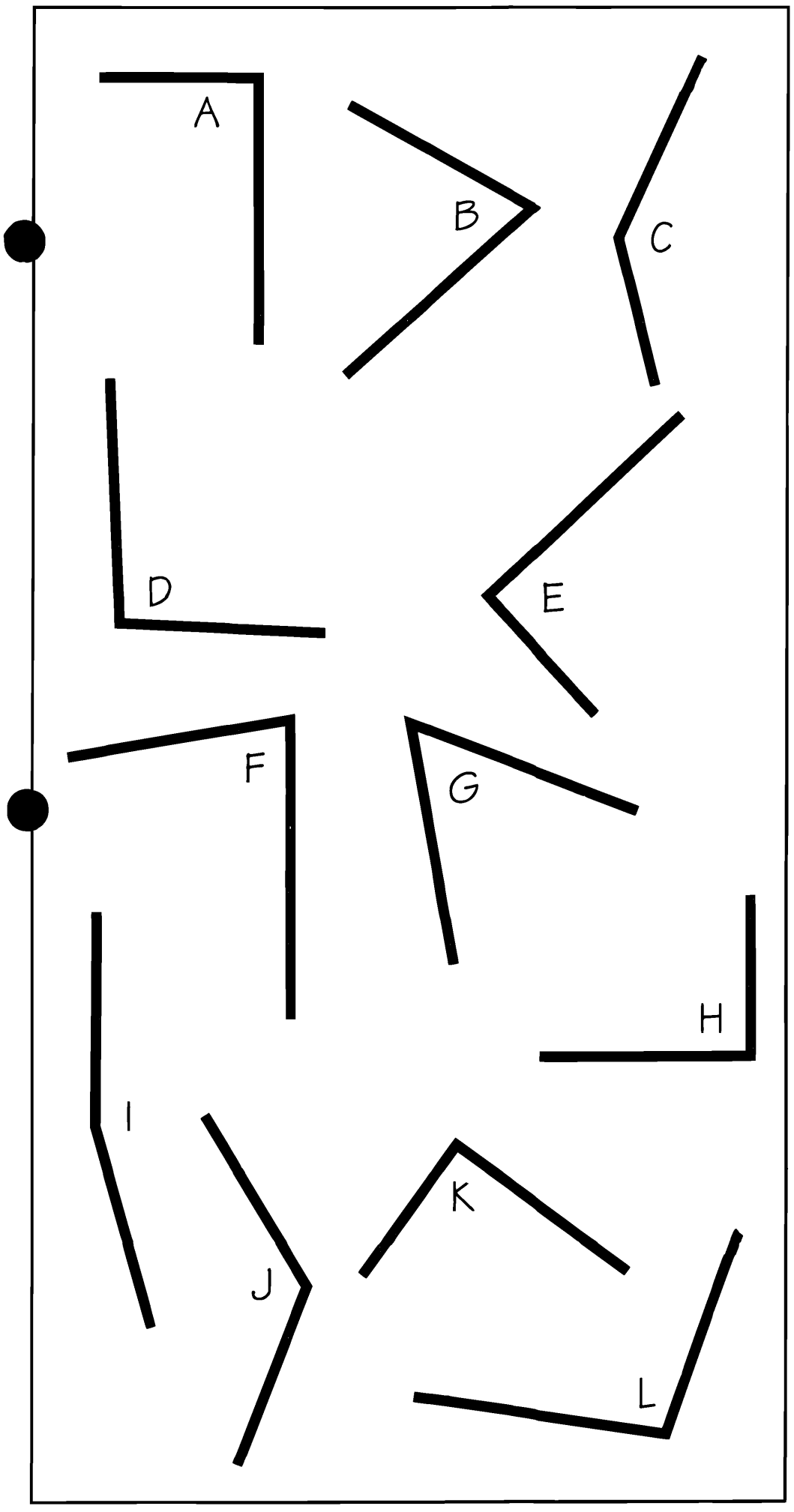
Right-angle or not?

Smile **2361**

You will need tracing paper.

There are many **right-angles** around. For example, the corners of this card are right-angles.

This is a **right-angle**.



1. Trace the right-angle and place it over the top of the angles to find out which ones are **right-angles**.

2. Copy and complete the table.

Angle	Right-angle
A	Yes
B	No
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	

3. Draw a right-angle in your book.

4. Find **5** things around your classroom that have right-angles.

Write a list of them in your book.

Check these with your teacher.

Decimal Routes

Start at Start and find your way to the End

1. You can only move left ← right → or up ↑ down ↓
2. You can only go into the squares when the answer is 3 or 1.5.
3. Shade in your route as you go along.

Start

0.2 + 1.3	0.3 x 10	2 x 1.5	7 ÷ 4	1.5 x 2 3	0.7 + 0.8	3 ÷ 2	1 + 2.5	1.3 x 10
15 ÷ 10	4 – 0.5	7 – 5.5	18 ÷ 5	0.5 + 1.5	1.4 x 11	4.5 – 1.5	1 ÷ 2	1 + 0.05
1.1 + 0.4	2.5 – 1	4.5 ÷ 3	0.5 + 1	10 – 8.5	16 ÷ 10	3 x 0.5	0.5 + 0.6	1 + 5
1.8 ÷ 0.4	18 – 0.3	5.2 ÷ 2	6 + 3.3	0.5 x 6	7.5 ÷ 5	1.6 – 0.1	0.5 x 10	3 x 0.1
0.4 x 10	2.3 + 0.7	6.5 – 5	0.2 x 1.5	1.4 + 1.4	3 x 1.5	1 ÷ 5	5 ÷ 10	3 x 0.5
6.3 – 3	5.3 – 2	0.75 x 2	1 x 0.3	1.6 + 1.3	1.5 + 2.5	0.2 x 1.5	7 ÷ 5	0.2 ÷ 4
3 ÷ 0.5	6.5 ÷ 4	12 x 0.25	4 ÷ 3	0.1 – 1.5	3.5 – 0.1	1.3 + 1.2	6 ÷ 0.5	4 – 3
3.5 ÷ 2	5 + 4	30 ÷ 20	0.6 + 0.9	30 ÷ 10	11.5 ÷ 10	6 x 0.2	7.1 – 3.1	3 ÷ 4

End

You should record any working out here.

Conversion Pack 1

An activity for 2 people

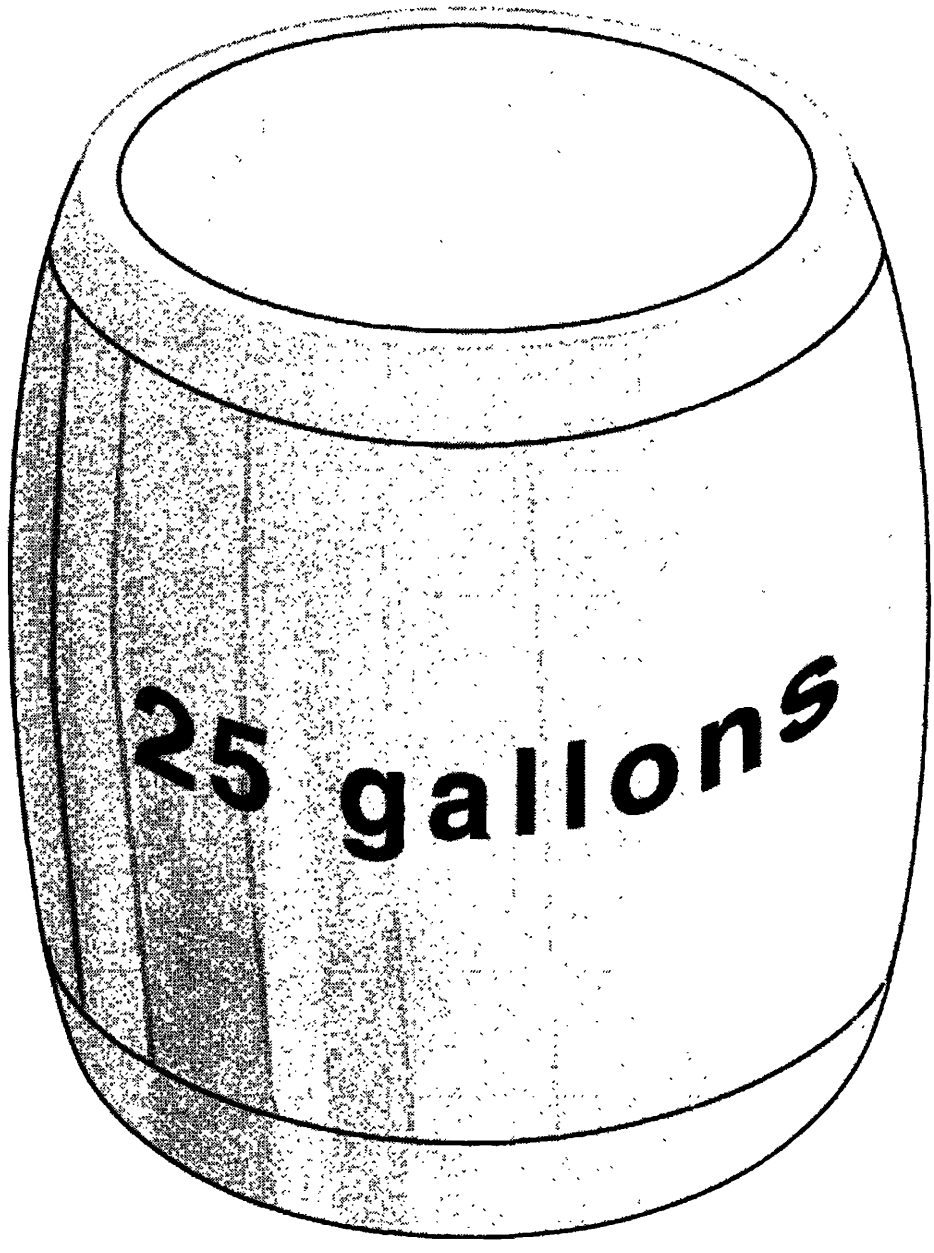
1. Complete the problems on cards A – F. You might find the conversion chart on the back of this envelope helpful.

2. Record your answers in your book. Show your working. Remember to include the units in your answers.

3. You need to know the conversions. Record them in your book and test each other on them.

A

Smile **2363**



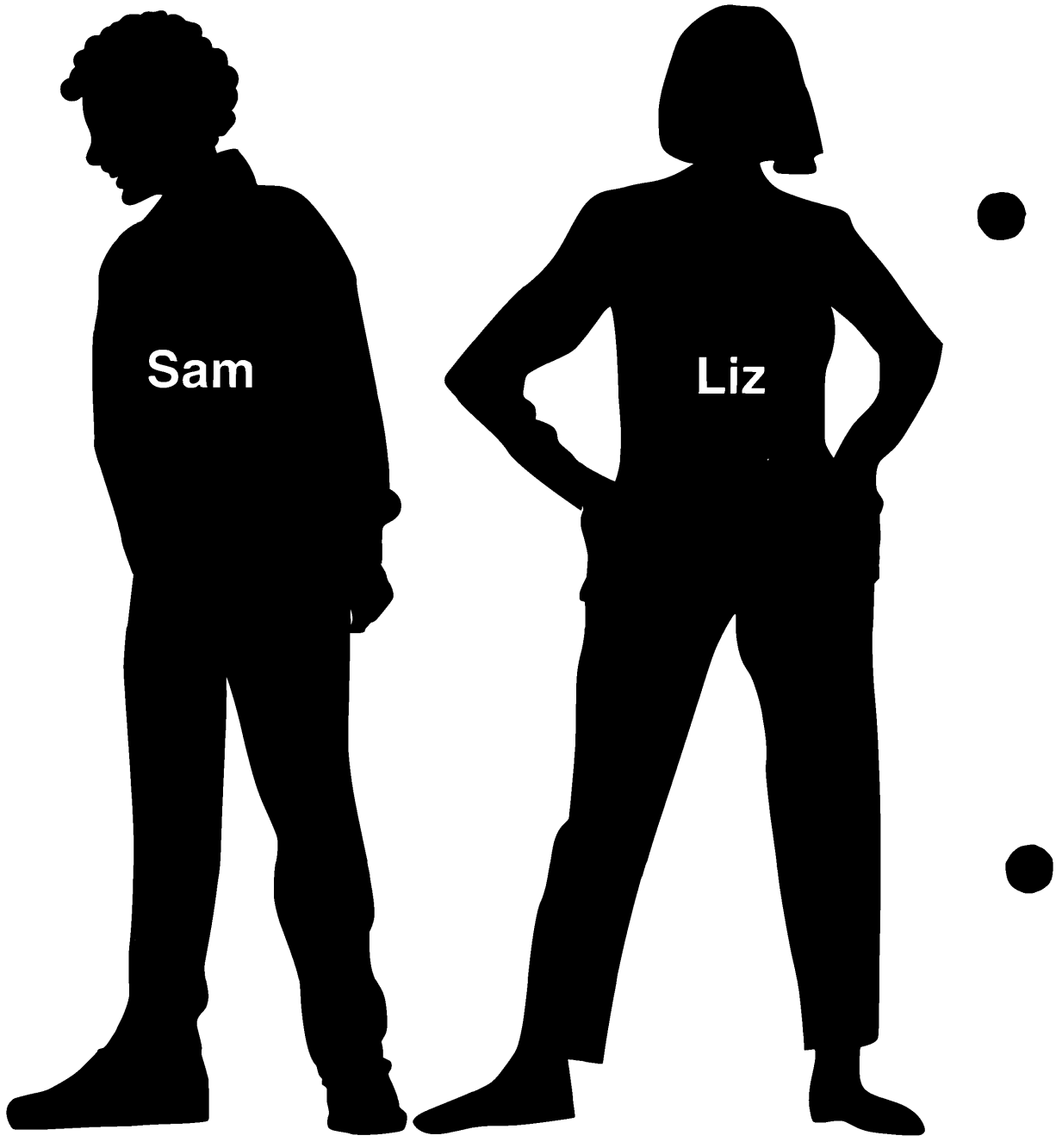
How many pints?

Match the pairs of cards.

a) 2km	1) 1350cm
b) 135cm	2) 0.265km
c) 26.5mm	3) 2000m
d) 13.5m	4) 1350mm
e) 265m	5) 2.65cm

C

Who is the heavier?

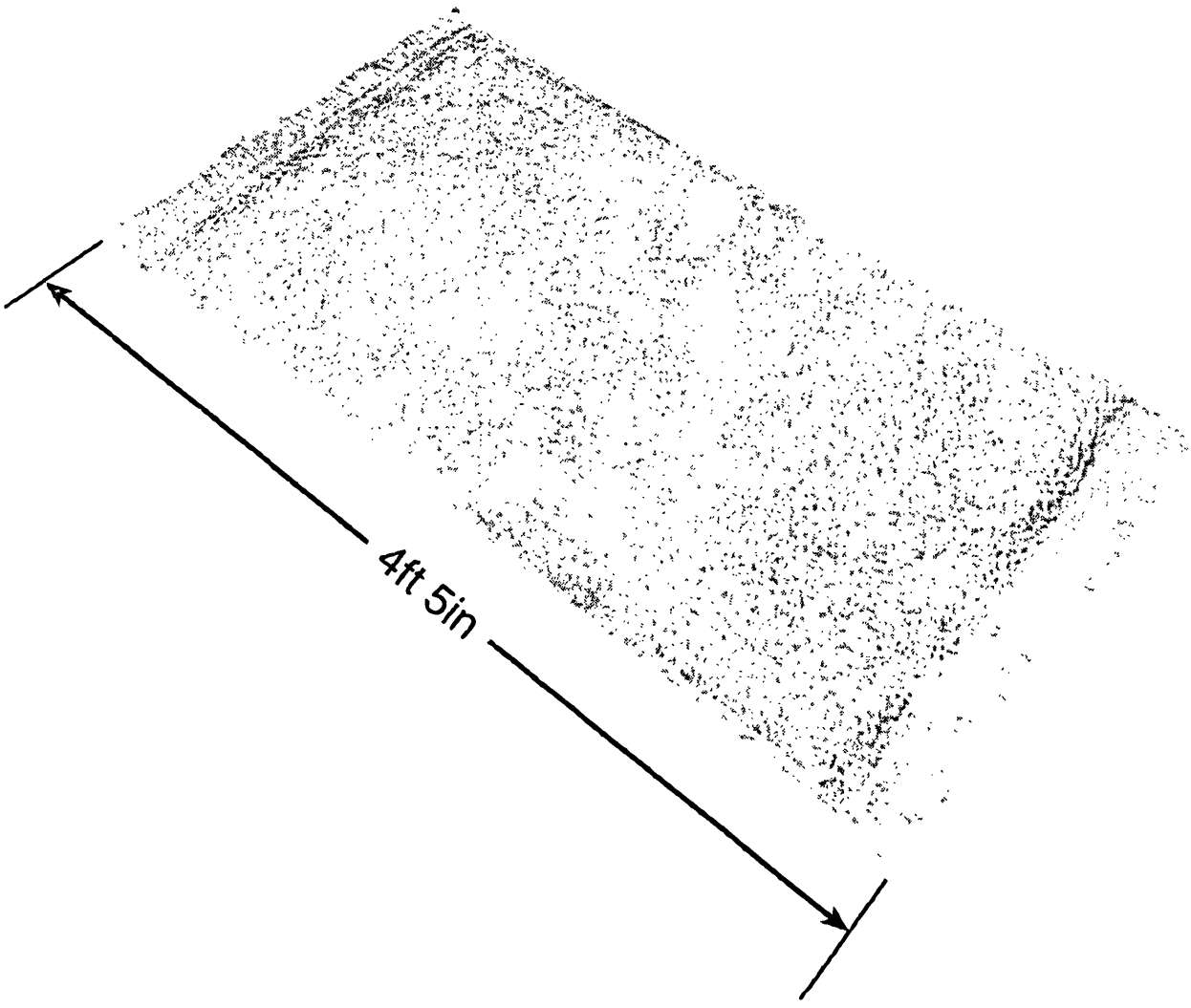


160lb

9 stone 7lb

A rug is 4 foot 5 inches long.

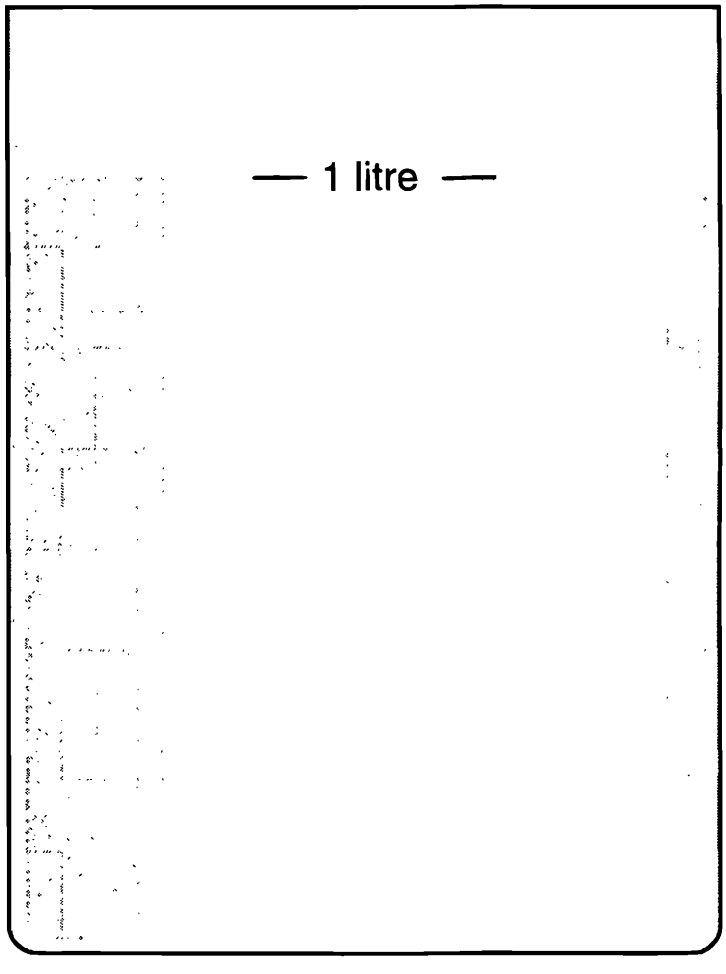
How many inches is this?



E

Two students are doing a science experiment.

They take 57ml



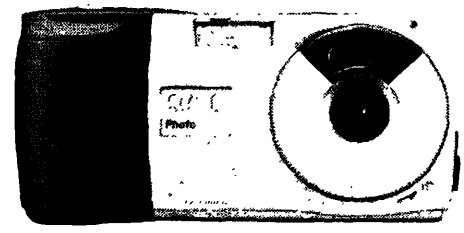
from a 1 litre measuring beaker.

How much liquid is left in the beaker?

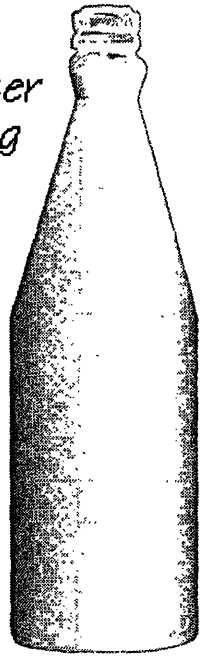
The hand baggage allowance on the flight to Kenya is 5kg.

Tim's bag contains:

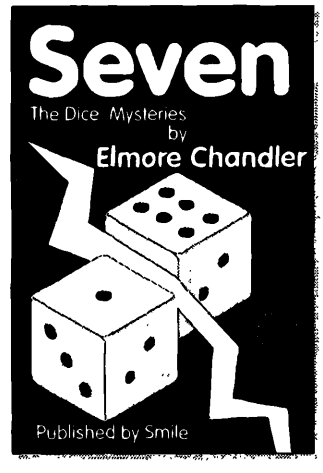
Camera
900g



Water
1.2kg

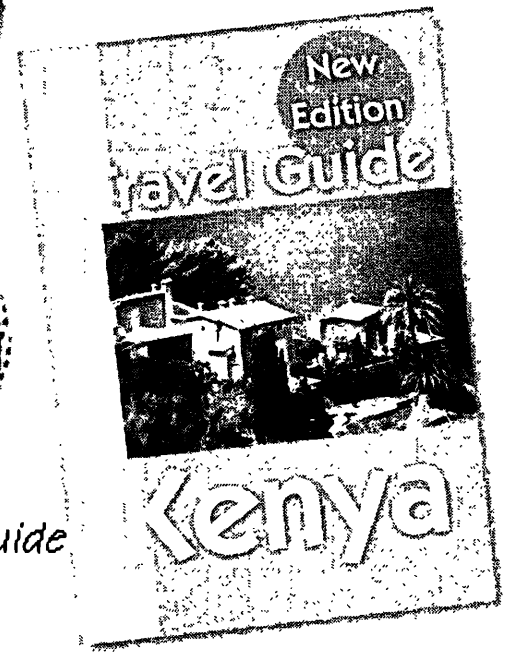


Book
350g



Crisps
75g

Wash bag
1.4kg



Travel Guide
600g

Is Tim's bag too heavy?

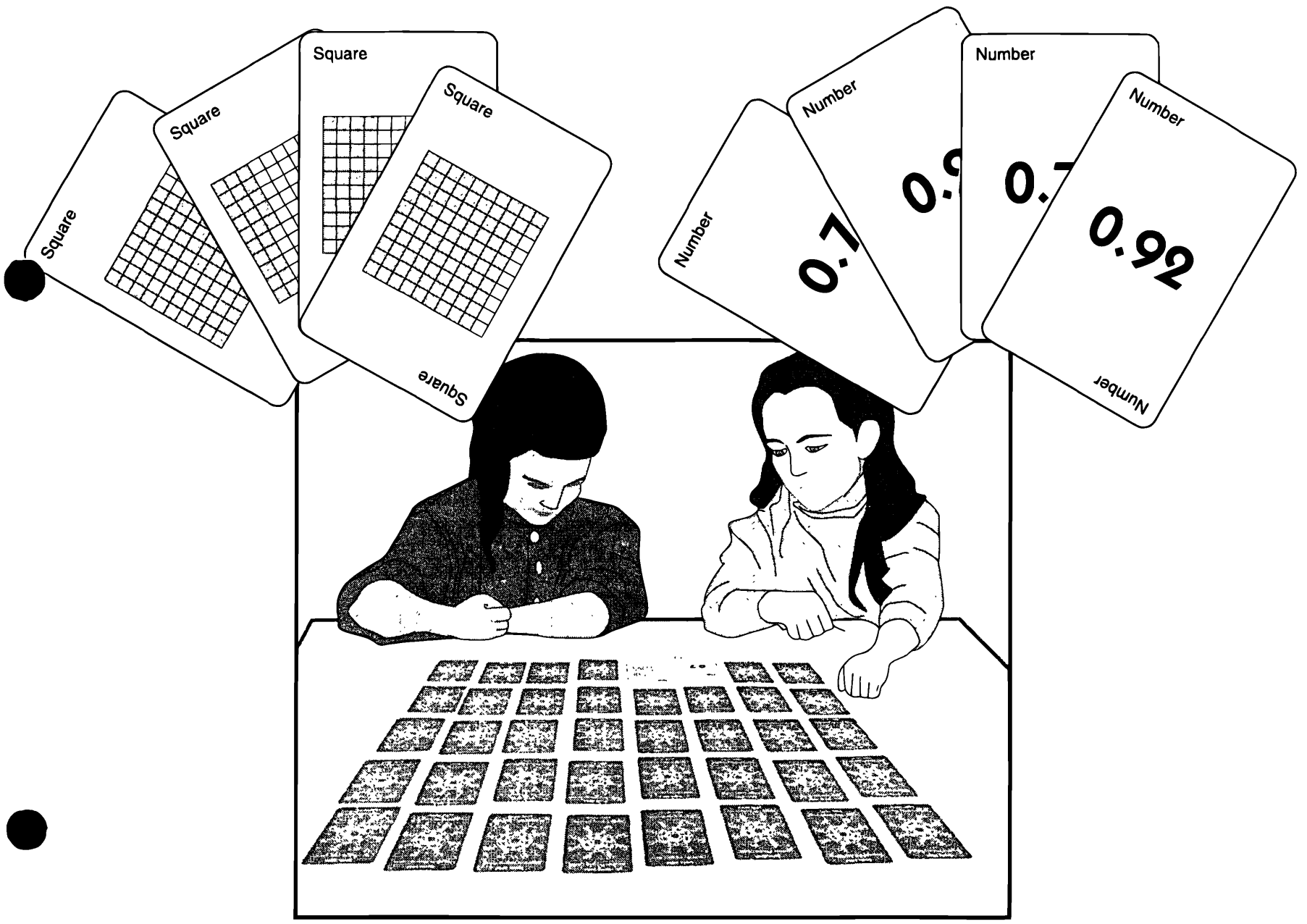
Higher decimal win

Smile **2365**

A game for 2 players.

You will need the SMILE Decimal Playing Cards.

Take out the 13 cards with 'Squares' and the 13 cards with 'Numbers'.
Shuffle the cards.
Deal the cards, face down, in front of you.



Each player turns over one card.

The player with the higher decimal wins that round and keeps both cards.

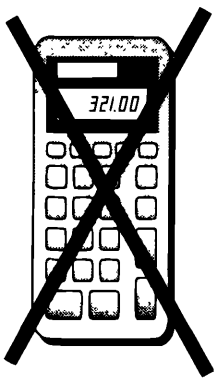
Carry on until you have used all the cards.

The player with the most cards wins.

Variation
Try turning over 2 cards at a time, adding the two numbers together. The player with the higher decimal wins.

Decimal differences

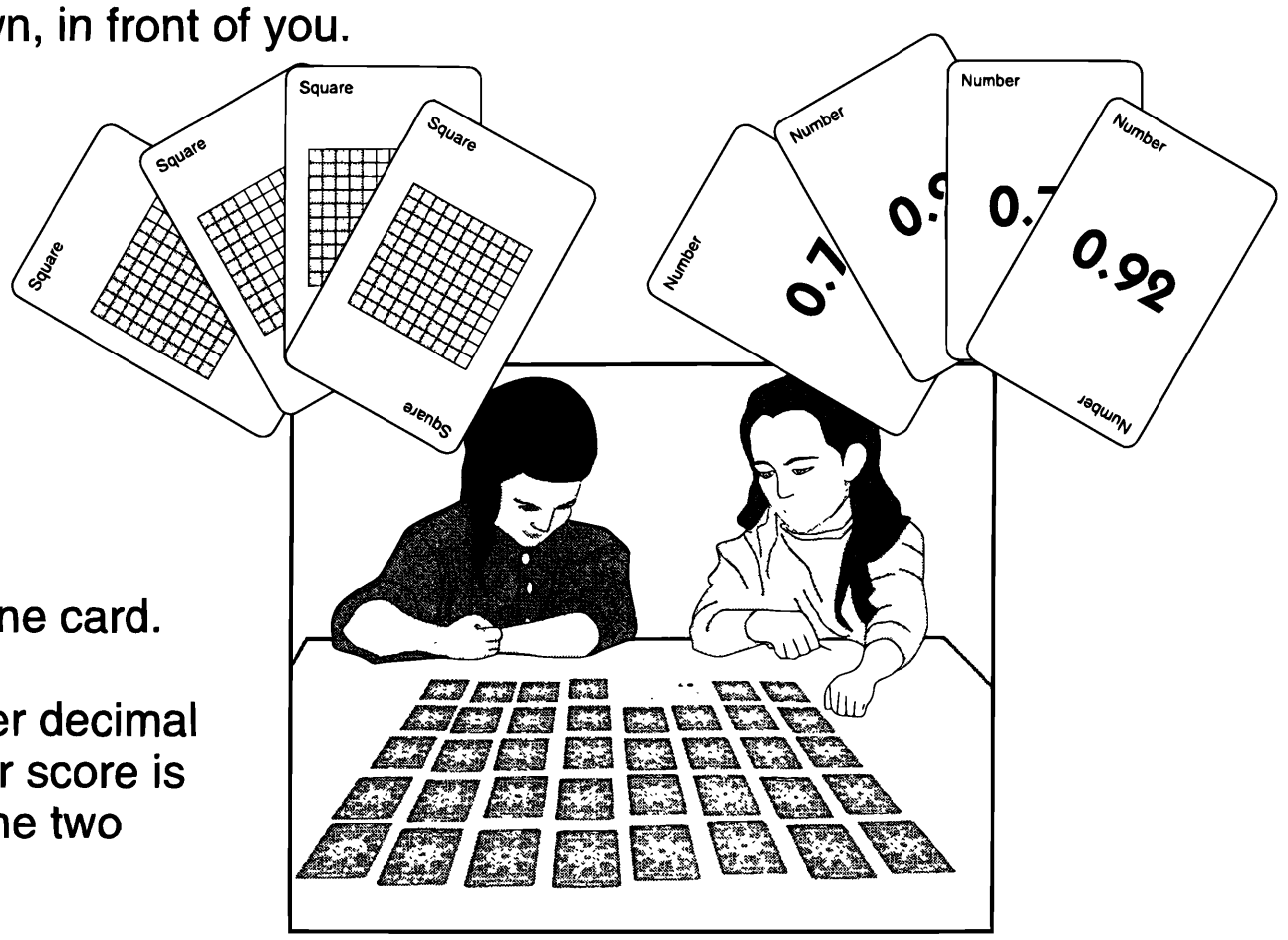
Smile **2366**



A game for 2 players.

You will need the SMILE Decimal Playing Cards.

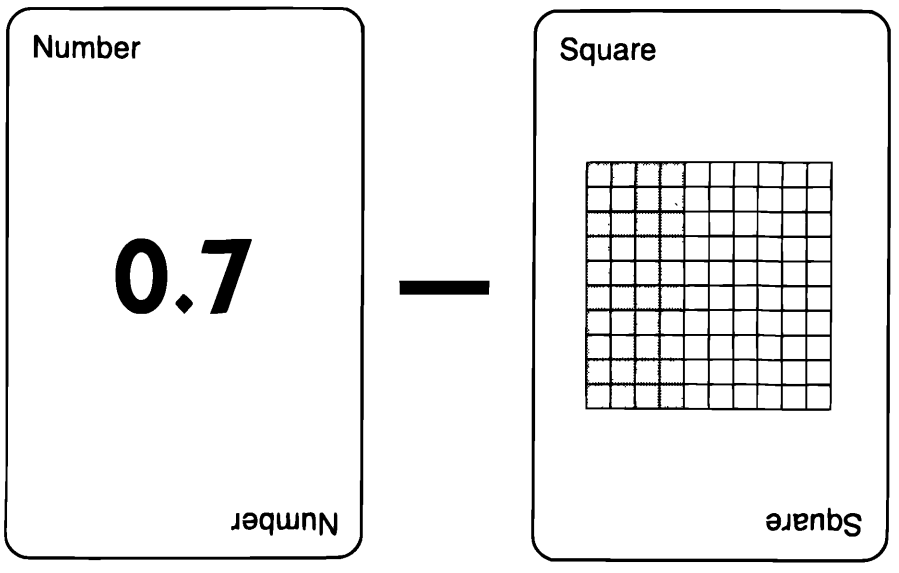
Take out the 13 cards with 'Squares' and the 13 cards with 'Numbers'.
Shuffle the cards.
Deal the cards, face down, in front of you.



Each player turns over one card.

The player with the higher decimal wins that round, and their score is the difference between the two decimals.

e.g.



Talia scores 0.3

Record your results.

Talia	Janice
0.7 – 0.4 = 0.3	

Carry on until you have used all the cards.

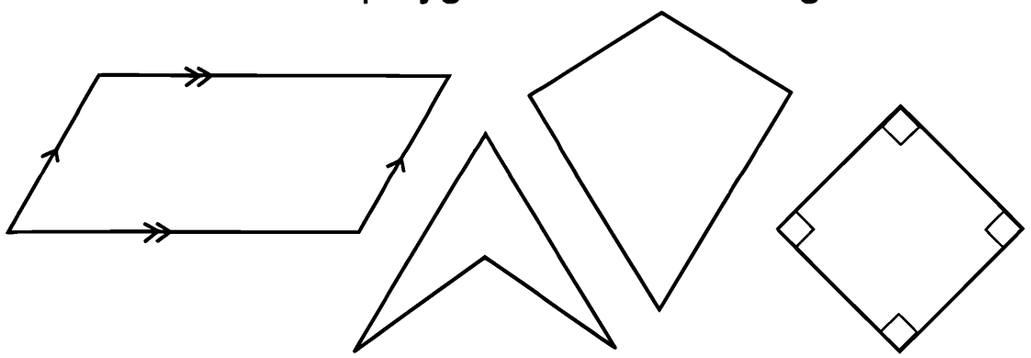
Total each player's score.

The player with the higher score wins.

Sixteen Quadrilaterals

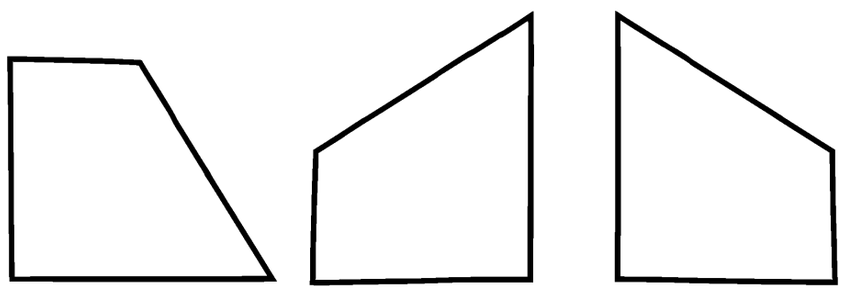
Definition: Quadrilateral

Quadrilaterals are polygons with four straight sides.

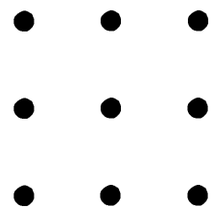


Definition: Congruent

Congruent shapes have the same shape and size.
e.g. These quadrilaterals are congruent.



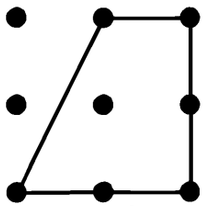
You can make 16 different quadrilaterals on a 9 point grid.



1. Find all 16 quadrilaterals.
(Remember none of your quadrilaterals can be congruent.)

- draw them
- label each quadrilateral with the correct mathematical name

e.g.



trapezium

(You may like to use Smile 2163 Geometry Facts to find all the names of your quadrilaterals.)

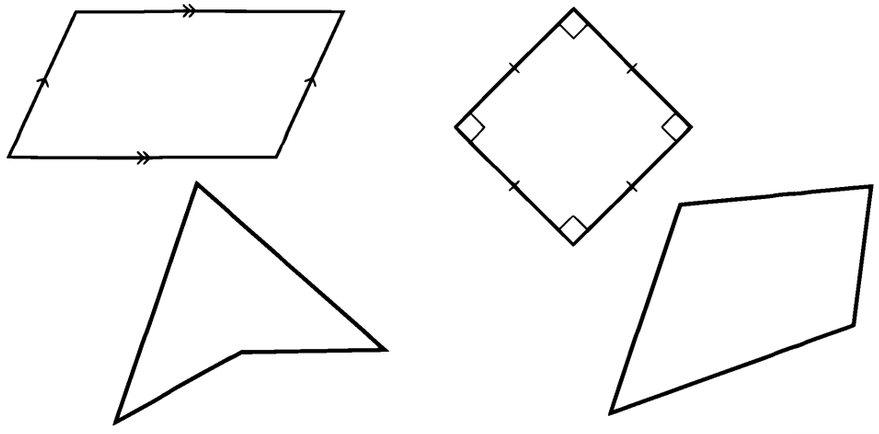
2. You may like to investigate . . .

- triangles on a 9 point grid
- other polygons on a 9 point grid.

Sixteen Quadrilaterals

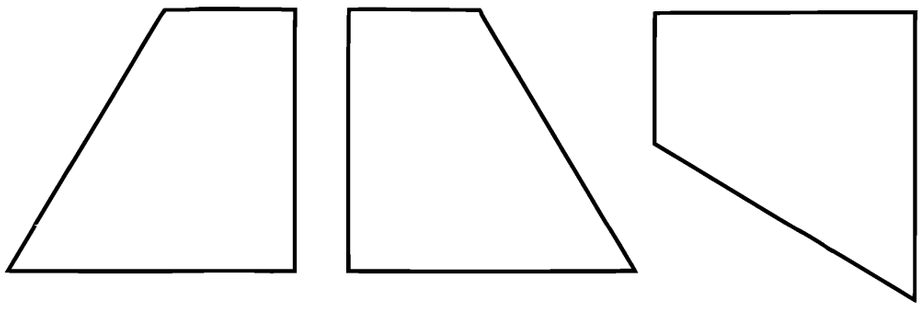
Definition: Quadrilateral

Quadrilaterals are polygons with four straight sides.

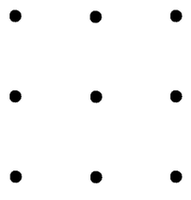


Definition: Congruent

Congruent shapes have the same shape and size.
e.g. These quadrilaterals are congruent.

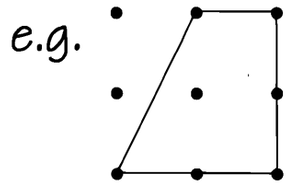


You can make 16 **different** quadrilaterals on a 9 point grid.



1. Find all 16 quadrilaterals.
(Remember none of your quadrilaterals can be congruent)

- draw them
- label each quadrilateral with the correct mathematical name



(You may like to use Smile **2163** Geometry Facts to find all the names of your quadrilaterals)

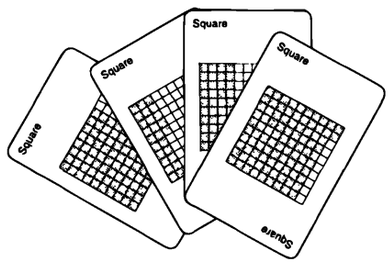
2. You may like to investigate ...

- triangles on a 9 point grid
- other polygons on a 9 point grid

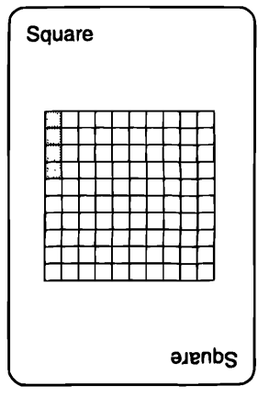
Matching decimals ●

You will need the SMILE Decimal Playing Cards.

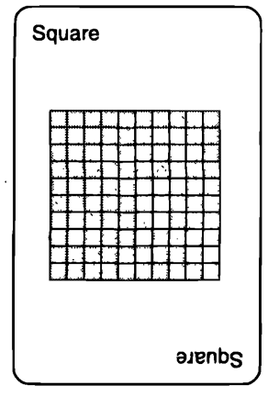
Take out the 13 cards with 'squares'.



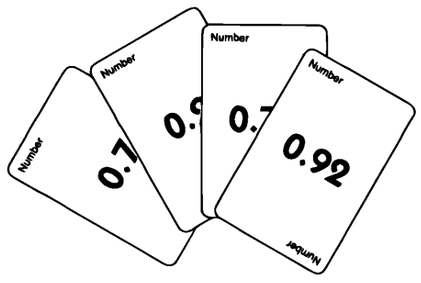
Put them in order of size – smallest first.



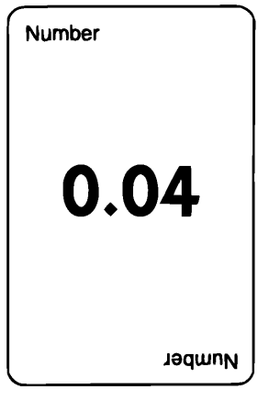
smallest → largest

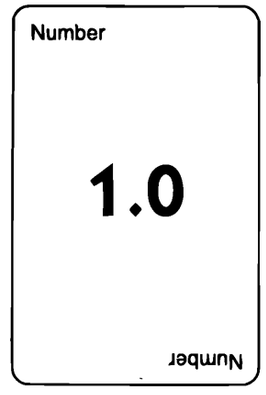


Take out the 13 cards with 'Numbers'.



Match them to the 'Squares' cards.





In your book:

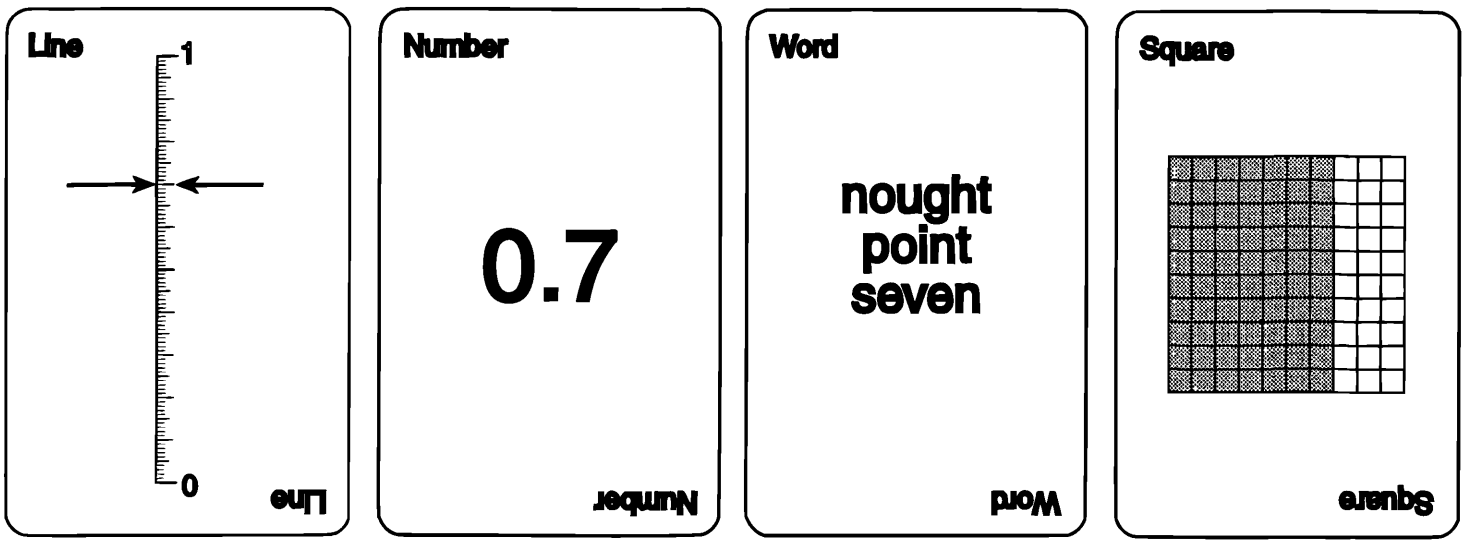
1. Write the numbers out in order of size, smallest first.
2. Which is the larger 0.8 or 0.5?
3. Which is the smaller 0.72 or 0.65?
4. Which is the largest 0.8, 0.08 or 0.75?
5. Write a number that comes between 0.5 and 0.8.
6. Write a number that comes between 0.35 and 0.4.

Decimal Sort

Smile **2369**

You will need the SMILE Decimal Playing Cards.

1. Find these 4 cards.



These cards show the same decimal expressed in four different ways.
This is the 0.7 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

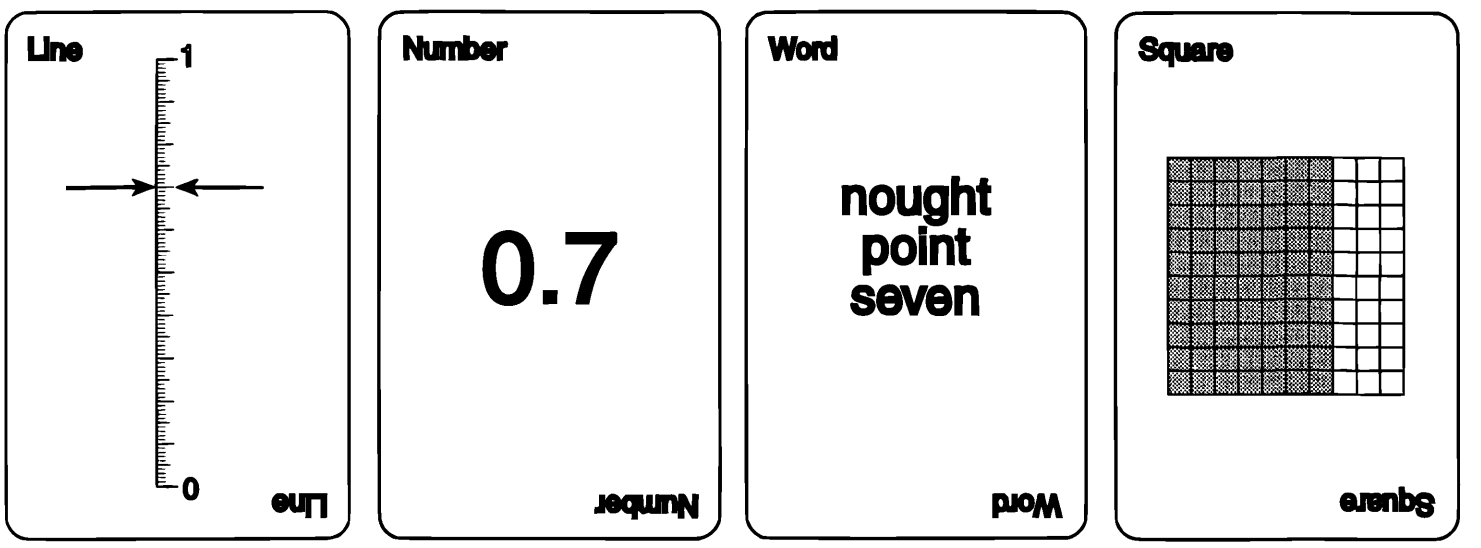
3. Show the decimal 'sets' to your teacher.

Decimal Sort

Smile **2369**

You will need the SMILE Decimal Playing Cards.

1. Find these 4 cards.



These cards show the same decimal expressed in four different ways.
This is the 0.7 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

3. Show the decimal 'sets' to your teacher.

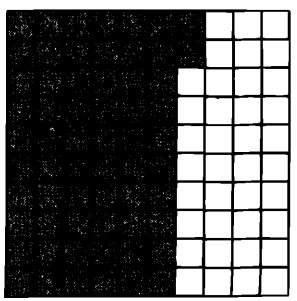
© RBKC SMILE Mathematics 2005

Decimals sort

You will need the SMILE Decimal Playing Cards.

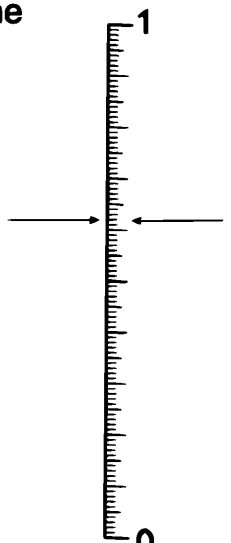
1. Find these 4 cards.

Square



Square

Line



Line

Word

nought
point
six
two

Word

Number

0.62

Number

These cards show the same decimal expressed in four different ways.
This is the 0.62 decimal 'set'.

2. Sort the remaining cards into decimal 'sets'.

3. Show the decimal 'sets' to your teacher.

Conversion Pack 2

An activity for 2 people

1. Complete the problems on cards A – F. You might find the conversion chart on the back of this envelope helpful.

2. Record your answers in your book. Show your working. Remember to include the units in your answers.

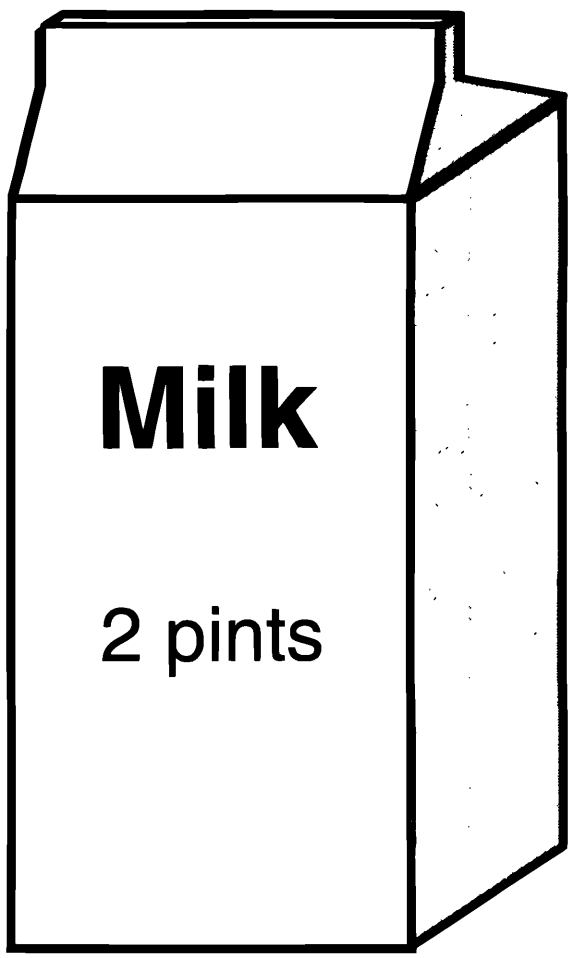
3. You need to know the conversions. Record them in your book and test each other on them.

A

Which is the cheaper petrol?

B

Smile **2370**



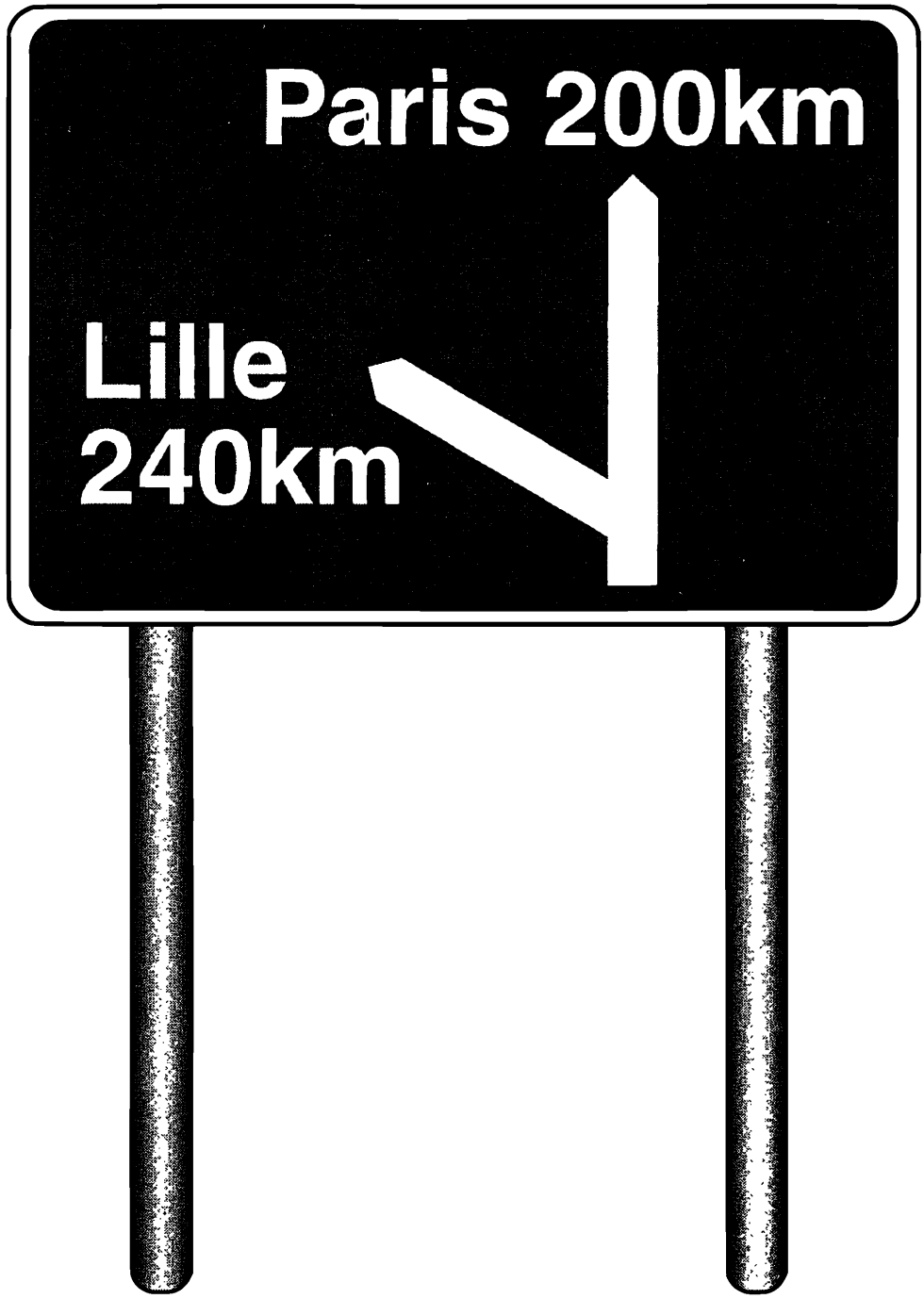
Which contains more liquid?

Which is longer ...

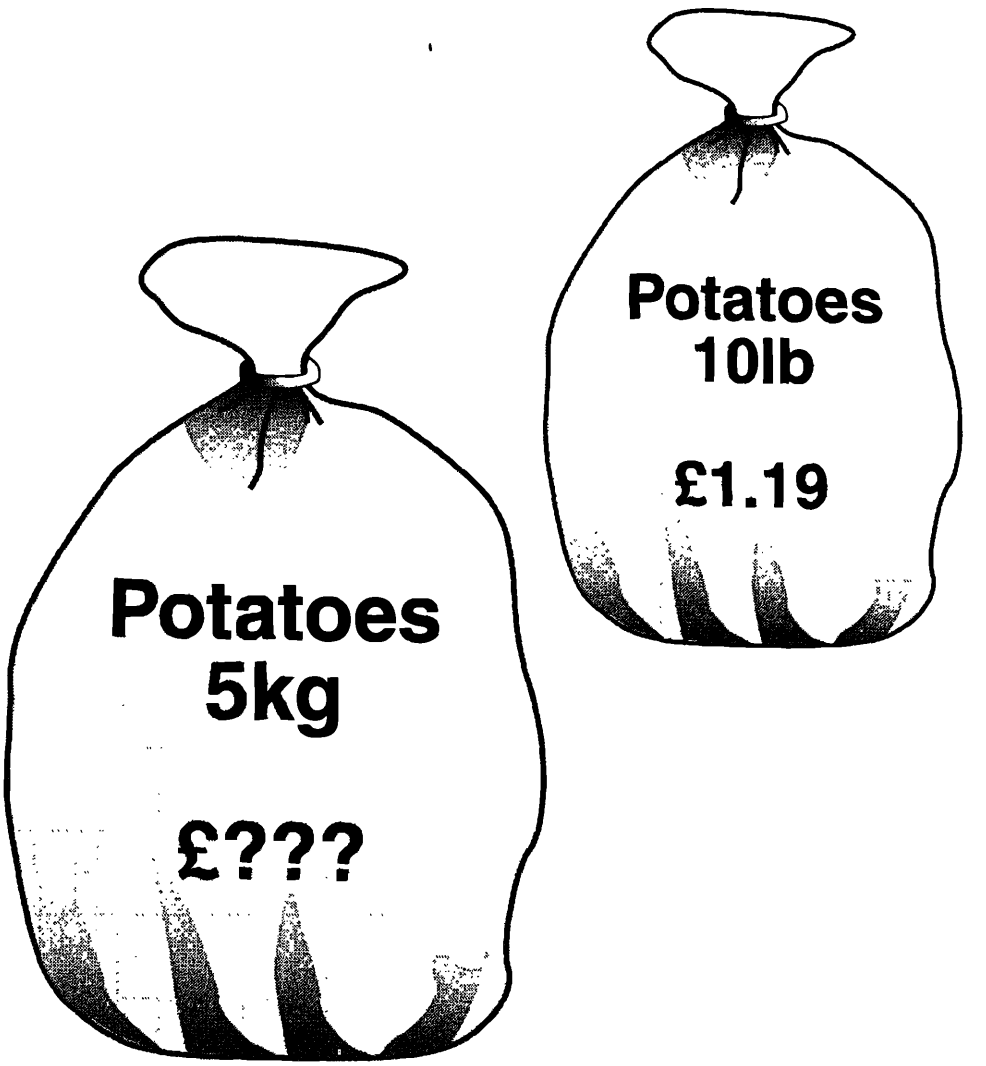
One Yard?

or

One Metre?



How many miles ...
to Paris?
to Lille?



How much should a 5kg bag of potatoes cost?

Andy is making mackerel paté

Recipé

Smoked mackerel.....6oz
Cottage cheese.....6oz
Lemon juice

Is this enough cottage cheese?

Rounding to 10

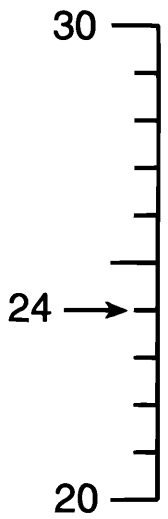
Smile **2371**

An activity for 2 - 4 people.
You will need Smile **2226** Sum Number Cards and 20 counters of the same colour for each player.

To round to the nearest 10.

Look at the digit in the units column.

24

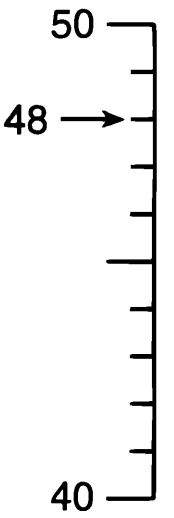


There is a **4** in the units column, so round down to **20**.

24 is nearer to 20 than to 30.

24 rounded to the nearest 10 is **20**.

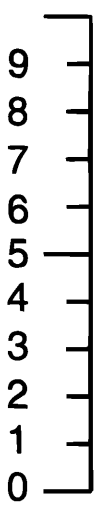
48



There is an **8** in the units column, so round up to **50**.

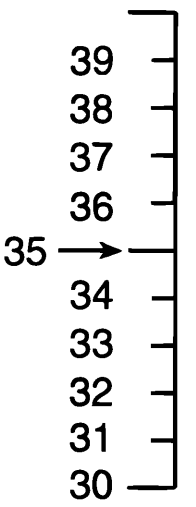
48 is nearer to 50 than to 40.

48 rounded to the nearest 10 is **50**.



- the digits 5, 6, 7, 8, 9 round up.
- the digits 0, 1, 2, 3, 4 round down.

35



35 rounded to the nearest 10 is **40**.

1. In your book write down these numbers to the nearest 10.

a)	57	**b)**	33	**c)**	45	**d)**	9
e)	82	**f)**	55	**g)**	14	**h)**	98

2. Turn over to play the Rounding to 10 Game.

Rounding to 10 Game

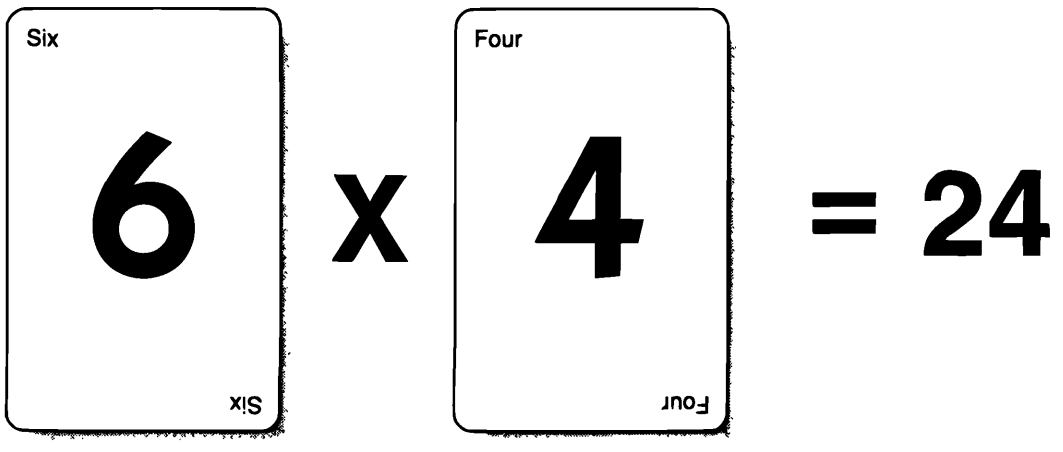
This is a game for 2 - 4 players.

Take out all the 3, 4, 5, 6, 7, 8 and 9 cards from Smile **2226** Sum Number Cards and 20 counters of the same colour for each player.

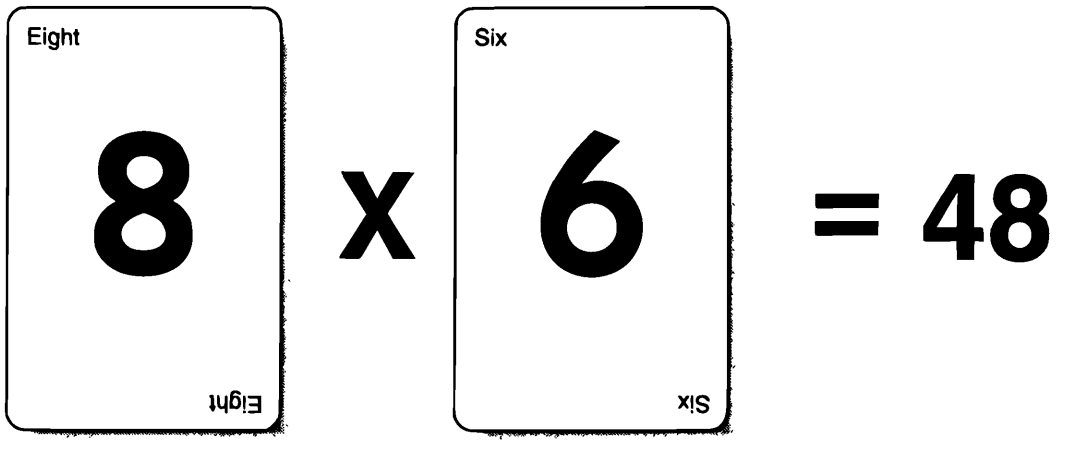
The Rules:

- Shuffle the cards.
- Place the cards face down.
- Take turns to turn over 2 cards.
- Multiply the two numbers together and round the answer to the nearest 10.
- Use a counter to cover up your rounded number on the board.
- The winner is the first player to get 3 in a line.
- Play the game several times.

Example:



24 rounded to the nearest 10 is **20**.
The counter can cover any **20** on the board.



48 rounded to the nearest 10 is **50**.
The counter can cover any **50** on the board.

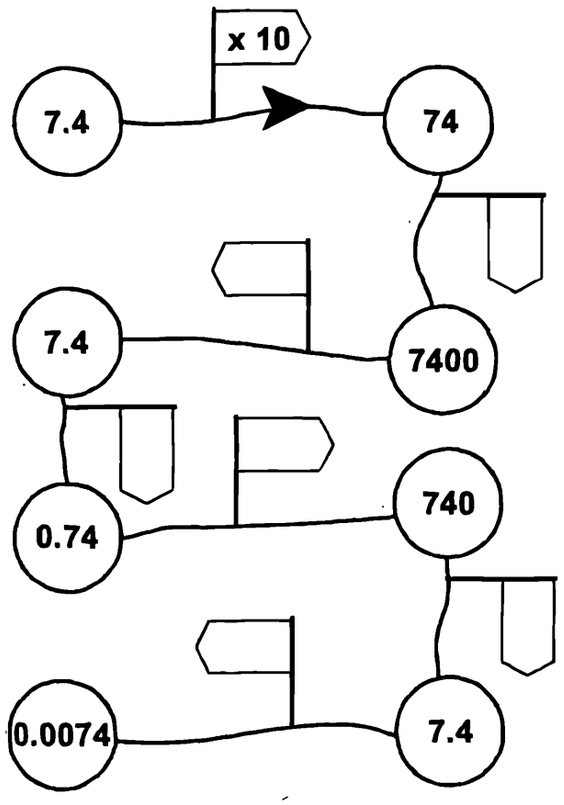
10	30	20	10	30	40	20
20	10	80	40	60	10	30
50	60	70	20	10	50	40
10	30	10	20	30	20	10
40	30	50	70	10	50	40
60	20	80	40	60	50	10
20	10	40	20	30	10	20

Powers of Ten flags

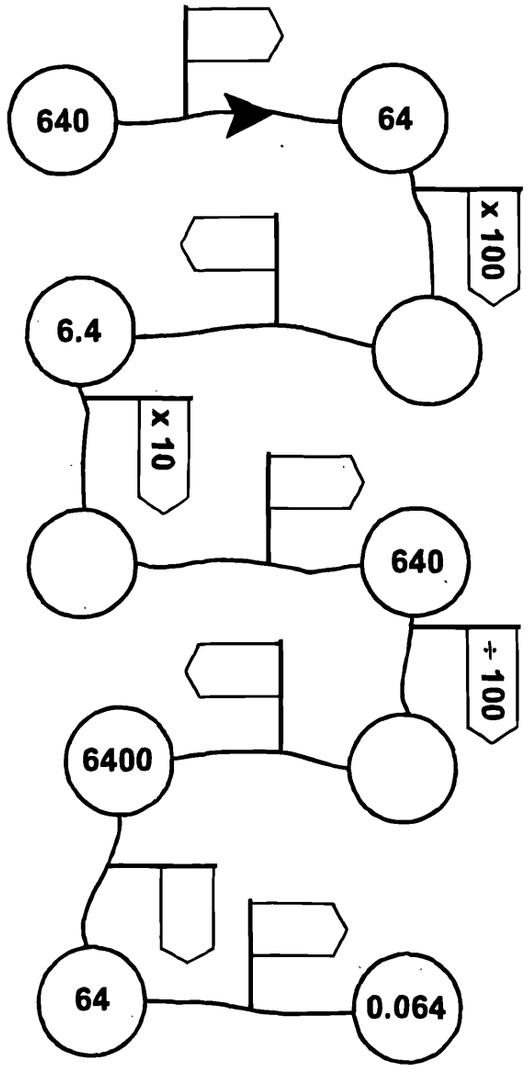
1) Fill in the flags to show which operation you need to use.

Choose from:

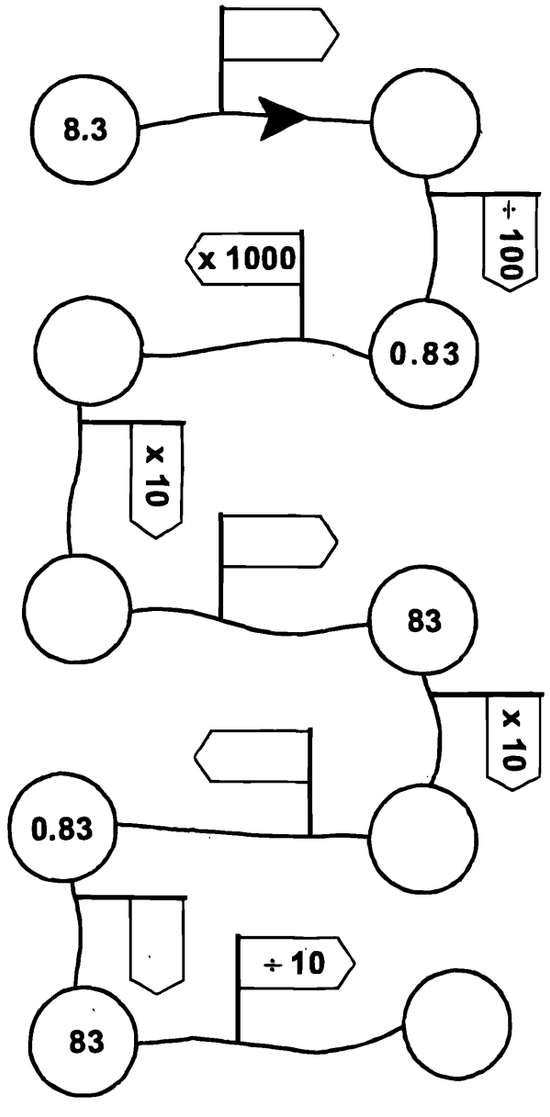
x 10	÷ 10
x 100	÷ 100
x 1000	÷ 1000



2) Fill in the flags and the circles.



3) This one is more challenging!



Equivalent Fraction Pairs

Smile **2374**

1	2	3	4	5	6	7	8	9	10

The numbers above can be used to make two pairs of equivalent fractions.
No number can be used more than once.

example:

$$\frac{3}{4} \equiv \frac{6}{8} \qquad \frac{1}{2} \equiv \frac{5}{10}$$

7 and 9 are not used.

≡ means "is equivalent to"

1. a) Find another way of making two pairs of equivalent fractions using the numbers 1 to 10.

b) Which numbers are not used?

2. a) How many equivalent fraction pairs can you make using the numbers 1 to 20?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

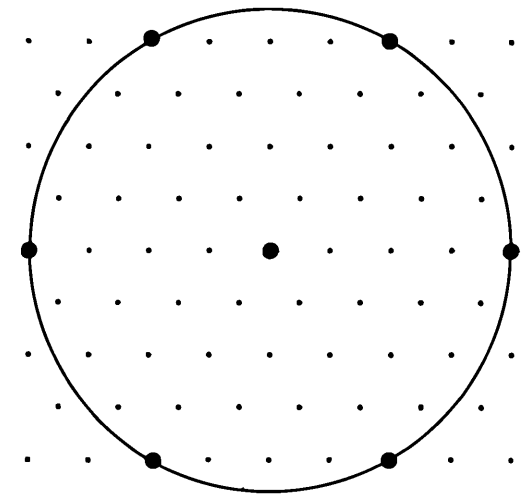
Remember: No number can be used more than once.

b) Which numbers are not used?
Why?

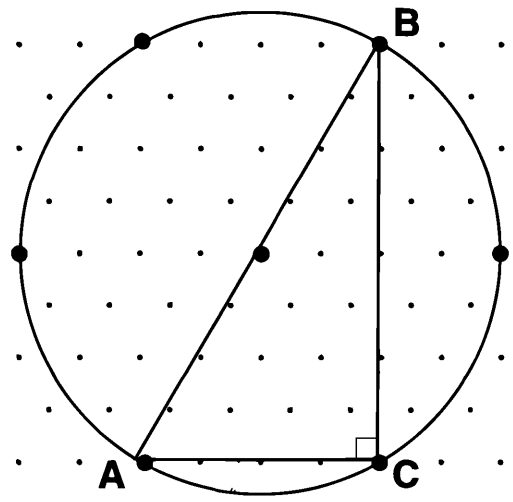
Polygons in Circles

You will need 1cm dotted isometric paper and a pair of compasses.

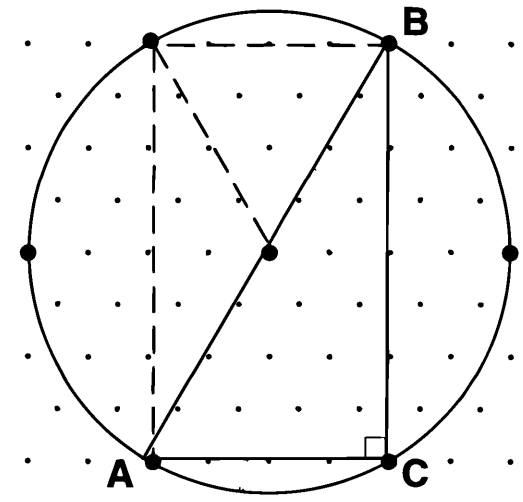
1. a) Draw a circle radius 4cm on isometric paper. There should be 6 points on the circumference of the circle.



b) Using these 6 points and the centre of the circle, construct a right-angled triangle.



c) Draw the dotted lines and explain why
$\angle BAC = 60°$ and
$\angle ABC = 30°$



2. By drawing similar circles construct the following polygons and work out the angles in the polygons. You might like to use Smile 2163 Geometry Facts.

   a) An equilateral triangle.
   b) An isosceles triangle.
   c) A rectangle.
   d) A trapezium.
   e) An arrowhead.
   f) A rhombus.
   g) A hexagon.
   h) A pentagon.

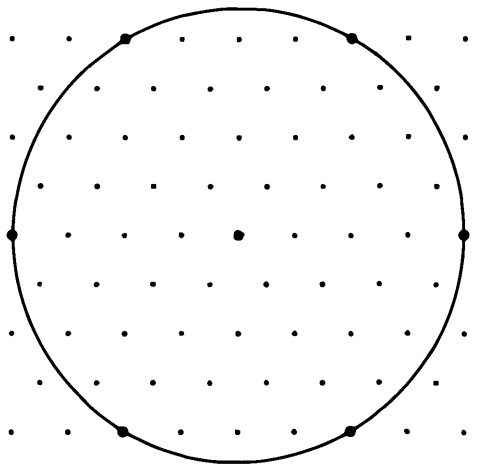
3. Which of your polygons are cyclic?

Definition of a cyclic polygon:

Any polygon whose vertices all lie on the circumference of a circle is called a cyclic polygon.

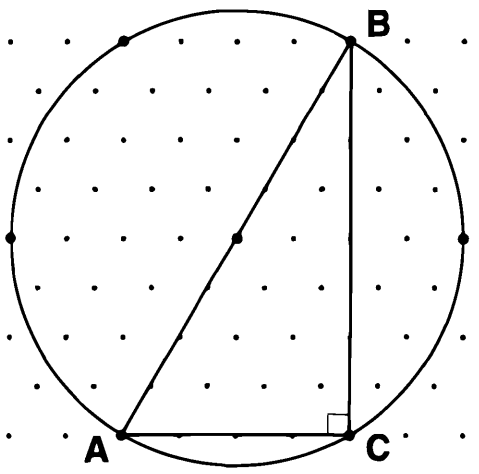
Polygons in Circles

You will need 1cm dotted isometric paper and a pair of compasses.



1. a) Draw a circle of radius 4cm on isometric paper. There should be 6 points on the circumference of the circle.

b) Using these 6 points and the centre of the circle construct a right angled triangle.



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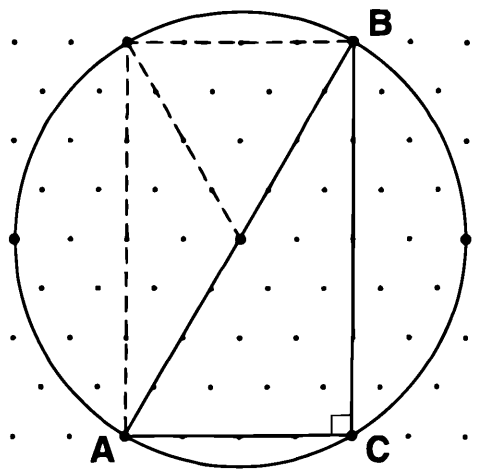


2. By drawing similar circles construct the following polygons and work out the angles in the polygons. You might like to use Smile **2163** Geometry Facts.

a. An equilateral triangle.
b. An isosceles triangle.
c. A rectangle.
d. A trapezium.
e. An arrowhead.
f. A rhombus.
g. A hexagon.
h. A pentagon.

Definition of a cyclic polygon:

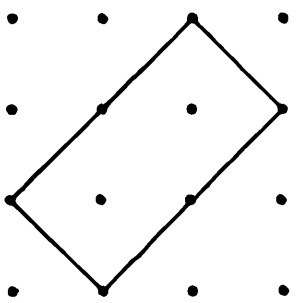
Any polygon whose vertices all lie on the circumference of a circle is called a cyclic polygon.

3. Which of your polygons are cyclic.

Areas of Polygons

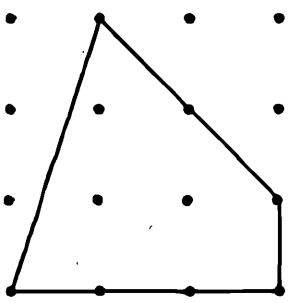
1. Calculate the areas of the polygons below.

A



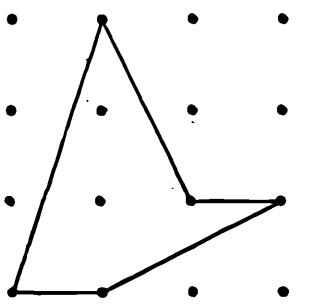
Area = _____ cm^2

B



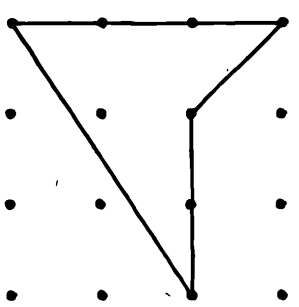
Area = _____ cm^2

C



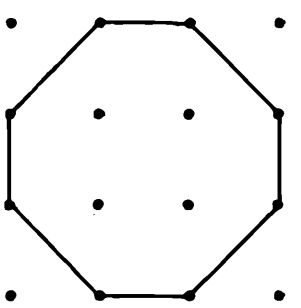
Area = _____ cm^2

D



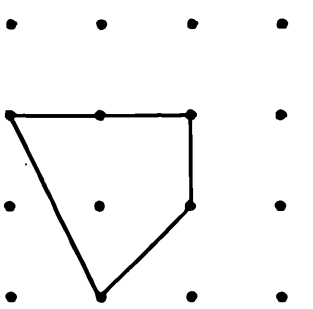
Area = _____ cm^2

E



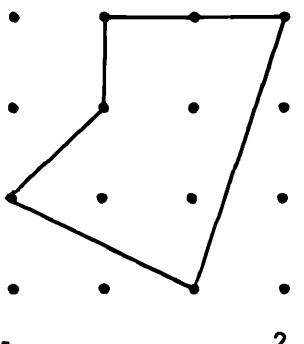
Area = _____ cm^2

F



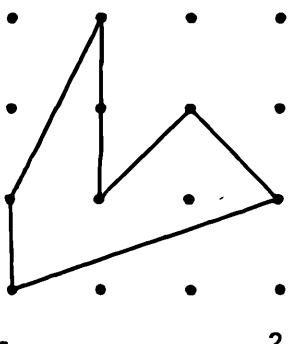
Area = _____ cm^2

G



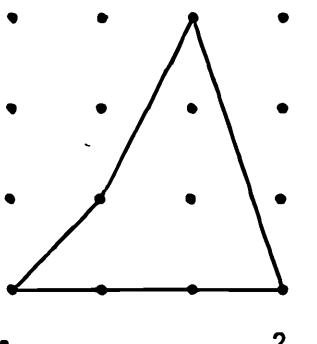
Area = _____ cm^2

H



Area = _____ cm^2

I



Area = _____ cm^2

2. Sort the polygons in order of area, largest first.

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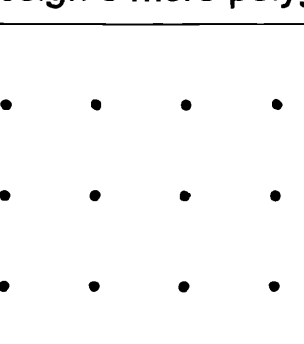
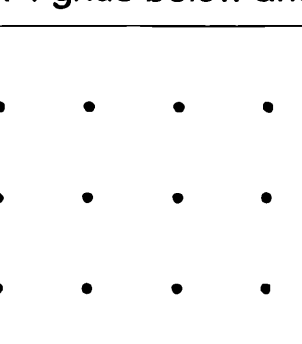
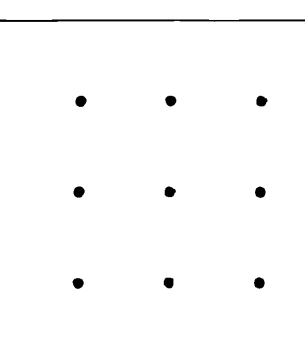
3. Design 3 more polygons on the 4 x 4 grids below and find their area.



Area = _____



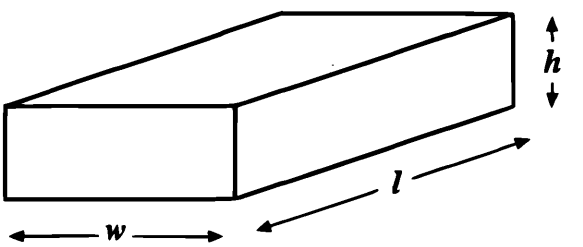
Area = _____



Area = _____

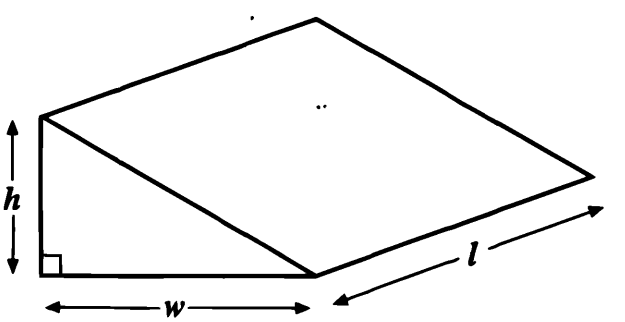
Solid Expressions

This cuboid has height h, width w and length l.



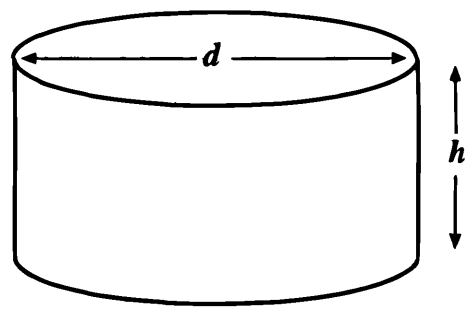
An expression for the **volume** of this cuboid is hwl.
An expression for the **surface area** of this cuboid is $2(hw + hl + wl)$.
An expression for the **total edge length** of this cuboid is $4(h + w + l)$.

1. This right-angled triangular prism has height h, width w and length l.



Work out:
a) An expression for the volume.
b) An expression for the surface area.
c) An expression for the total edge length.

2. This cylinder has diameter d and height h.



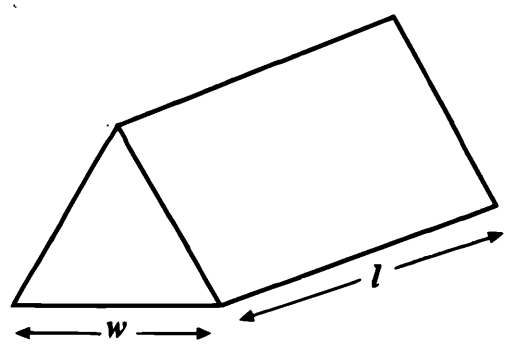
a) Show that the surface area of the cylinder can be expressed as $\frac{\pi d^2}{2} + \pi dh$

Work out:

b) An expression for the volume.

c) An expression for the total edge length.

3. This equilateral triangular prism has width w and length l.



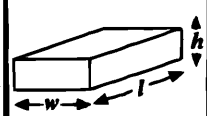
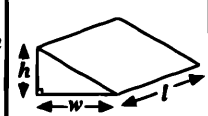
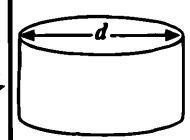
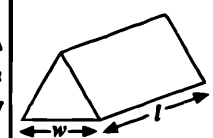
a) Show that the volume of this prism can be expressed as $\frac{\sqrt{3}lw^2}{4}$

Work out:

b) An expression for the surface area.

c) An expression for the total edge length.

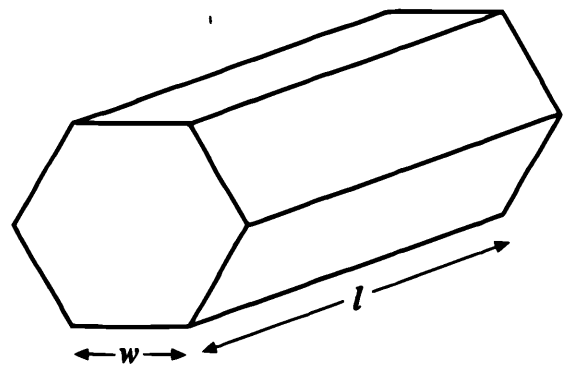
4. Copy and complete this table:

	Cuboid	Right-angled triangular prism	Cylinder	Equilateral triangular prism
Diagram				
Volume	hwl			$\frac{\sqrt{3}lw^2}{4}$
Surface area	$2(hw+hl+wl)$		$\frac{\pi d^2}{2} + \pi dh$	
Total edge length	$4(h+w+l)$			

5. Look carefully at the expression for each of the solids.
How would you decide if an expression described:

a) volume?
b) surface area?
c) total edge length?

6. The regular hexagonal prism below has the dimensions shown.



The three expressions for the hexagonal prism are:

$6lw + 3\sqrt{3}w^2$ $\qquad$ $12w + 6l$ $\qquad$ $\frac{3\sqrt{3}lw^2}{2}$

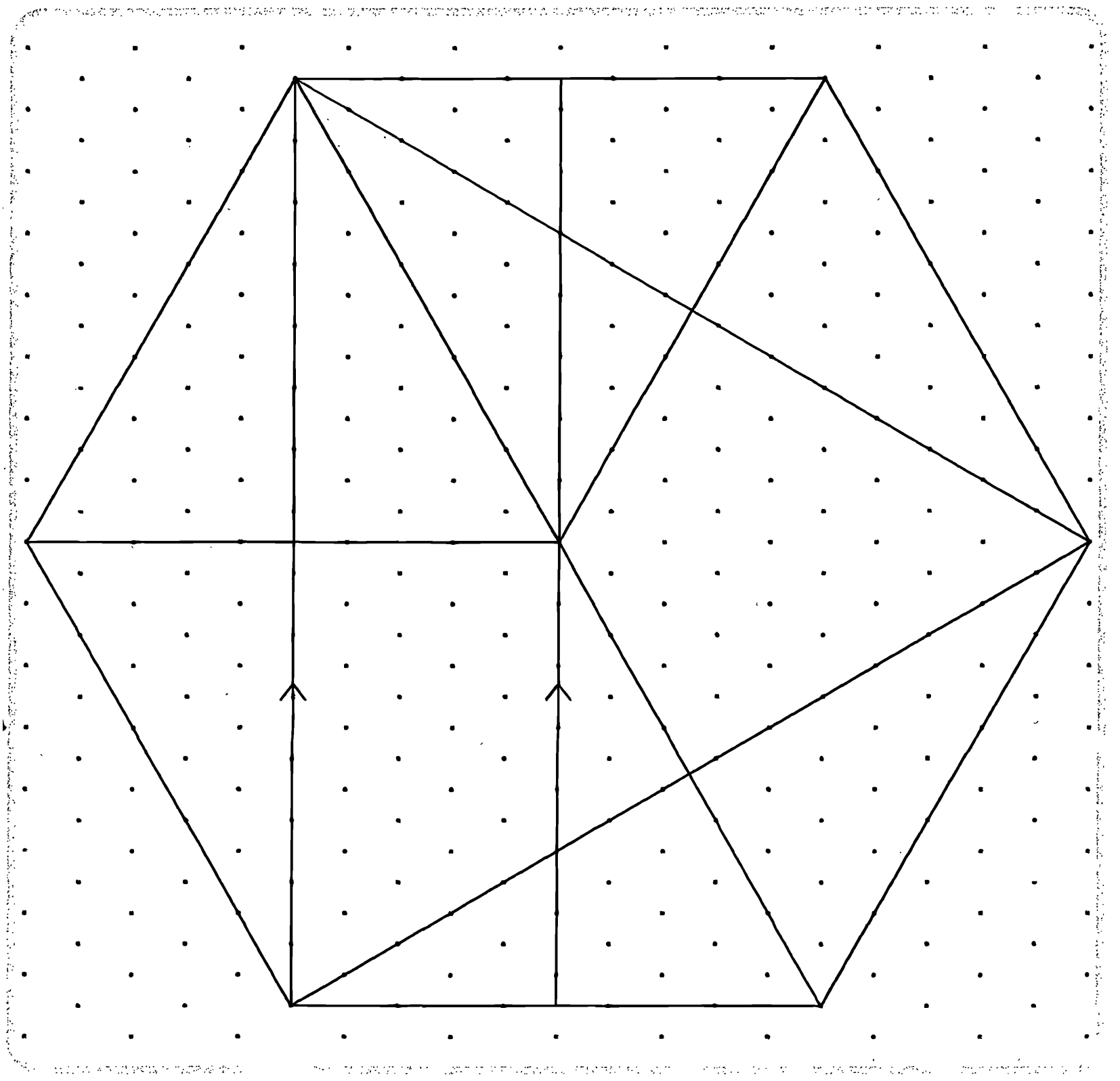
a) Which of the three expressions describes the volume of the regular hexagonal prism?

b) Which of the three expressions describes the surface area of the regular hexagonal prism?

c) Which of the three expressions describes the total edge length of the regular hexagonal prism?

Angles in a Regular Hexagon

The regular hexagon below is drawn on isometric dotted paper.
Find all the unmarked angles.



Nine Nine Nine

1. Copy and complete the following multiplication sequences.

1 x 9 = 9	1 x 99 = 99	1 x 999 = 999	1 x 9999 = 9999	1 x 99999 = 99999
2 x 9 = 18	2 x 99 =	2 x 999 =	2 x 9999 =	2 x 99999 =
3 x 9 = 27	3 x 99 =	3 x 999 =	3 x 9999 =	3 x 99999 =
4 x 9 =				
5 x 9 =				
6 x 9 =				
7 x 9 =				
8 x 9 =				
9 x 9 = 81	9 x 99 =	9 x 999 =	9 x 9999 =	9 x 99999 =

Do not use a calculator

2. Write about your methods. How did you work out the sequences?

3. Do your methods still work for:

10 x 9 =	10 x 99 =	10 x 999 =
11 x 9 =	11 x 99 =	11 x 999 =
12 x 9 =	12 x 99 =	12 x 999 =
13 x 9 =	13 x 99 =	13 x 999 =

Multiplication Review

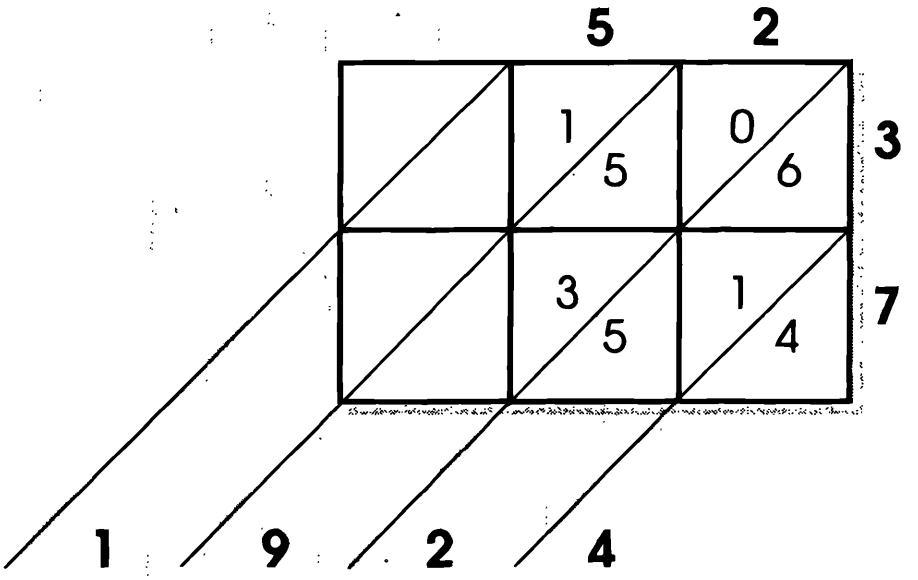
An activity for 2 or more people

In this pack there are five methods of multiplication.

For each one:

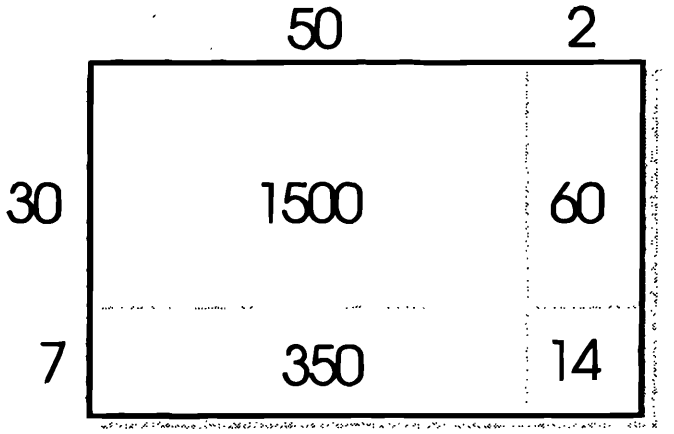
1. Look at the method of multiplication.
2. Describe what was done.
3. Check that the method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1500 + 350 + 60 + 14 = 1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

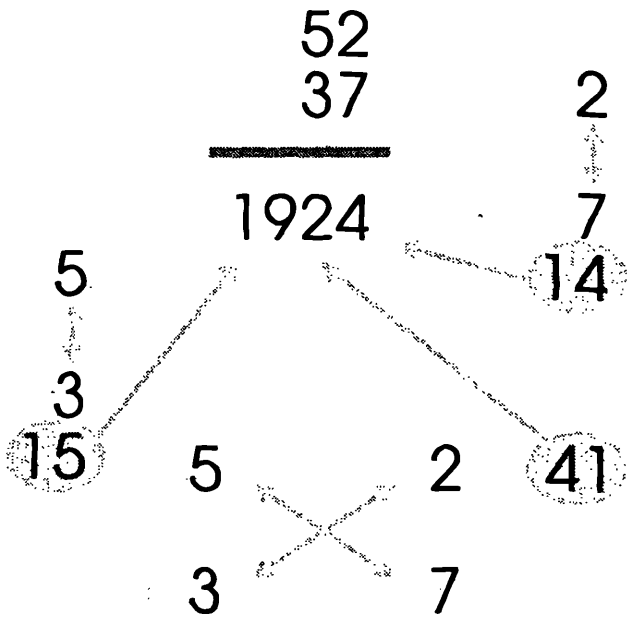
52 x 37 = ?

52 X 10 = 520
52 X 20 = 1040
52 X 40 = 2080
52 X 3 = 156

52 X 37 = 1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?



1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

52 x 37 = ?

~~52~~	~~37~~
~~26~~	~~74~~
13	148
~~6~~	~~296~~
3	592
1	1184
	1924

1. Look at this method of multiplication.
2. Describe what was done.
3. Check that this method works by trying it out on 27 x 69.
4. Try to work out why the method works.

Multiples of Ten

The **multiples** of a number are the numbers that appear in its multiplication table.

Example:
The multiples of 10 are **10, 20, 30, 40, ...**

1. This number square contains pairs of numbers next to each other whose sum is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

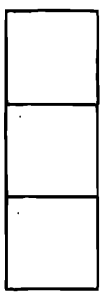
Example:

12
18

12 + 18 = 30

Find and mark five other pairs of numbers whose sum is a multiple of 10.

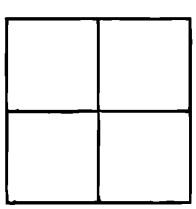
2. On this grid mark the three groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

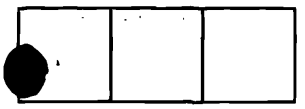
3. On this grid mark the five groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

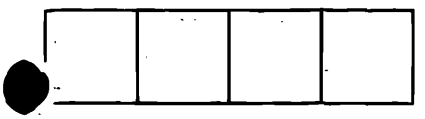
4. On this grid mark the two groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

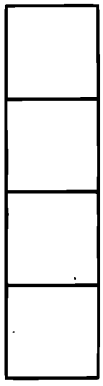
5. On this grid mark the four groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

6. On this grid mark the four groups of numbers in this shape



whose sum
is a multiple of 10.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

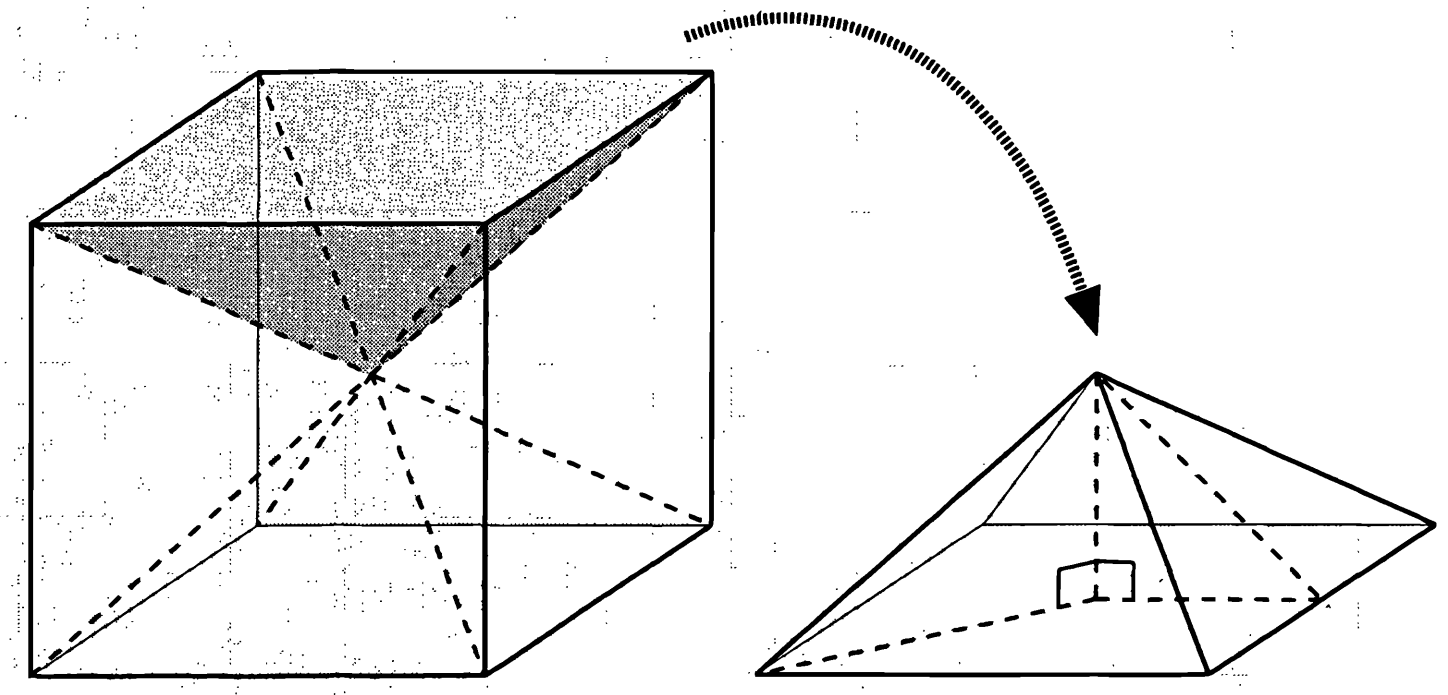
7. What other groups of numbers can you find whose sum is a multiple of 10? Mark them on the grid below.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Six Pyramids

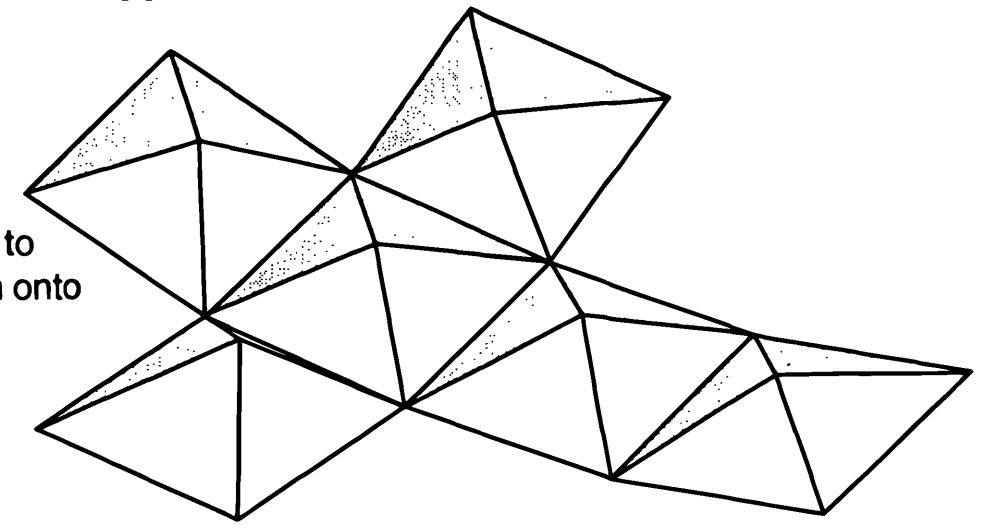
An activity for a small group.

This 6cm cube has been divided into six congruent pyramids.



Calculate the dimensions of each pyramid ...

... and use these dimensions to make six pyramids. Stick them onto the net of a 6cm cube.



Check that your pyramids fold back into a cube.

Now fold the cube net so that the pyramids are on the outside.

Solve the problems below for your new solid.
For each problem assume there are no hollow spaces inside the solid.

What is the volume of the new solid?

What is the surface area of the new solid?

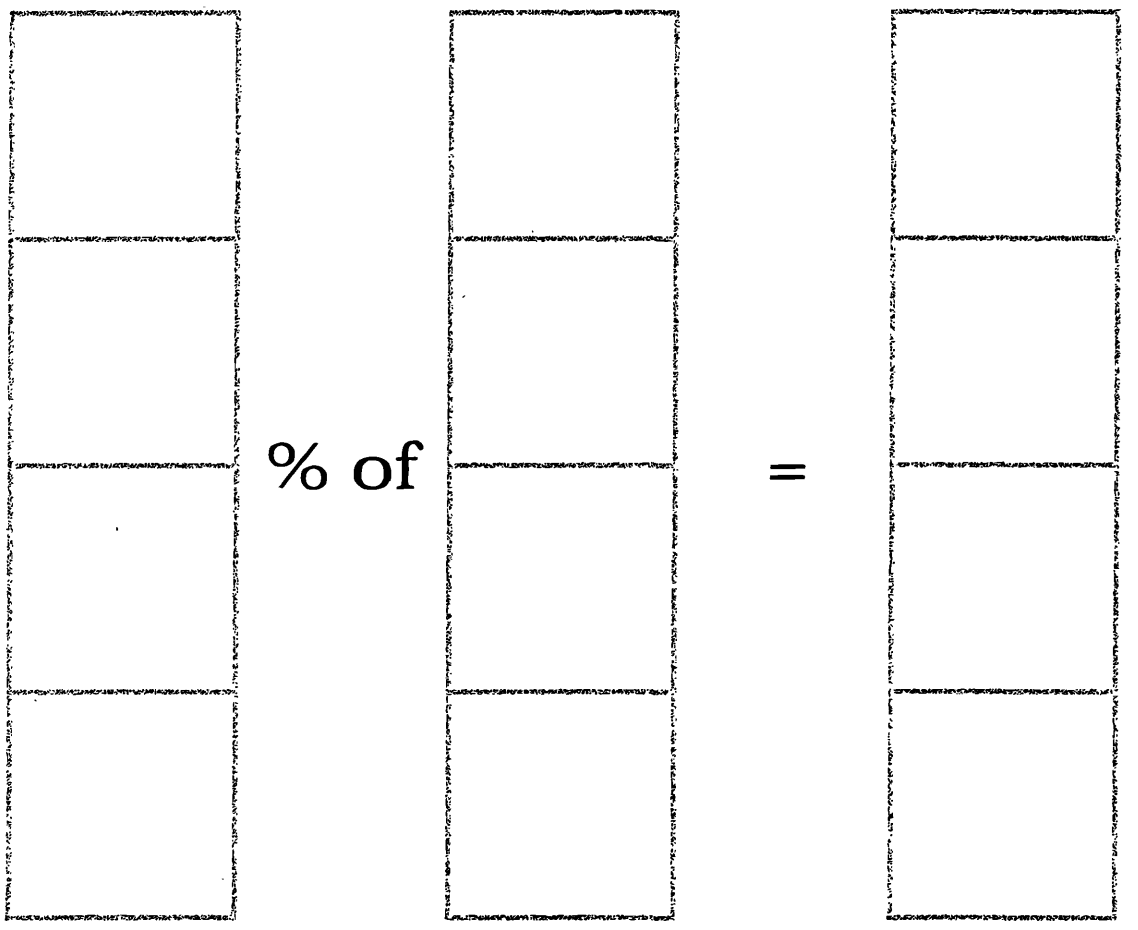
Has the new solid got 12 faces or 24? Justify your answer.

Can you draw a net for the new solid using ruler and compasses only?

Percentage Puzzle

You will need: scissors, glue

- Cut out the numbers at the bottom of this sheet.
- Place them on the sheet to make four true statements.
- Do not stick them down until you are sure that all four statements are true.



10	15	20	25	35	45
50	65	70	75	80	150

Consecutive Products

Consecutive numbers lie next to each other on the number line.

Examples:

6 and 7 are consecutive.
5, 6 and 7 are consecutive.
4 and 6 are **not** consecutive.

The **product** of two numbers is found by multiplying them together.

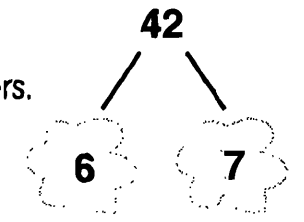
Example:

The product of 6 and 12 is 72 because 6 x 12 = 72

Example:

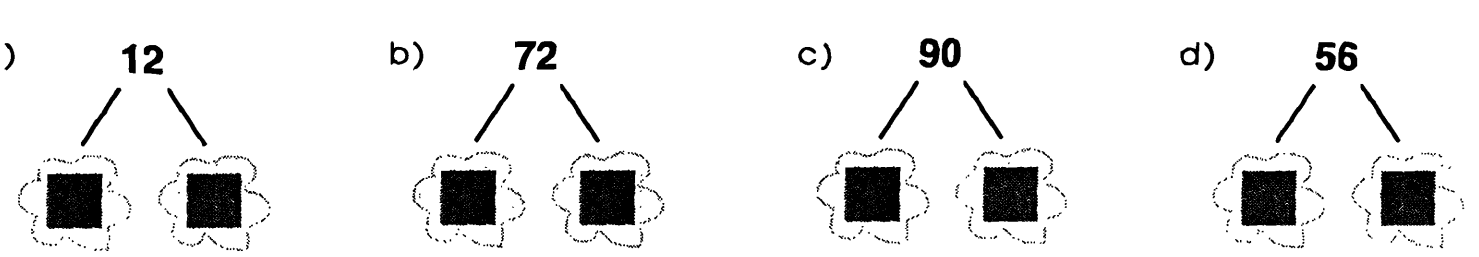
42 is the product of two consecutive numbers.

6 x 7 = 42

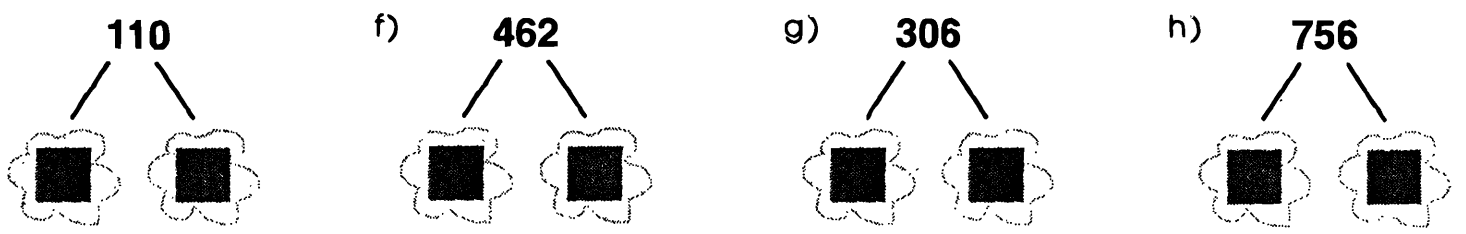


1. Copy the following and find the two missing consecutive numbers.

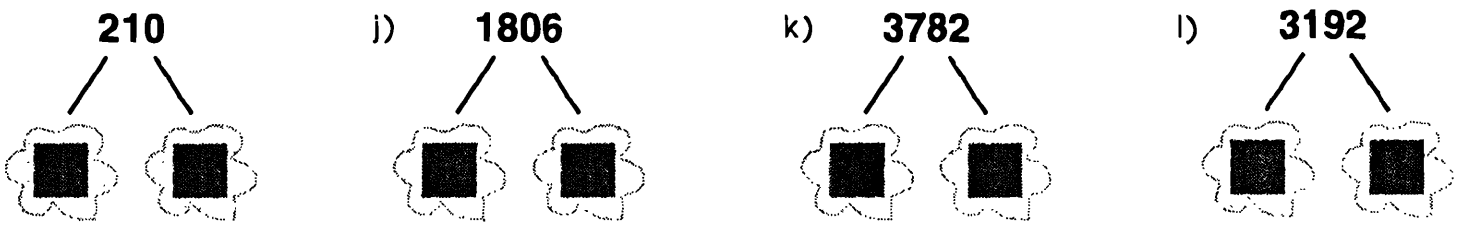
a) **12** b) **72** c) **90** d) **56**



e) **110** f) **462** g) **306** h) **756**

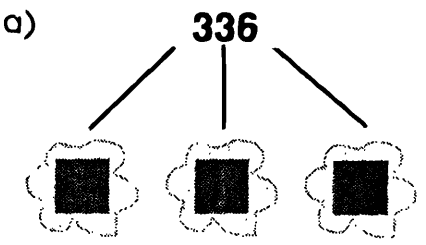


i) **210** j) **1806** k) **3782** l) **3192**

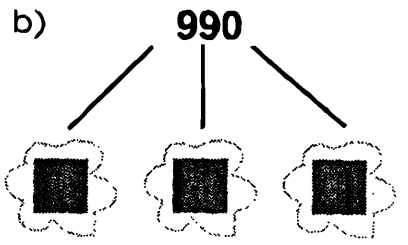


2. Copy the following and find the three missing consecutive numbers.

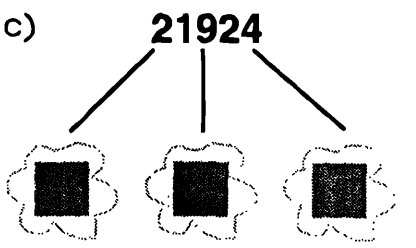
a) **336**



b) **990**



c) **21924**



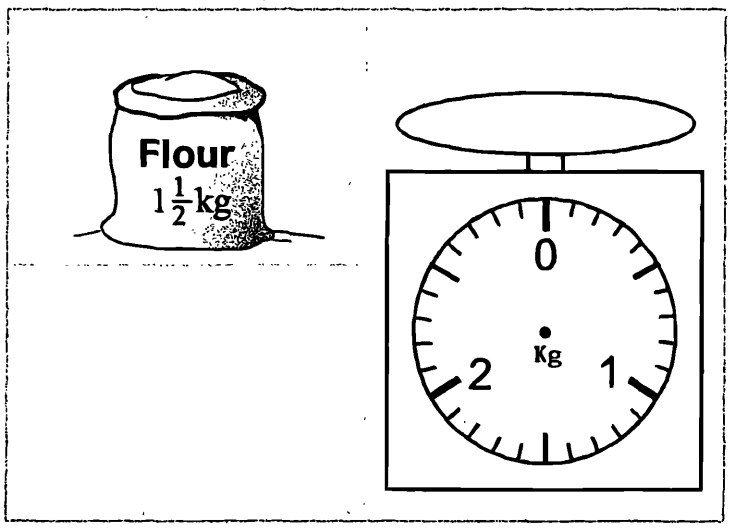
Challenge!

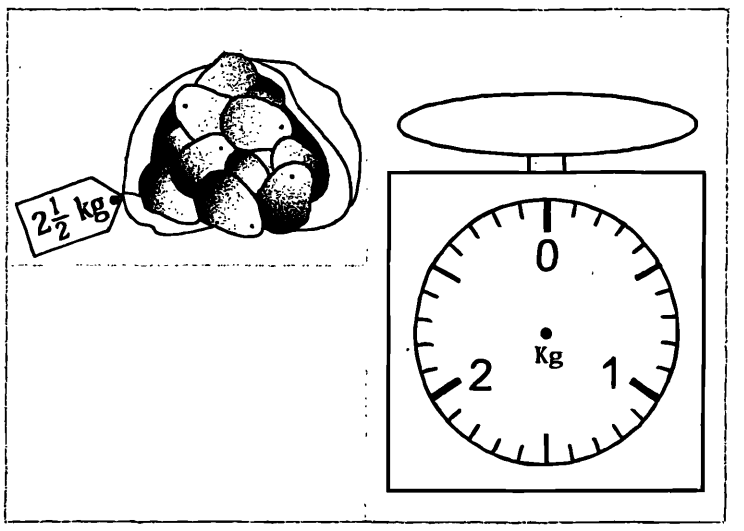
Matching Weights

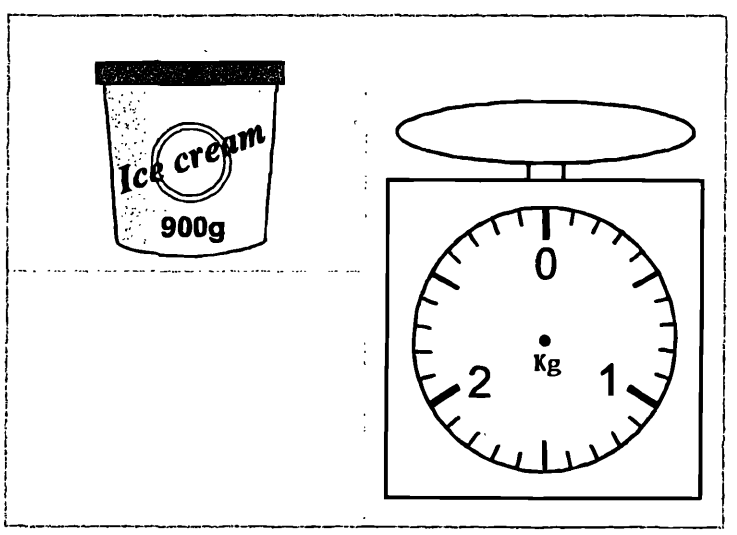
You will need: glue, scissors

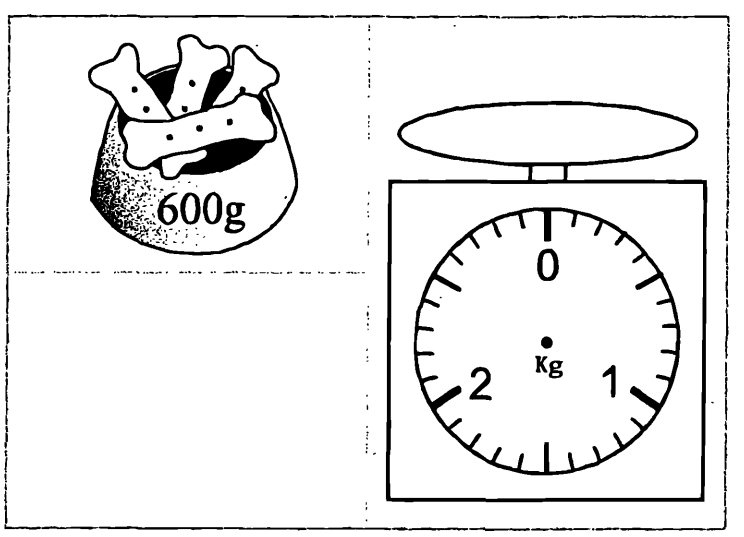
1. Cut out the weights at the bottom of this worksheet and match them to the objects.
2. Show each weight on the scales.

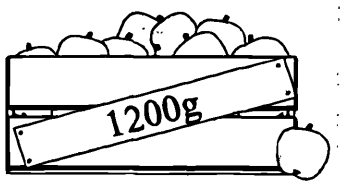
Remember 1kg = 1000g

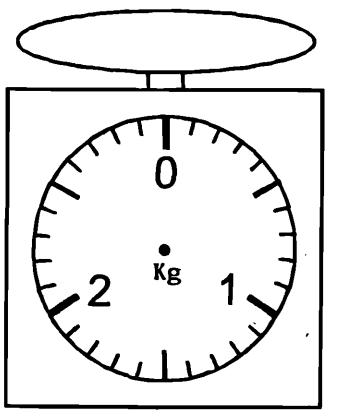


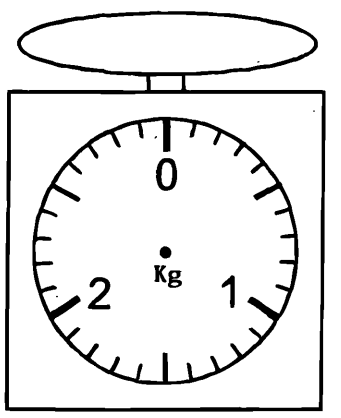


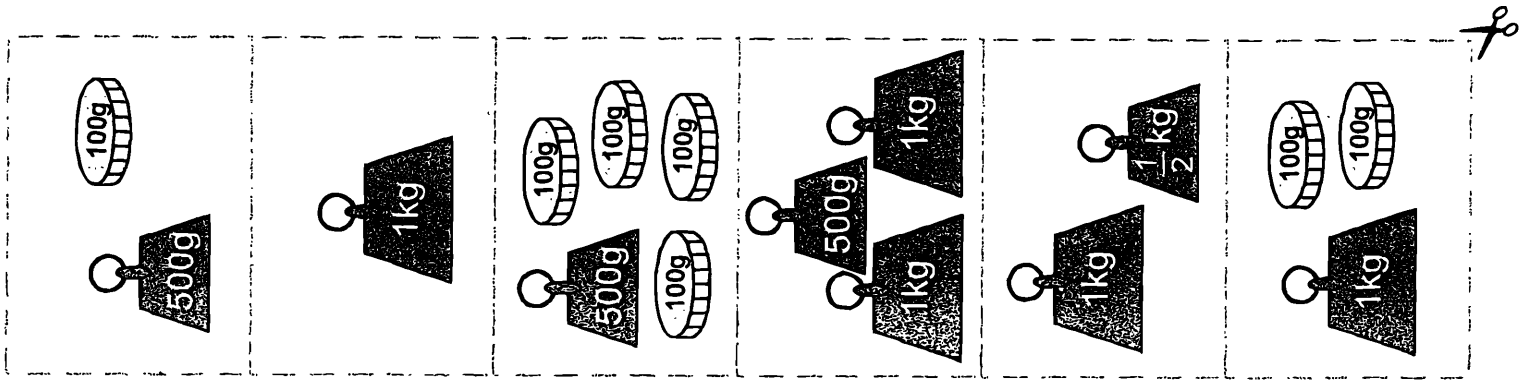










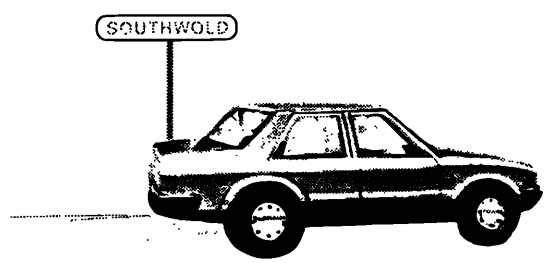


Sensible Answers

Do not use a calculator.

Problem:
18 people are going to Southwold by car.
Four people can fit in each car.

How many cars are needed?



Method:
$18 \div 4 = 4.5$
The answer to 18 divided by 4 is between 4 and 5.
If you gave the answer 4 only 16 people could go.
2 people would be left behind.

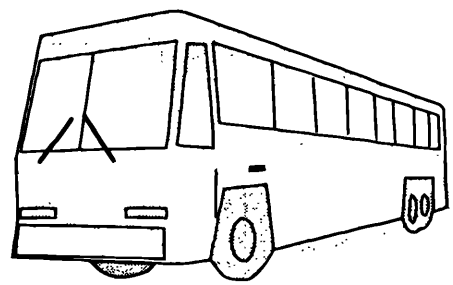
So the sensible answer is 5 cars.

The sensible answer depends upon the original problem.

Solve the problems below.
For each problem, show your method and make sure that your answer is sensible.

1. 169 students are going on a school trip to Margate. Each coach can carry 50 students.

How many coaches will be needed?



2. A football club has 49 members. A football team needs 11 players.

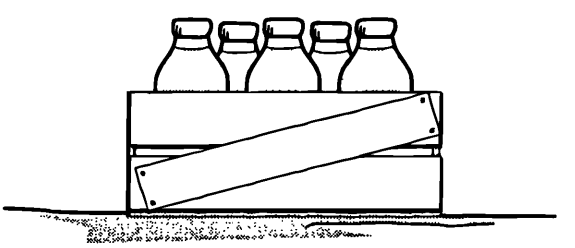
How many teams can the football club field?

3. A tin of paint covers 25 square metres.

How many tins of paint will you need to cover 116 square metres?

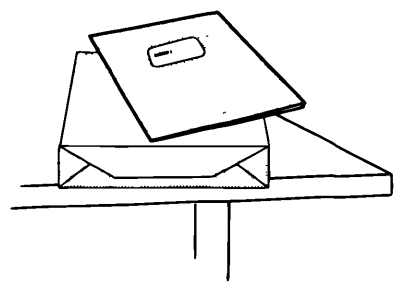
4. Milk is sold in crates of 12 identical bottles.
A wholesaler has 102 identical bottles.

How many crates can she make up?



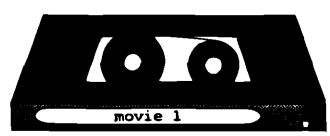
5. Exercise books are sold in packets of 10. Ms Kershaw wants to order exercise books for 67 students.

How many packets of books does Ms Kershaw need to order?



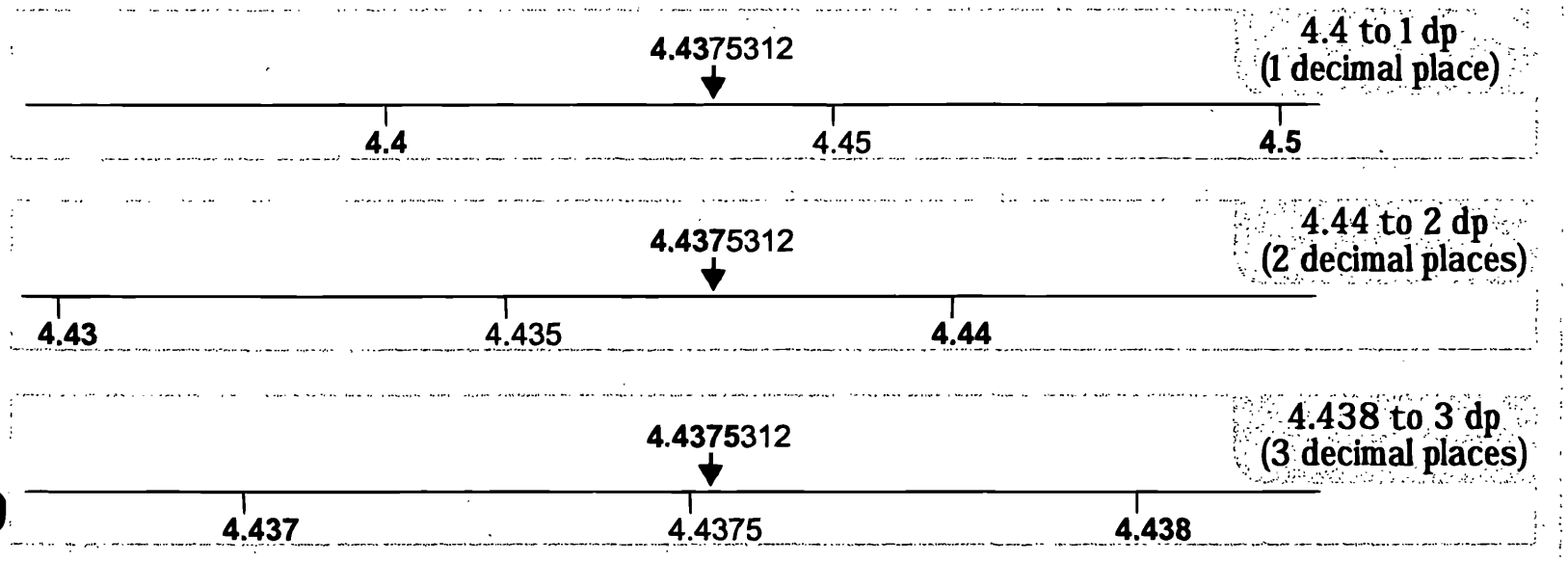
6. Jameela wants to record her favourite television programme.
Each episode lasts 40 minutes.

How many episodes can she record on a 3 hour tape.



Decimal Places Match

The number on the calculator shows 4.4375312
This can be approximated to:



Match each calculator answer to its three approximations.

Number on calculator 3.4457982	Number to 2 decimal places 3.45 to 2 dp	Number to 1 decimal place 3.6 to 1 dp	Number to 3 decimal places 3.456 to 3 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.557 to 3 dp	Number on calculator 3.5471035	Number to 2 decimal places 3.47 to 2 dp
Number to 2 decimal places 3.46 to 2 dp	Number on calculator 3.4561207	Number to 3 decimal places 3.547 to 3 dp	Number to 1 decimal place 3.4 to 1 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.446 to 3 dp	Number on calculator 3.5568156	Number to 2 decimal places 3.56 to 2 dp
Number to 1 decimal place 3.5 to 1 dp	Number to 3 decimal places 3.467 to 3 dp	Number to 2 decimal places 3.55 to 2 dp	Number on calculator 3.4672331

Number Stories

Here is a calculation.

7 + 2 – 6

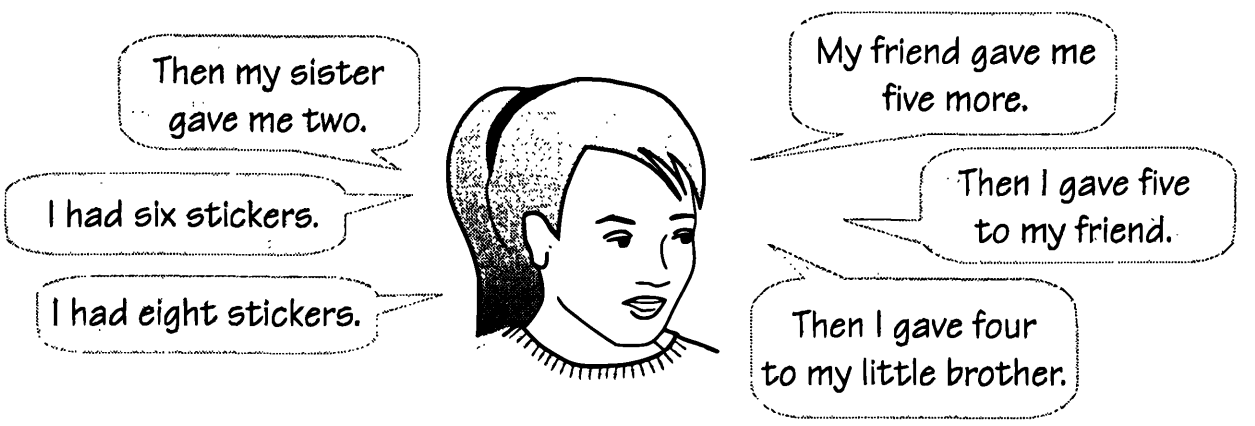
Here is its story:

I had seven marbles. Then I won two more marbles. Then I lost six marbles.
7 + 2 – 6

1. Here are two other calculations.

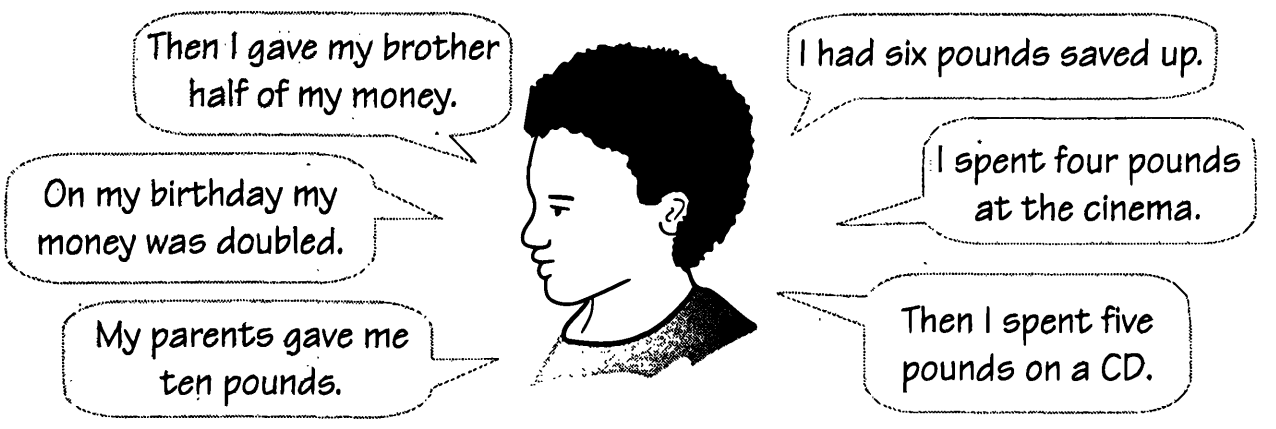
8 – 5 + 2 **6 + 5 – 4**

Use the sentences below to make a number story for each calculation.
Write them down in your book.



2. Here are two more calculations. Use the sentences below to make a number story for each calculation. Write them down in your book.

6 × 2 – 5 **10 ÷ 2 – 4**

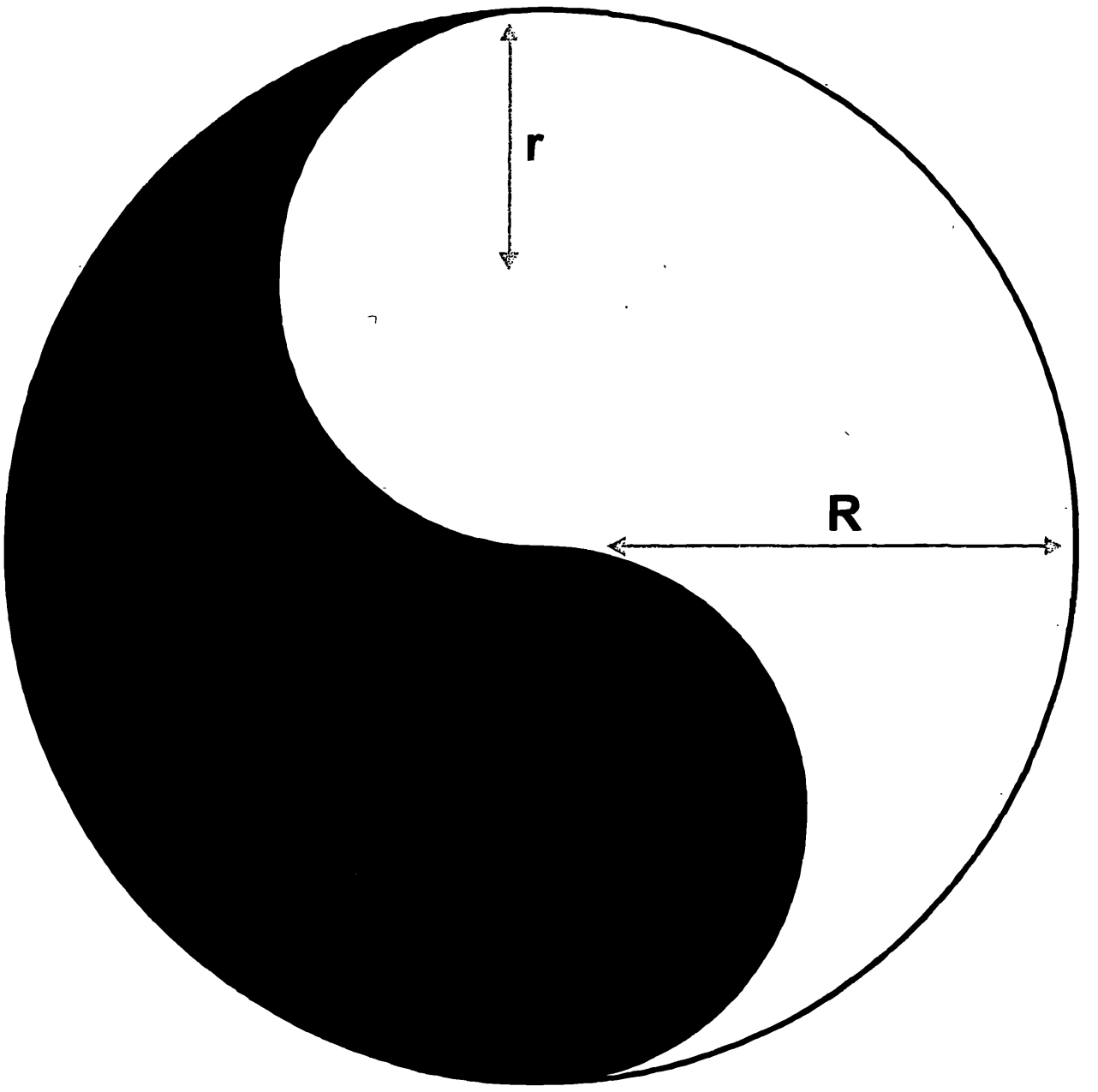


3. Make up number stories for each of these calculations and show them to your teacher.

8 – 3 + 7 **4 × 3 + 6**

Circle Cut

In the diagram below, the radius of each small semicircle (**r**) is half the radius of the outer circle (**R**).



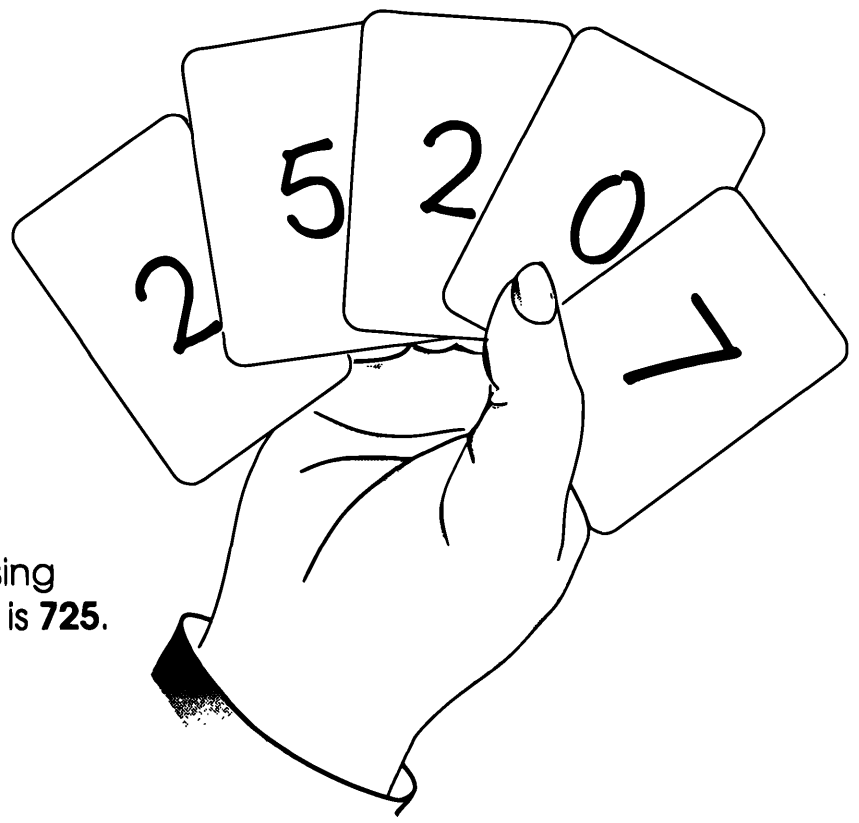
Make one straight cut across the circle so that each of the two regions is exactly halved.

Use algebra to justify your answer.

Play Your Cards Right

A game for four players in two teams.

You will need a set of number cards (digits between 0 and 9) and the targets from worksheet 2401a.



Target!

Largest odd number

The largest odd number using three of the number cards is **725**.

The Rules

Shuffle the number cards.

Deal each team five number cards.

Place the targets face down in a pile.

Turn over the first target.

Use any three of the number cards to get as close to the target as possible.

The team who gets the closest scores one point.

Place the used number cards at the bottom of the pack and replace them with three new cards.

Turn over the next target and repeat the game.

The team with the highest score wins.

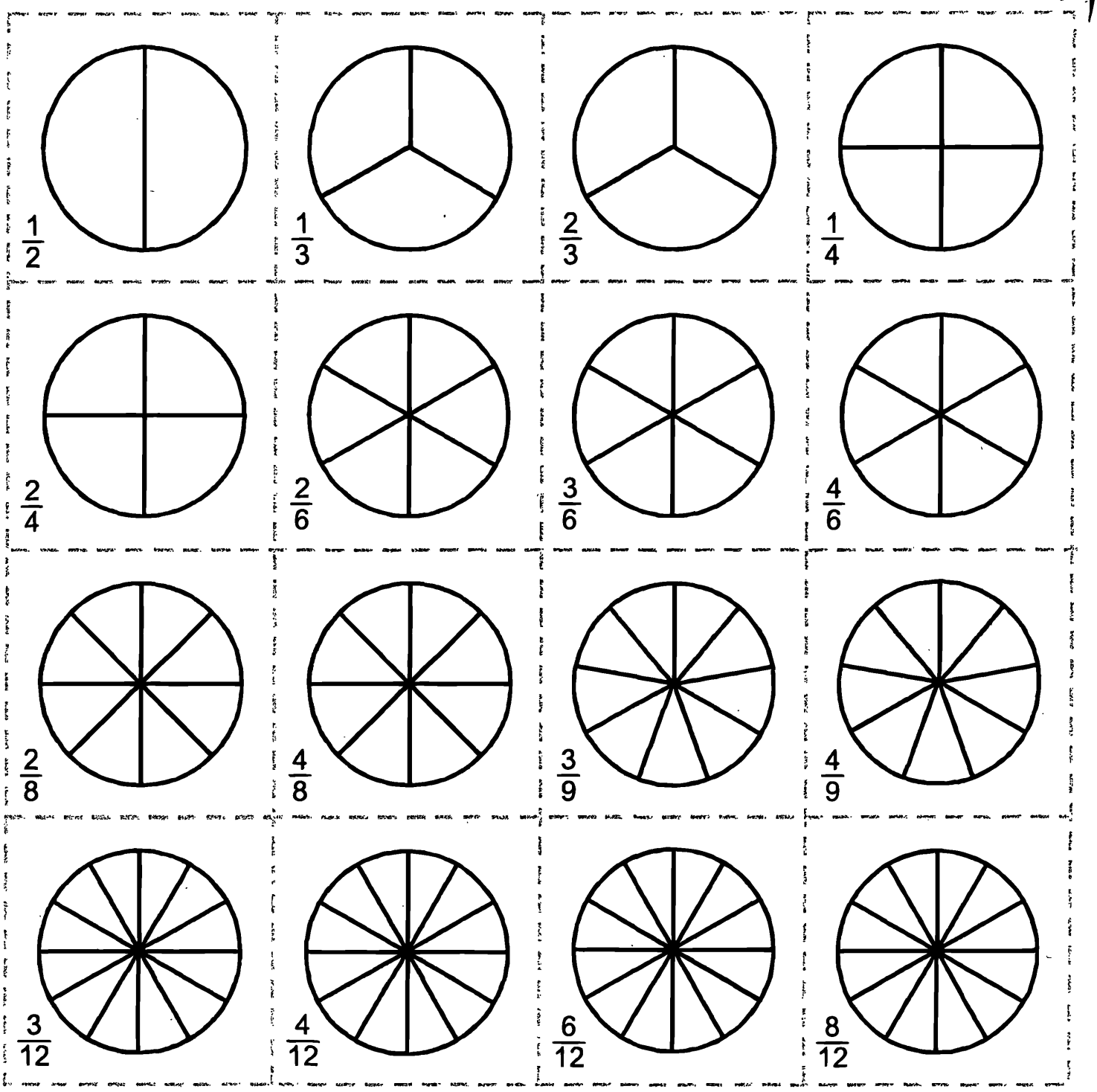
Targets for

Play Your Cards Right

Target! **Nearest even number to 500**	Target! **Nearest number to 100**
Target! **Largest odd number**	Target! **Largest even number**
Target! **Nearest odd number to 400**	Target! **Nearest number to 250**
Target! **Nearest number to 723**	Target! **Nearest number to 1000**
Target! **Smallest odd number**	Target! **Smallest even number**
Target! **Largest number**	Target! **Smallest number**

Equivalent Fractions Sort

1. Shade the fractions of the circles below.



2. Cut out all the fractions and arrange them in order of size.

3. Which of the fractions are equivalent?
(equivalent fractions represent the same proportion).

4. Find 2 fractions which are equivalent to $\frac{3}{4}$.

Missing the Point

Example:

Sheila saw this addition and realised that one of the numbers being added had a decimal point either missing or in the wrong place.

$$53.7 + 1.26 = 66.3 \quad ✗$$

She rewrote the addition correctly.

$$53.7 + 12.6 = 66.3 \quad ✓$$

Do not use a calculator.

In each of the calculations below, one and only one of the decimal points is either missing or in the wrong place.

A Rewrite these additions to make them correct.

1. $40.5 + 24.05 = 28.1$
2. $5.8 + 74 = 13.2$
3. $7 + 4 = 4.7$
4. $7.77 + 7.07 = 84.77$
5. $4.5 + 0.55 = 1$
6. $0.003 + 7 = 7.3$

B Rewrite these subtractions to make them correct.

1. $45 - 1.95 = 2.55$
2. $6.05 - 3.12 = 57.38$
3. $4.9 - 4.9 = 44.1$
4. $5 - 0.01 = 0.49$
5. $1.23 - 122.9 = 0.1$
6. $6 - 3.12 = 56.88$

SMILE MATHEMATICS

Commercial References

0001 - 2403 in numerical order

List of abbreviations on 2001 SMILE Network

ANGLE	SMILE software 'Angle Estimation' available from **SMILE Mathematics**
COORD	SMILE software 'Co-ordinates' available from **SMILE Mathematics**
DfEE	SMILE software Ref: 0260/2000 available from **DfEE**
DIME	A variety of materials available from **Tarquin**
ENRICH	SMILE software 'Co-ordinates' available from **SMILE Mathematics**
GRAPH	SMILE software 'Graphing' available from **SMILE Mathematics**
INVEST	SMILE software 'Investigation' available from **SMILE Mathematics**
INVEST Pgxx	Page number from Student's Handbook 'Investigation' available from **SMILE Mathematics**
MA Poster	Poster available from **Mathematics Association**
MATH PUZ	SMILE software 'Mathematical Puzzles' available from **SMILE Mathematics**
MOVE	SMILE software 'Movement' available from **SMILE Mathematics**
MOVE Pgxx	Page number from Student's Handbook 'Movement' to be printed from the CD available from **SMILE Mathematics**
NUM	CD 'Numeracy' available from **SMILE Mathematics**
PROP/NO	CD 'Properties of Number' available from **SMILE Mathematics**
PROP/NO Pgxx	Page number from Student's Handbook 'Properties of Number' to be printed from the CD available from **SMILE Mathematics**
SENSE/NO	SMILE software 'Sense of Number' available from **SMILE Mathematics**
SENSE/NO Pgxx	Page number from Student's Handbook 'Sense of Number' to be printed from the CD available from **SMILE Mathematics**
TARQUIN Poster	Poster available from **Tarquin**

List of Commercial Referenced activities in SMILE number order.

0581 Using a Mirror (DIME - Reflection Activities PP)
0778 Tangram Tree (MA Poster)
0906 Tak Tiles A (DIME - TakTiles PP3)
0907 Tak Tiles B (DIME - TakTiles PP3)
0908 Tak Tiles C (DIME - TakTiles PP3)
0909 Tak Tiles D (DIME - TakTiles PP3)
1331 Equal Angles (DIME - The Rotagram PP)
1332 Rotations (DIME - The Rotagram PP)
1333 Directions (DIME - The Rotagram PP)
1334 Recognising Solids (DIME - 3-D Sketching PP)
1335 Sketching Solids (DIME - 3-D Sketching PP)
1336 Turning and Toppling (DIME - 3-D Sketching)
1337 Reflections (DIME - 3-D Sketching PP)
1338 Wedges (DIME - 3-D Sketching PP)
1339 Flags (DIME - Pre-Algebra PP)
1340 Pattern and Notation (DIME - Pre-Algebra)
1341 Number Machines (DIME - Pre-Algebra PP)
1342 Mappings and Graphs (DIME - Pre-Algebra)
1343 Simple Mappings (DIME - Pre-Algebra PP)
1344 Further Mappings (DIME - Pre-Algebra PP)
1354 Euler Solids (MA Poster)
1482 Tricky Sum (MA Poster)
1604 Nim (SMILE software Mathematical Puzzles)
1605 Guess (SMILE software Sense of Number)
1606 GuessD (SMILE software Sense of Number)
1607 Elephant (SMILE software Co-ordinates)
1608 Reverse (SMILE software Mathematical Puzzles)
1609 Maze (SMILE software Movement)
1620 Bounce (DfEE)
1621 Rhino (SMILE software Co-ordinates)

1622 Vectmeet (SMILE software Movement)

1624 Snooker (SMILE software Angle Estimation)

1625 Box (SMILE software Sense of Number)

1626 Boat (SMILE software Mathematical Puzzles)

1641 Lines (SMILE software Co-ordinates)

1650 Take Part (Software - DfEE)

1651 Frog (SMILE software Mathematical Puzzles)

1652 Jugs (SMILE software Mathematical Puzzles)

1653 Master(SMILE software Mathematical Puzzles)

1654 Racegame (SMILE software Movement)

1666 Tower (SMILE software Sense of Number)

1667 Pilot (SMILE software Movement)

1691 Predict (SMILE software Mathematical Puzzles)

1702 Circle (SMILE software Investigations)

1708 Factor (SMILE software Properties of Number)

1714 Queens (SMILE Properties of Number Students' HB Pg 35)

1715 Locate (SMILE software Co-ordinates)

1718 Line Symmetry A 1 - 4 (DIME - Line Symmetry Puzzles A PP5A)

1719 Line Symmetry A 5 - 10 (DIME - Line Symmetry Puzzles A PP5A)

1721 Angle 90° (SMILE software Angle Estimation)

1728 BoxD (SMILE software Sense of Number)

1729 Minimax (SMILE software Sense of Number)

1730 Wall (SMILE software Sense of Number)

1731 Rose (SMILE software Investigations)

1732 3D Maze (SMILE software Movement)

1745 Identify (SMILE software Properties of Number)

1746 Define (SMILE software Properties of Number)

1747 Darts (SMILE software Numeracy)

1755 Hopslide (SMILE software Mathematical Puzzles)

1756 Tadpoles (SMILE software Mathematical Puzzles)

1767 AddsUpTo (SMILE software Numeracy)

1776 Spirals (SMILE software Investigations)

1777 Avoid each other (SMILE Investigations Students' HB Invest Pg 35)

1778 Jumping (SMILE software Mathematical Puzzles)

1779 Lineover (SMILE software Graphing)

1785 Invest. Queens (SMILE Movement Students' HB Pg 35)

1787 Angle 360° (SMILE software Angle Estimation)

1796 Plotter (SMILE software Graphing)

1798 Quilts (SMILE software Investigations)

1820 Parallels (SMILE software Graphing)

1833 Magic (SMILE software Numeracy)

1834 Tenners (SMILE software Numeracy)

1835 Magnify (SMILE software Sense of Number)

1836 3inaline (SMILE software Co-ordinates)

1840 PointsAndLines (SMILE software Graphing)

1841 Interlocking Squares (DIME - Shape Recognition PP1)

1842 Shapes Jigsaw (DIME - Shape Recognition PP2)

1851 Regions (SMILE software Graphing)

1852 Foxes and Chickens (SMILE software Graphing)

1853 Pinball (SMILE software Investigations)

1855 Quadratic Mappings (DIME - Pre-Algebra PP)

1866 Mirror Match (DIME - Reflection Activities PP)

1876 Fill the Shape (DIME - Build-up PP)

1877 Add a Cube or Two (DIME - Build-up PP)

1878 Two Blocks (DIME - Build-up PP)

1879 Build and Balance (DIME - Build-up PP)

1880 More than Two Blocks (DIME - Build-up PP)

1882 Wedges 1 (DIME - Build-up PP)

1883 Wedges 2 (DIME - Build-up PP)

1889 Regular Tilings 1 (DIME - Regular Tilings Project)
- Use A Triangles, B Convex Quadrilaterals, C Concave Quadrilaterals, E 2 Sizes of Squares.
- For each activity do questions 1 - 3.

1890 Regular Tilings 2 (DIME - Regular Tilings Project)
- Use F Polygons.
- Do questions 1 - 4.

1891 Regular Tilings 3 (DIME- Regular Tilings Project)
- Use D Pentagons.
- Do questions 1 - 3.

1892 Line Symmetry B 1 - 3 (DIME- Line Symmetry Puzzles B PP5B)

1893 Line Symmetry B 4 - 6 (DIME- Line Symmetry Puzzles B PP5B)

1894 Line Symmetry B 7 - 10 (DIME- Line Symmetry Puzzles B PP5B)

1896 Spatial Reasoning (DIME - Spatial Reasoning Puzzles PP7)

1903 Numbers (SMILE software Properties of Number)

1908 Pattern Pack A (DIME - Pattern Pack A PP6A)

1909 Pattern Pack B (DIME - Pattern Pack B PP6B)

1920 Pattern Spotting (SMILE Properties of Number Students' HB Pg 16)

1936 Many Grids (SMILE Properties of NumberStudents' HB Pg 28)

1950 Diagonal Multiples (Students' HB Properties of Number Pg 29)

1961 One Million (TARQUIN Poster)

1966 Curve Stitching (TARQUIN Poster)

1967 One Dice (DIME - Probability Pack A)

1968 Numbers Up (DIME - Probability Pack A)

1969 Two Dice (DIME - Probability Pack A)

1970 Five Beads (DIME - Probability Pack B)

1971 Seven Beads (DIME - Probability Pack B)

2008 Curves of Pursuit (TARQUIN Poster)

2009 Three Counters (DIME - Probability Pack A)

2010 Six Beads (DIME - Probability Pack B)

2011 Four Beads (DIME - Probability Pack B)

2012 Tessellation Poster (TARQUIN Poster)

2014 Probably Probable? (Students' HB Investigations Pg 43)

2073 Tricubes (DIME - Tricube Puzzles Project)

- Worksheets A1, A2, A3, A4

2074 Building with Tricubes (DIME - Tricube Puzzles Project)

- Worksheets B2, B6, B10

2075 Tricube Plans (DIME - Tricube Puzzles Project)

- Worksheets C1, C5, C6, C8

2076 Building on a Square (DIME - Tricube Puzzles Project)

- Worksheets D1, D5, D8, D10

2077 Making a 3 x 3 x 3 Cube (DIME - Tricube Puzzles Project)

Worksheets E3, E7, E10

2086 Circles to Polygons (SMILE Investigations Students' HB Pg 10)

2094 Squares (SMILE Investigations Students' HB Pg 4)

2113 Mystery (SMILE 1783 Calculating: Page 3)

2114 2 Puzzles (SMILE 1783 Calculating: Page 5)

2115 Missing Digit (SMILE 1783 Calculating: Page 8)

2116 Operations (SMILE 1783 Calculating: Page 9)

2117 Rumour (SMILE 1783 Calculating: Page 10)

2118 Ticket Sales (SMILE 1783 Calculating: Page 11)

2119 Patterns (SMILE 1783 Calculating: Pages 12 & 13)

2120 Productive (SMILE 1783 Calculating: Page 14)

2121 Hot and Cold (SMILE 1783 Calculating: Page 15)

2122 Target 200 (SMILE 1783 Calculating: Page 16)

2123 Missing Signs (SMILE 1783 Calculating: Page 17)

2124 Date of Birth (SMILE 1783 Calculating: Pg18 /19)

2125 Escape (SMILE 1783 Calculating: Pages 20 & 21)

2126 Problems (SMILE 1783 Calculating: Pages 22 & 23)

2194 Tossing Coins (SMILE Investigations Students' HB Pg 38 /40)

2202 Visiting Every Point (SMILE Investigations Students' HB Investi. Pg 8)

2284 BoxN (SMILE software Sense of Number)

2285 GuessN (SMILE software Sense of Number)

2286 Quadrants and Squares (DIME - Algebra through Geometry)

- Worksheets A3, A4

2287 Add and Subtract Squares and Quadrants (DIME - Algebra through Geometry)

- Worksheets A5, A6

2288 Algebra Tak-Tiles on a Grid (DIME- Algebra through Geometry)

- Worksheets B1, B2, B3, B4, B5, B6

2289 Algebra Tak-Tiles without a Grid (DIME - Algebra through Geometry)

- Worksheets C1, C2, C4, C5, C6

2290 A New Unit of Area (DIME- Algebra through Geometry)

- Worksheets D1, D2, D3, D4, D5, D6

2291 Comparing Areas (DIME- Algebra through Geometry)

- Worksheets E1, E3, E4)

2326 Hanoi (SMILE software Mathematical Puzzles)

2327 Hats (SMILE software Mathematical Puzzles)

2373 Queens (SMILE software Movement)

2377 TenSprint (SMILE software Numeracy)

2378 Matching Fractions (SMILE software Numeracy)

2379 Ordering Fractions (SMILE software Numeracy)

2380 NumberLines (SMILE software Numeracy)

2381 NumberLinesD (SMILE software Numeracy)

2393 Equivalent Pair (SMILE software Enriching Number)

2394 Make that Number (SMILE software Enrich No)

2395 Maximum Remainder (SMILE software EnrichNo)

2396 FindTheLine (SMILE software Graphing)

2397 Guess Inequality (SMILE software Graphing)

Additional resources available from SMILE Mathematics

SMILE Mathematics Worksheet Pack
There are 270 photocopiable worksheets. The worksheets are not included in a SMILE Full Class Set or a SMILE Single Copy Set, but are referenced on the SMILE 2001 Network.

Whole class lessons

• Bridging Units	2 units suitable for Year 7.
• Nice Ideas in One Place V.1	25 whole class activities, suitable for KS3.
• Nice Ideas in One Place V.2	20 whole class activities, suitable for KS3.
• Reasoning	27 whole class activities, suitable for KS3.
• Revision through Groupwork	9 topics allowing for differentiation.
• Whole Class Maths Projects	8 whole class projects, suitable for KS3/4.

Assessment

• Assessment Pack	Assessment activities and tests.

DfEE Available from **DfEE Publications**
www.dfee.gov.uk
Tel: 0845 0622260

MA Posters Available from **Maths Association**
259 London Road
Leicester
LE2 3BE
Tel: 0116 270 3877

SMILE software Available from **SMILE Mathematics**
108a Lancaster Road
London
W11 1QS
Tel: 020 7598 4841

TARQUIN Available from **Tarquin Publications**
Stradbroke,
Diss
Norfolk
IP21 5JB
Tel: 01379384 218

SMILE MATHEMATICS
Isaac Newton Centre
108A Lancaster Road
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ACTIVITY LIST

Smile 0001 - 2403

SMILE
MATHEMATICS

Abbreviations used, in alphabetical order.

Abbr	AT	Flow
3-D	AT3	3-D
A&P	AT3	Area and Perimeter
Add	AT2	Addition
AIDa	AT4	Analysing and Interpreting Data
Alg	AT2	Algebraic Structure
Ang	AT3	Angle
APr	AT3	Angle Properties
CDa	AT4	Collecting Data
CiM	AT3	Circle Measurement
Coo	AT3	Coordinates
CTr	AT3	Combined Transformations
DDa	AT4	Displaying Data
Dec	AT2	Decimals
Div	AT2	Division
DNo	AT2	Directed Number
Dra	AT3	Drawing
Equ	AT2	Equations
Fra	AT2	Fractions
Gra	AT2	Graphs
L&S	AT4	Logic and Sets
Map	AT2	Mappings
Mea	AT3	Measurement
Mix	AT2	Mixed
Mul	AT2	Multiplication
Or/R	AT2	Ordering and Rounding
O.R.		Other Resources
P&R	AT2	Powers and Roots
PaG	AT2	Patterns and Generalisations
Per	AT2	Percentages
PNo	AT2	Properties of Number
Pro	AT4	Probability
PSh	AT3	Properties of Shape
PV/N	AT2	Place Value/Number Systems
Rat	AT2	Ratio
Ref	AT3	Reflection
ReP.		Resource Programs
Rot	AT3	Rotation
S/En	AT3	Similarity/Enlargement
SA/V	AT3	Surface Area/Volume
Seq	AT2	Sequences
Sha	AT3	Shape
Sub	AT2	Subtraction
Top	AT3	Topology
Tr/V	AT3	Translation/Vectors
Trig	AT3	Trigonometry
UGr	AT2	Using Graphs

Other Abbreviations (lower case)
Any activity with abbreviations in **lower case** indicates that the activity is a SMILE activity.

w/s denotes worksheet

(box) SMILE activities that are not usually stored with the Workcards or Worksheets. Written in **lower case letters** in brackets.
e.g. (poster)

(Calculating) Activities which can be found in SMILE 1783 *Calculating Booklet* with page number of activity.

Other Abbreviations (UPPER CASE)
Any activity with abbreviations in **upper case** indicates that the activity is a Commercial Reference and **not included** when you purchase SMILE materials.

(ANGLE) SMILE software 'Angle Estimation'
(COORD) SMILE software 'Coordinates'
(DfEE) Software from DfEE
(DIME) Activities from Tarquin Publications
(ENRICH) SMILE software 'Enriching Number'
(GRAPH) SMILE software 'Graphing'
(INVEST) SMILE software 'Investigations'
(MA Poster) Poster from The Mathematics Association
(MATH PUZ) SMILE software 'Mathematical Puzzles'
(MOVE) SMILE software 'Movement'
(NUM) SMILE software 'Numeracy'
(PROP/NO) SMILE software 'Properties of Number'
(PROP/NO Pgx) Page number from the Student's Handbook which can be downloaded from the CD 'Properties of Number'
(SENSE/NO) SMILE software 'Sense of Number'

Please contact SMILE Mathematics (020 7598 4841) for a complete list of the commercially referenced materials on the SMILE Network.

0001 - 0299

0005	Tangram 1	AT3	Sha	4
0007	Tangram 3	AT3	Sha	5
0008	Prisms & Pyramids	AT3	Dra	4
0022	Area 1	AT3	A&P	3
0023	Area 2	AT3	A&P	4
0024	Area 3	AT3	A&P	3
0025	Area 4	AT3	A&P	4
0027	Number Squares w/s	AT2	Equ	1/2
0028	Number Squares 2 w/s	AT2	Equ	1/2
0030	Number Squares 4 w/s	AT2	Add	3
0031	Find the Number 1 w/s	AT2	Equ	1/2
0033	Find the Number 3 w/s	AT2	Equ	3
0034	Find the Number 4 w/s	AT2	Equ	4
0035	Squares and Triangles	AT3	Sha	3
0039	About Angles	AT3	APr	5
0040	Equilateral Triangle	AT3	Sha	4
0046	Domino	AT3	S/En	5
0048	Tetromino	AT3	CTr	4
0050	Dissection 1	AT3	Sha	3
0051	Dissection 2	AT3	Sha	4
0052	Dissection 3	AT3	Sha	4
0053	Dissection 4	AT3	Sha	4
0054	Dissection 5	AT3	Sha	5
0057	Fractions 3 w/s	AT2	Fra	4
0058	Fractions 4 w/s	AT2	Fra	4
0066	Napier's Rods	AT2	Mul	4
0068	Accurate Measuring	AT3	Mea	4
0069	Cardioid w/s	AT2	Seq	4
0070	Isometric Drawing	AT3	3-D	4
0071	Envelopes	AT3	Dra	3
0072	Angles of a Quadrilateral	AT3	APr	5
0073	Time/Distance Graph	AT2	UGr	5
0074	Sum & Product w/s	AT2	Mix	3
0075	Networks	AT3	Top	5
0085	Calculator Problems	AT2	Add	3
0090	More Calculator Problems	AT2	Mul	5
0092	Harder Calculator Problems	AT2	Mix	5
0098	Plaited Cube w/s	AT3	3-D	6
0099	Sum & Product Again w/s	AT2	Mix	3
0104	Number Puzzle 1	AT2	Add	4
0105	7 Piece Tangram	AT3	Sha	5
0114	Nines w/s	AT2	PaG	3
0115	Columns	AT2	PaG	1/2
0119	Area and Perimeter	AT3	A&P	5
0120	Chocolate Areas	AT3	A&P	6
0121	100 Square Patterns w/s	AT2	PaG	1/2
0123	Counter Puzzle	AT4	L&S	4
0131	Matchstick Puzzles	AT3	PSh	4
0133	Out of Line	AT3	L&S	4
0142	Volumes of cubes	AT3	SA/V	6
0143	Volumes 2	AT3	SA/V	6
0144	All out of Line	AT3	Tr/V	6
0145	Tetraflexagon	AT3	3-D	6
0151	More 100 Square Patterns	AT2	PaG	1/2
0153	Decimal Calculations	AT2	Dec	7
0155	Calculator Trial and Error	AT2	Mix	7
0159	Angles of a Triangle	AT3	APr	4
0161	The Three Coin Problem	AT4	Pro	6
0162	2, 3, 4, 5	AT2	Mix	7
0164	Patterns with 11 and 13	AT2	Div	4
0165	Cyclic Quadrilateral	AT3	APr	7
0166	Area of a Triangle	AT3	A&P	5
0167	x for Breakfast	AT2	Map	5
0168	Right Angled Triangles w/s	AT3	A&P	5
0169	Half a Rectangle	AT3	A&P	5
0170	Hex	AT4	L&S	6
0171	TV Drinks	AT2	Map	3
0172	A Match for Anyone	AT2	Map	4
0173	Mapping Machines	AT2	Map	4
0174	Gelosia	AT2	Mul	5
0177	Shearing a Triangle	AT3	A&P	6
0178	Rectangles w/s	AT3	A&P	3
0179	Four 4's	AT2	Mix	8
0181	Alf Mike or Leena	AT2	Map	5
0182	Mappings to Graphs	AT2	Gra	6
0183	Graphs to Mappings	AT2	Gra	6
0184	Number Puzzle w/s	AT2	Equ	6
0185	Which is Larger?	AT3	A&P	4
0187	x for Tea	AT2	Map	6
0188	Checking Pythagoras	AT3	Trig	6
0189	Looking for Right Angles	AT3	Trig	7
0190	Using Pythagoras	AT3	Trig	7
0191	Pythagoras Problems	AT3	Trig	7
0211	Perpendicular Bisectors	AT3	Dra	5
0212	Bisecting an Angle	AT3	Dra	5
0213	The Circumcircle	AT3	Dra	6
0214	Using a Ruler	AT3	Mea	1/2
0215	Drawing the Line	AT2	Gra	6
0220	Triangle Numbers 1	AT2	P&R	4
0221	Triangle Numbers 2	AT2	PNo	5
0224	Area of a Parallelogram	AT3	A&P	6
0226	Shearing Parallelograms	AT3	A&P	6
0227	Parallelogram Problems	AT3	A&P	6
0228	From Parallelogram to Rectangle	AT3	A&P	6
0230	Square Pegs in Round Holes	AT2	P&R	5
0232	Inscribed Circle	AT3	Dra	6
0233	Rectangle Patterns	AT2	PNo	3
0235	Finding Angles of a Triangle	AT3	APr	5
0236	Triangle Problems	AT3	A&P	6
0240	Odds and Evens Tables	AT2	PNo	5
0241	A Secret Code	AT2	Map	1/2
0242	Cracking the Code w/s	AT2	Map	3
0244	More Sorting	AT4	L&S	1/2
0245	Venn Diagrams	AT4	L&S	3
0248	Making Ten	AT2	Add	1/2
0249	How Many Ways?	AT2	Add	1/2
0250	Less Than More Than	AT2	Or/R	3
0251	Mirror Symmetry w/s	AT3	Ref	3
0255	Points and their Images	AT3	Ref	6
0257	Squidge	AT2	Seq	5
0258	Squidgeree	AT2	Seq	5
0259	Shading Fractions w/s	AT2	Fra	3
0261	Co-ordinates 1	AT3	Coo	3
0262	Co-ordinates 2	AT3	Coo	4
0263	Co-ordinates 3	AT3	Coo	4
0264	Cartoon Co-ordinates w/s	AT3	Coo	4
0265	Odd and Even	AT2	PNo	1/2
0267	Angles of a Polygon	AT3	APr	5
0268	Exterior Angles of Polygons	AT3	APr	5
0269	Finding Exterior Angles	AT3	APr	6
0272	Vehicle Survey w/s	AT4	CDa	3
0273	How Much Longer?	AT3	Mea	4
0281	Angles: The Compass	AT3	Rot	3
0284	Angles from Tessellations	AT3	APr	6
0286	Right-angles	AT3	Ang	3
0288	Rolling Two Dice w/s	AT4	Pro	4
0290	Experiments	AT4	Pro	4
0291	Which Set?	AT4	L&S	4
0292	Doubling Patterns w/s	AT2	PaG	4
0294	Measuring Lengths	AT3	Mea	3
0295	Nets of a Cube	AT3	Dra	4
0297	More Rectangle Numbers	AT2	PNo	3
0298	Square Numbers	AT2	P&R	4
0299	Three Squared	AT2	P&R	5

0301 - 0799

0307	Factors	AT2	PNo	4
0308	Prime Numbers	AT2	PNo	5
0310	Common Factors	AT2	PNo	5
0311	Factor Finder	AT2	PNo	5
0313	Spots in Sequences	AT2	Seq	3
0314	Dots in Sequences	AT2	Seq	5
0315	Staircases	AT2	Seq	6
0316	Counting On w/s	AT2	Seq	3
0317	Sequences of Numbers	AT2	Seq	4
0320	Turning Patterns	AT3	Rot	3
0322	Cutting up Rectangles	AT3	Sha	1/2
0323	Metre and Centimetre	AT3	Mea	3
0324	Rotations	AT3	Rot	3
0326	Tessellations of Quadrilaterals	AT3	Sha	6
0327	Centres of Rotation w/s	AT3	Rot	5
0330	Multiple Patterns	AT2	PNo	5
0331	Prime Factors	AT2	PNo	6
0333	Equivalent Fractions	AT2	Fra	4
0334	Egyptian Numbers	AT2	PV/N	3
0338	Summing the Odds	AT2	PNo	5
0339	Vector Messages	AT3	Tr/V	4
0340	Is It Rigid?	AT3	PSh	6
0341	Nodes w/s	AT3	Top	5
0342	About Nodes	AT3	Top	7
0344	Counter Hopping Puzzle	AT2	PaG	7
0346	Sequences in Squares w/s	AT2	Seq	4
0348	Tangram Teasers	AT3	Sha	5
0349	Tetrahedron Nets	AT3	Dra	4
0352	Table Squares w/s	AT2	Seq	4
0353	Bowling Tom	AT2	Add	1/2
0354	Tom the Bowling Champ w/s	AT2	Add	3
0355	Bowling Tom's Problem	AT2	Add	3
0359	How Many Colours? w/s	AT3	Top	4
0362	No Brakes Bruce	AT2	UGr	6
0364	Using a Triangle	AT3	PSh	6
0365	A Million	AT2	Mix	5
0366	2-Piece Square	AT3	PSh	4
0367	Fraction Wall w/s	AT2	Fra	5
0376	A Hundred	AT2	PV/N	4
0377	Vector Sea	AT3	Tr/V	4
0381	Cuboids from Matchboxes	AT3	SA/V	6
0383	Building Shapes w/s	AT2	Seq	5
0384	Changing Grids w/s	AT3	Coo	4
0386	Think of a Number	AT2	Map	4
0388	Power	AT2	P&R	6
0390	Surfaces w/s	AT4	L&S	3
0392	Circumference	AT3	CiM	5
0394	Concentric Circles	AT3	Dra	4
0396	Hexagons w/s	AT2	Fra	4
0397	Operations	AT2	Alg	8
0398	4 + 3 x 2	AT2	Mix	5
0399	Cubes	AT3	SA/V	8
0400	Folding Symmetry	AT3	Ref	1/2
0402	Adding Fractions	AT2	Fra	6
0404	Solids w/s	AT3	3-D	3
0406	Two Folds	AT3	Ref	1/2
0411	Hexagon Dissection	AT3	Sha	5
0414	Bi-Fractions	AT2	PV/N	EP
0423	Clock Arithmetic	AT2	PV/N	3
0424	How Many Routes? w/s	AT3	Top	4
0426	Traversable?	AT3	Top	6
0428	One Difference Logichains	AT4	L&S	3
0429	Squaring	AT2	P&R	5
0430	Parallel Lines	AT2	Gra	6
0432	Moving Pictures	AT3	CTr	5
0433	Acute/Obtuse	AT3	APr	6
0437	Chess	AT2	PaG	5
0439	Rectangle Diagonal	AT2	PaG	7
0443	Who Won?	AT2	Fra	6
0448	Favourite Colours w/s	AT4	DDa	1/2
0450	Trick or Treat	AT2	Seq	6
0452	Inside or Outside?	AT3	Top	5
0453	What Can I Wear?	AT4	Pro	5
0454	Post Box	AT3	Trig	EP
0455	Midpoints	AT3	PSh	5
0456	Midpoint Sequences w/s	AT3	Dra	3
0457	Number Pictures	AT2	Add	1/2
0458	Adding Numbers	AT2	Add	1/2
0459	Adding Shapes	AT2	Add	1/2
0460	Carry on Adding	AT2	Add	3
0461	Venus Clock	AT2	Alg	4
0463	Paper Power	AT2	P&R	7
0464	Subtracting	AT2	Sub	1/2
0465	Subtraction	AT2	Sub	3
0467	Subtract	AT2	Sub	1/2
0470	Nephroid w/s	AT2	Seq	5
0471	Border Patterns	AT3	Tr/V	1/2
0472	Sort the Cards	AT4	L&S	6
0474	Triominoes	AT2	PNo	4
0475	All Change	AT4	L&S	4
0476	Mapping w/s	AT2	Map	5
0477	Shunting	AT4	L&S	8
0478	Patterns with Squares	AT3	CTr	1/2
0481	Where's that Town?	AT3	Coo	5
0483	Star Puzzle	AT2	PaG	5
0484	Octahedron Nets	AT3	Dra	5
0485	Pamphlets	AT2	Equ	8
0489	Underground	AT2	Mix	4
0492	The Inseparables	AT3	Top	7
0493	Sam Shape w/s	AT3	PSh	1/2
0494	All Co-ordinates	AT3	Coo	5
0495	Routey	AT3	Top	5
0496	Junior Contig	AT2	Mix	4
0510	Radar w/s	AT3	Ang	5
0516	Adding Directed Numbers	AT2	DNo	6
0517	Subtracting Directed Numbers	AT2	DNo	7
0518	(Do it first)	AT2	Mix	5
0528	Multiplying	AT2	Mul	4
0549	Marbles	AT2	DNo	5
0550	Adding Shifts w/s	AT2	DNo	5
0557	A Special Number	AT2	PV/N	EP
0560	Symmetrical Cross Cut	AT3	Ref	6
0563	Digit Sum	AT2	Seq	8
0574	Line of Best Fit	AT4	DDa	7
0577	Reflect w/s	AT3	Ref	6
0579	Two Loops	AT4	L&S	3
0581	Using a Mirror (DIME)	AT3	Ref	6
0585	Three Loops	AT4	L&S	4
0590	Less Marks are Best!	AT3	Mea	7
0591	Counter Placing	AT4	L&S	6
0592	Powerful Rules	AT2	P&R	7
0595	Best Fitting Peg	AT3	SA/V	EP
0597	Sunita's Day	AT3	Mea	3
0600	In your Mind	AT4	L&S	7
0603	Numbering the Pages	AT2	PaG	6
0614	Powers of Ten w/s	AT2	P&R	7
0616	The Unknown Square	AT2	Alg	7
0617	Looking Around w/s	AT3	3-D	1/2
0629	Time Tiles	AT3	Mea	4
0634	Sidings	AT4	Pro	6
0674	A Hungry Death?	AT4	L&S	5
0675	Cube Cuts	AT3	CTr	7
0677	Logic Maps	AT4	L&S	5
0683	Fraction Sort	AT2	Fra	6
0684	Forty Towers	AT4	Pro	7
0689	Random Code	AT2	Equ	6
0691	And now Swahili	AT2	Equ	5
0694	Which Switches?	AT4	Pro	5
0695	Locate the Error	AT3	CTr	4
0696	Number Codex	AT2	Equ	6
0697	Hidden Shapes w/s	AT3	PSh	5
0705	Cross Puzzles w/s	AT2	Mix	3
0709	Reflection	AT3	Ref	5
0713	Jumping Jack w/s	AT2	Seq	1/2
0719	Cuboid Nets	AT3	Dra	6
0720	Nets of Pyramids	AT3	Dra	7
0721	Squares Tangram	AT3	Sha	5
0722	Prove It	AT2	Alg	EP
0725	Race Track w/s	AT3	Tr/V	6
0727	Who's Who?	AT4	L&S	5
0730	Rotation w/s	AT3	Rot	5
0731	Regular Polygons	AT3	APr	8
0732	Ruler, Pencil, Compass	AT3	Dra	5
0734	Start with a^2	AT2	Alg	8
0735	Knots w/s	AT2	Mul	3
0736	Solving Equations	AT2	Equ	7
0737	What Chance?	AT4	Pro	6
0738	Family of Quadrilaterals	AT3	PSh	8
0740	Solve it	AT2	Equ	6
0741	The 38th Triangle Number	AT2	Alg	EP
0743	Solving by Graphs	AT2	Gra	7
0744	Equations and Graphs	AT2	Gra	7
0745	Inverses	AT2	Map	7
0746	Pascal's Triangle	AT4	Pro	7
0748	The Times Crossword	AT2	PNo	7
0749	Three Numbers	AT2	Mix	5
0750	Monopoly	AT4	Pro	6
0752	Repeating Digits	AT2	Div	6
0755	Rectangles to Regions	AT2	Gra	8
0756	Points of Intersection	AT2	Equ	EP
0757	Centigrade and Fahrenheit	AT2	Equ	7
0758	Odd One Out	AT2	Div	5
0760	Quickly to Zero	AT2	Div	6
0761	Orbits	AT3	CiM	7
0772	Angle Estimation	AT3	Ang	5
0775	Measuring Angles	AT3	Ang	4
0776	Drawing Angles	AT3	Ang	4
0777	Satelite Signals w/s	AT3	Ang	5
0778	Tangrams (MA poster)	AT3	Sha	5
0780	Long Mult. Revision	AT2	Mul	5
0781	The Inverse	AT2	Map	5
0782	Number Pattern Proof	AT2	PaG	EP
0783	Cubes from Triangles	AT2	PaG	7
0784	142857 Times Table	AT2	PaG	6
0788	Free Hand Angles	AT3	Ang	5
0789	Gradient	AT2	Gra	8
0791	A Millionaire	AT2	Rat	7
0792	Wage Bargaining	AT2	Per	5
0793	Approximation and π	AT3	CiM	EP
0794	The Trapezium	AT3	A&P	7
0796	Darts Probability	AT3	CiM	EP
0797	Matrices and Transformations	AT3	CTr	8

0800 - 1430

0800	Polygons: Interior Angles	AT3	APr	6
0804	Inflation	AT2	Per	8
0805	Average Pack of Workcards	AT4	AlDa	7
0806	Trapezium to Parallelogram	AT3	A&P	7
0808	Code Breaking	AT4	AlDa	5
0809	Fold It	AT3	APr	5
0812	Irregular Areas	AT3	A&P	8
0813	Sectors of Circles	AT3	CiM	EP
0817	Straight Line Graphs	AT2	Gra	7
0818	Differences Between Squares	AT2	Alg	7
0819	Prove Your Identity	AT2	Alg	EP
0820	Equations from Squares	AT2	Alg	EP
0824	Golden Rectangle	AT2	Rat	8
0827	Clover Leaf	AT3	CiM	EP
0830	Re-Grouping	AT2	Alg	6
0831	Primes and Proof	AT2	PNo	EP
0832	Short Division	AT2	Div	3
0833	Short Division-Carrying	AT2	Div	4
0834	Dividing Strips	AT2	Div	3
0837	Inverse Mappings	AT2	Map	7
0838	Scale Factor	AT3	S/En	6
0839	Rotate this way w/s	AT3	Rot	6
0843	Very Large Numbers	AT2	P&R	8
0844	Very Small Numbers	AT2	P&R	8
0845	Negative Scale Factor	AT3	S/En	8
0849	Anywhere on the Number Line w/s	AT2	Alg	6
0850	Multiplication Problem?	AT2	Mul	5
0851	Tile Patterns	AT3	Sha	1/2
0852	Colouring Triangles	AT4	Pro	1/2
0853	Grids	AT3	Coo	4
0854	Perimeter	AT3	A&P	3
0855	How Long?	AT3	Mea	3
0857	It's Raining	AT4	AlDa	1/2
0859	Triangle Pairs	AT3	PSh	3
0860	The Same Area	AT3	A&P	4
0861	Triangle Spirals	AT2	Seq	4
0862	Square Spirals	AT2	Seq	3
0863	Deal the Cards	AT2	Div	3
0864	People in Villages	AT4	DDa	3
0866	Sharing Counters	AT2	Div	3
0867	Dividing Counters	AT2	Div	3
0868	Evens w/s	AT2	PNo	1/2
0869	Puzzle w/s	AT2	Mix	1/2
0870	Find the Stranger	AT4	L&S	4
0872	How Heavy?	AT3	Mea	3
0876	Identities	AT2	Alg	7
0877	Angle 4 Review	AT3	APr	6
0881	24 Squares w/s	AT2	Div	3
0882	Lies, Damned Lies & Statistics	AT4	AlDa	EP
0884	Positive or Negative?	AT2	DNo	6
0885	Number Noughts & Crosses	AT2	Add	3
0889	Old Oak	AT2	UGr	4
0894	Force Meet	AT3	Tr/V	8
0895	Jumps w/s	AT2	Mul	3
0896	How Thick?	AT3	Mea	6
0897	Statistics 3 Review	AT4	AlDa	5
0899	Time Bingo	AT3	Mea	1/2
0900	24 Hour Bingo	AT3	Mea	3
0903	Millions	AT2	Mix	6
0904	Carry on Subtracting	AT2	Sub	3
0905	Domino Puzzle	AT4	L&S	7
0906	Tak Tiles A (DIME)	AT3	Sha	1/2
0907	Tak Tiles B (DIME)	AT3	Sha	1/2
0908	Tak Tiles C (DIME)	AT3	Sha	1/2
0909	Tak Tiles D (DIME)	AT3	Sha	3
0982	Letters for Lengths	AT2	Equ	7
1007	Cumulative Frequency and Q'tiles	AT4	AlDa	8
1011	Dividing in a Given Ratio	AT3	Tr/V	EP
1013	Vector Magnitudes	AT3	Tr/V	8
1028	Isometries	AT3	CTr	EP
1081	Puzzles	AT2	Equ	5
1094	Volume of Prisms	AT3	SA/V	7
1095	Percentages w/s	AT2	Per	5
1096	Marks to Percentages w/s	AT2	Per	6
1097	Fractions to Percentages	AT2	Per	6
1101	Pie Charts	AT4	DDa	6
1112	Rotation	AT3	Rot	6
1115	Graphs	AT4	UGr	5
1123	Translation	AT3	Tr/V	6
1127	Time-Distance Graphs	AT2	UGr	7
1130	Journeys	AT3	Ang	7
1132	What's the Probability?	AT4	Pro	5
1136	Solving Equations	AT2	Equ	7
1137	Solving Harder Equations	AT2	Equ	8
1156	Transformations	AT3	CTr	8
1170	Compass Constructions	AT3	Dra	6
1177	Vectors	AT3	Tr/V	EP
1178	More Vectors	AT3	Tr/V	EP
1179	Column Vectors	AT3	Tr/V	EP
1202	Significant Figures	AT2	Or/R	7
1208	Percentage Sales	AT2	Per	7
1233	Frequency Graphs	AT4	AlDa	6
1257	Volume of Cuboids	AT3	SA/V	7
1258	The Biggest Vase	AT3	SA/V	8
1259	Lengths of Similar Objects	AT3	S/En	8
1261	Similar Solids	AT3	S/En	EP
1267	Cum. Freq. from Grouped Data	AT4	AlDa	8
1269	Probability	AT4	Pro	7
1272	Comb Probs from Tree Diagrams	AT4	Pro	EP
1275	Vol and Surface Area of Cylinders	AT3	SA/V	7
1278	Multiplying Directed Numbers.	AT2	DNo	7
1279	Dividing Directed Numbers	AT2	DNo	7
1281	Using Gradients	AT2	UGr	EP
1287	Equilateral Construction	AT3	Dra	5
1292	Sampling Shoes	AT4	CDa	5
1294	Cooking Numbers	AT2	Rat	5
1295	Second-hand Cars	AT4	DDa	6
1299	Tangram Arrows w/s	AT3	Sha	4
1300	Measuring Windows	AT2	Dec	5
1301	Three in a Line	AT4	L&S	4
1302	Logi Puzzle	AT4	L&S	6
1304	An Honourable Problem	AT4	L&S	4
1305	Factorials!	AT2	Mix	EP
1306	Decimal Estimation	AT2	Div	5
1307	Sections	AT2	PaG	5
1308	Problems	AT2	Equ	8
1309	More Vector Messages w/s	AT3	Tr/V	5
1312	Matchstick Sequences	AT2	Seq	3
1313	Match Patterns	AT2	Seq	6
1315	International Paper Sizes	AT2	Rat	7
1316	Halving	AT2	Or/R	5
1317	Mult & Div by 10, 100 & 1000 w/s	AT2	Dec	5
1319	Consecutives	AT2	PNo	7
1320	Rectangle Areas	AT3	A&P	6
1321	Prism or Pyramid? w/s	AT3	3-D	4
1322	Solid Shapes	AT3	3-D	3
1323	Tak Tile Areas	AT2	Alg	EP
1324	Pegboard Sums	AT2	Add	1/2
1328	Room to Move	AT3	Mea	5
1329	Journeys	AT3	Tr/V	7
1331	Equal Angles (DIME)	AT3	APr	5
1332	Rotation (DIME)	AT3	Ang	6
1333	Directions (DIME)	AT3	Ang	8
1334	Recognising Solids (DIME)	AT3	3-D	5
1335	Sketching Solids (DIME)	AT3	3-D	6
1336	Turning and Toppling (DIME)	AT3	CTr	6
1337	Reflections (DIME)	AT3	Ref	7
1338	Wedges (DIME)	AT3	CTr	8
1339	Flags (DIME)	AT2	Map	5
1340	Pattern and Notation (DIME)	AT2	Equ	7
1341	Number Machines (DIME)	AT2	Map	6
1342	Mappings and Graphs (DIME)	AT2	Gra	7
1343	Simple Mappings (DIME)	AT2	Map	6
1344	Further Mappings (DIME)	AT2	Map	7
1345	Mastermind	AT4	L&S	8
1348	Look and Guess	AT3	Mea	3
1349	Time Line	AT3	Mea	1/2
1352	Wheels	AT3	Rot	5
1353	A Number of Things	AT2	Mix	3
1354	Euler Solids (MA Poster)	AT3	3-D	7
1355	Halves and Quarters w/s	AT2	Fra	1/2
1356	How Much?	AT2	Add	1/2
1357	Missing Signs	AT2	Mix	4
1358	Joining Multiples w/s	AT2	PNo	1/2
1359	Joining Odds and Evens w/s	AT2	PNo	1/2
1360	Pictures from Multiples w/s	AT2	PNo	3
1361	Three in Line	AT2	Add	3
1365	Number Snap	AT2	Mul	3
1366	Pairs	AT2	Mul	1/2
1367	Lines	AT2	PNo	3
1369	Infinity	AT2	Seq	EP
1376	Jobs in Order	AT4	L&S	1/2
1377	Dice	AT3	3-D	4
1378	Mappings	AT2	Map	6
1379	Fishing w/s	AT3	Coo	4
1381	Money	AT2	Mix	1/2
1382	Paper Folding	AT3	PSh	6
1383	Good Guesswork	AT3	Mea	4
1384	Diagonals	AT3	PSh	3
1385	Times Square	AT2	Mul	1/2
1388	Double-Up	AT3	S/En	5
1389	Converging Sequences	AT2	PaG	EP
1390	Multiplication Facts w/s	AT2	Mul	4
1394	Turn the Tables	AT2	PNo	6
1395	Multiplication Table Patterns	AT2	PNo	6
1396	Two Digit Sums	AT2	Alg	EP
1398	Trigg	AT3	Tr/V	6
1399	Babylonian Method	AT2	PV/N	EP
1400	A Transformation Technique	AT3	CTr	EP
1404	Action Equations	AT2	Equ	4
1405	Jump Equations	AT2	Equ	4
1406	Equality and Inequality	AT2	Equ	5
1408	Thermometer Readings	AT3	Mea	4
1409	The Mean	AT4	AlDa	4
1411	Roman Numerals	AT2	PV/N	5
1412	Algebra Puzzle	AT2	Map	7
1413	Twelve Inch Perimeter	AT3	A&P	4
1415	Simple Quadratics	AT2	Equ	8
1417	Tens	AT2	Add	1/2
1418	Series Geometrically	AT2	Seq	EP
1419	Versa-Tiles	AT3	APr	6
1420	Perpendicular Proof	AT2	Alg	EP
1422	Rectangles in Circles	AT3	PSh	4
1423	Calculator Guesses	AT2	Or/R	3
1424	Dividing by Guessing	AT2	Div	5
1426	Decimal Lines	AT2	Dec	4
1427	Triangles in Circles	AT3	PSh	4
1429	Multiples of 3 and 9	AT2	Div	5
1430	Bounce	AT2	Mix	1/2

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1432	Triangle Patterns	AT2	Seq	6
1433	Base -2	AT2	PV/N	EP
1434	Bearings and Scale Drawing	AT3	Ang	6
1435	Back Bearings	AT3	Ang	7
1436	Block Problems	AT3	SA/V	4
1437	Four Consecutive Numbers	AT2	Alg	EP
1438	Patterns in Pascal's Triangle	AT2	PaG	'7
1439	Geometric Progressions	AT2	PaG	EP
1454	ISBN's and Errors	AT2	Div	6
1456	Matrices for Rotations	AT3	Rot	EP
1457	Combining Rotations	AT3	Rot	EP
1458	Reflection Matrices Investigation	AT3	Ref	EP
1459	Matrices for Shears Investigation	AT3	CTr	EP
1460	Diophantine Equations	AT2	Equ	EP
1461	Figures for Words	AT2	PV/N	4
1462	Missing Keys	AT2	Mix	4
1463	Using brackets w/s	AT2	Mix	6
1482	Tricky Sum (MA Poster)	AT2	PaG	6
1484	Decimal Patterns	AT2	Dec	5
1485	Limits	AT2	Seq	EP
1486	Threes and Sevens	AT2	PaG	8
1487	Thinking in Three Dimensions	AT3	Trig	EP
1488	Angles between Planes	AT3	Trig	EP
1500	Subject of a Formula	AT2	Alg	EP
1501	Changing the Subject	AT2	Alg	EP
1504	Areas under Graphs	AT2	UGr	EP
1511	Defining Regions	AT2	Gra	8
1517	Trig Problems	AT3	Trig	EP
1520	Differences Game	AT2	Sub	1/2
1522	Eight Cubes	AT3	3-D	1/2
1523	A Red Cube	AT3	3-D	4
1524	4 Cube Solids	AT3	3-D	5
1525	Economical Weaving w/s	AT3	Top	4
1528	Fraction Wall 2	AT2	Fra	6
1533	Proportion	AT2	Rat	EP
1537	Sim Equations & Inequalities	AT2	Gra	8
1538	Solving Simultaneous Equations	AT2	Equ	7
1540	Is There a Solution?	AT2	Equ	7
1541	Cones	AT3	SA/V	EP
1543	Composite Functions	AT2	Map	EP
1555	Mystic Rose w/s	AT2	PaG	5
1556	19 Piece Jigsaw	AT2	PV/N	1/2
1557	Spirals w/s	AT3	Dra	3
1559	Areas of Similar Shapes	AT3	S/En	7
1560	Similarity Problems	AT3	S/En	8
1561	Combining Transformations	AT3	CTr	7
1562	Combined Reflections	AT3	Ref	8
1565	Symmetry w/s	AT3	Ref	4
1566	Finding Square Roots	AT2	P&R	5
1568	Velocity from Dist-Time Graphs	AT2	UGr	EP
1569	Distance, Velocity & Acceleration	AT2	UGr	EP
1570	Pounds and Pence w/s	AT2	Dec	5
1572	50% is Half Marks	AT2	Per	5
1589	Square Roots Investigation	AT2	P&R	7
1591	Domino Sums	AT2	Add	5
1592	Two Cuts Investigation w/s	AT3	PSh	4
1604	Nim (MATH PUZ)	AT2	PV/N	8
1605	Guess (SENSE/NO)	AT2	Or/R	1/2
1606	Guess D (SENSE/NO)	AT2	Or/R	5
1607	Elephant (COORD)	AT3	Coo	6
1608	Reverse (MATH PUZ)	AT2	PaG	5
1609	Maze (MOVE)	AT3	CTr	1/2
1613	Calculating Kitty	AT2	Seq	5
1614	Probability Kitty	AT4	Pro	7
1615	Logical Kitty	AT4	L&S	5
1618	Number Names	AT2	PNo	6
1620	Bounce (DfEE)	AT2	PaG	6
1621	Rhino (COORD)	AT3	Coo	4
1622	Vectmeet (MOVE)	AT3	Tr/V	8
1624	Snooker(ANGLE)	AT3	Ang	5
1625	Box (SENSE/NO)	AT2	PV/N	1/2
1626	Boat (MATH PUZ)	AT4	L&S	5
1627	Self Portrait w/s	AT4	L&S	4
1628	Eight Squares	AT3	A&P	3
1629	Pentagons w/s	AT3	Dra	4
1630	Along the Line	AT2	Mix	4
1631	Target 100	AT2	Dec	6
1632	Marked Buttons	AT2	Add	4
1634	Colouring the Dots	AT3	Top	4
1635	The Key to Success w/s	AT2	Mix	3
1636	Calculator Flags w/s	AT2	Mix	3
1637	Squares and Other Powers	AT2	P&R	EP
1638	Tri-umph	AT2	Div	6
1639	Quarto	AT2	Dec	7
1641	Lines (COORD)	AT3	Coo	5
1643	Lucky Dip	AT4	Pro	4
1646	Probability Kitty	AT4	Pro	8
1647	Weaving w/s	AT3	Sha	7
1648	Number Clues	AT2	PNo	3
1649	Walking to School	AT2	Rat	4
1650	Take Part (DfEE)	ReP		
1651	Frogs (MATH PUZ)	AT2	PaG	5
1652	Jugs (MATH PUZ)	AT2	Seq	7
1653	Master (MATH PUZ)	AT4	L&S	7
1654	Race Game (MOVE)	AT3	Tr/V	7
1655	The Factor Game	AT2	PNo	5
1656	The Lost Divide	AT2	Div	6
1657	The Great Divide	AT2	Div	7
1658	The Smith Family Circus	AT2	PNo	7
1659	Mind Reversal	AT2	PaG	5
1660	The Champion Flea	AT2	Rat	7
1662	Get to One	AT2	Mix	5
1663	Largest and Smallest	AT2	PV/N	3
1665	$(x+1)^2$	AT2	Alg	7
1666	Tower (SENSE/NO)	AT2	Fra	6
1667	Pilot (MOVE)	AT3	Ang	6
1668	Mapping Puzzle	AT2	Map	4
1669	Sim w/s	AT3	PSh	1/2
1670	Find the Fakes	AT4	Pro	8
1671	Multiplication Jigsaw (box)	AT2	Mul	1/2
1672	Soma Solids	AT3	3-D	6
1673	HCF and LCM	AT2	PNo	7
1675	Board Order	AT3	CTr	4
1676	Pythagorean Triples	AT2	Equ	EP
1677	Proof by Contradiction	AT2	PNo	EP
1679	Spheres	AT3	3-D	EP
1680	Reflect-a-Bug	AT3	Ref	1/2
1681	Folding	AT3	PSh	EP
1682	Number Jumble	AT2	Alg	8
1683	A Square Puzzle (box)	AT2	Div	3
1684	A Problem of Power	AT2	P&R	8
1685	Milk Crate	AT4	L&S	6
1686	Square	AT3	A&P	7
1687	Change	AT2	Add	3
1688	Square Jigsaw (box)	AT3	CTr	8
1689	Fraction Flags	AT2	Fra	5
1690	Logical Kitty	AT4	Pro	4
1691	Predict (PROP/NO)	AT2	PaG	7
1696	Car Trial Results	AT2	Rat	6
1697	Motor Cycle Ratios	AT2	UGr	8
1698	Identikit	AT3	PSh	5
1699	Fifteen Game	AT2	Add	3
1700	Fitting	AT3	Sha	3
1701	Posthalf (poster)	O.R.		
1702	Circle (INVEST)	ReP.		
1703	Find the Uncle w/s	AT4	L&S	3
1704	Combined Probability	AT4	Pro	8
1706	Think	AT4	L&S	7
1707	Graph Matching	AT2	Gra	8
1708	Factor (PROP/NO)	AT2	PNo	6
1709	Ratio Problems	AT2	Rat	6
1710	Pencils	AT2	Rat	4
1711	Missing Digits w/s	AT2	Mix	6
1712	Four Signs w/s	AT2	Mix	7
1713	Sub-zero	AT2	Sub	4
1714	Queens (MOVE Pg 33)	AT3	Tr/V	6
1715	Locate (COORD)	AT3	Coo	6
1716	Unibond Mixtures	AT2	Rat	7
1717	Add-a-Square w/s	AT3	Ref	5
1718	Line Symmetry A 1-4 (DIME)	AT3	Ref	5
1719	Line Symmetry A 5-10 (DIME)	AT3	Ref	6
1720	Centicube Surprise	AT3	SA/V	5
1721	Angle 90°(ANGLE)	AT3	Ang	4
1722	How Many Cubes?	AT3	SA/V	1/2
1723	Getting Closer	AT2	Div	6
1724	Digit Division	AT2	Dec	6
1725	Closest Product	AT2	Mul	6
1726	Dividing Pairs	AT2	Div	6
1727	Point Circles	AT2	PNo	5
1728	BoxD (SENSE/NO)	AT2	Dec	5
1729	Minimax(SENSE/NO & DfEE)	AT2	PV/N	5
1730	Wall (SENSE/NO)	AT2	Fra	4
1731	Rose (INVEST)	AT2	PaG	6
1732	3-D Maze (MOVE)	AT3	3-D	6
1733	An Even Code w/s	AT2	Map	3
1734	An Islamic Design w/s	AT4	L&S	7
1735	Centimetres	AT3	Mea	1/2
1736	Algebra Pairs	AT2	Alg	8
1737	Route Six	AT2	Fra	6
1738	Calcumaze	AT2	Mul	6
1740	About How Much?	AT3	Mea	4
1741	Make Half	AT3	A&P	5
1742	The Game of 20	AT2	Mul	6
1743	Decimal Products	AT2	Dec	5
1744	Yes/No	AT3	PSh	6
1745	Identify (PROP/NO)	AT2	PNo	5
1746	Define (PROP/NO)	AT2	PNo	6
1747	Darts (NUM)	AT2	Sub	4
1749	Decimal Jigsaw	AT2	Dec	5
1750	Layers	AT3	SA/V	4
1751	Decimal Lists	AT2	Dec	4
1752	Under a Magnifying Glass	AT2	Rat	5
1753	Matching Pairs w/s	AT3	Mea	4
1754	Chinese Number Puzzle (box)	AT2	PV/N	6
1755	Hopslide (MATH PUZ)	AT4	L&S	4
1756	Tadpoles (MATH PUZ)	AT2	PaG	4
1757	Airline Networks	AT3	Top	5
1758	Co-ordinate Messages w/s	AT3	Coo	3
1759	Shapes That Can Grow w/s	AT3	S/En	6
1760	One Straight Cut w/s	AT3	Sha	6
1761	Gelosia Problems w/s	AT2	Mul	6
1762	From A to B	AT3	Trig	7
1763	Circles Triangles and Hexagons	AT3	CiM	EP
1764	Tangled Quadrilaterals	AT3	PSh	6
1765	Two by Two	AT3	3-D	3
1766	Flying Engineers	AT4	L&S	7
1767	Addsupto (NUM)	AT2	Add	5
1768	Zig Zags w/s	AT3	Mea	3
1770	The Lewis Family	AT4	L&S	6
1771	Early Egyptian Fractions	AT2	Fra	7
1772	Four Triangles	AT3	PSh	6
1773	Two Triangles	AT3	PSh	6
1774	Modelling with Graphs	AT2	UGr	8
1775	Partners	AT2	Alg	EP
1776	Spirals (INVEST)	ReP.		
1777	Avoid Each Other (MOVE Pg 30)	AT3	Tr/V	7
1778	Jumping (MATH PUZ)	AT2	PaG	6
1779	Lineover (GRAPH)	AT2	Gra	EP
1782	To be Continued	AT2	Mul	5
1783	Calculating Booklet	O.R.		
1784	Big Wheel	AT3	Trig	EP
1785	Invest. Queens (MOVE Pg 32)	AT2	PaG	7
1786	Which Number?	AT2	PV/N	5
1787	Angle 360° (ANGLE)	AT3	Ang	5
1788	Blocked (poster)	AT4	L&S	8
1790	The Chinese Triangle	AT2	PaG	7
1791	Getting Into Shape (box)	AT3	PSh	4
1792	Feeling Hungry?	AT4	DDa	5
1793	Cuneiform Numbers	AT2	PV/N	EP
1794	Building Cubes	AT3	3-D	6
1795	Identical Halves w/s	AT3	PSh	EP
1796	Plotter (GRAPH)	ReP.		
1798	Quilts (INVEST)	AT2	PaG	6
1799	Boxes w/s	AT2	DNo	4

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1800	Gelosia for Decimals	AT2	Dec	7
1812	Find Four Squares w/s	AT3	PSh	3
1813	Crossword w/s	AT2	Mix	3
1818	Helicopter Photographs	AT2	UGr	7
1820	Parallels (GRAPH)	AT2	Gra	7
1821	Overtaking	AT2	UGr	7
1822	Product of Primes	AT2	Mul	7
1824	Silver Earrings w/s	AT3	A&P	4
1825	Exactly Ten	AT2	Add	4
1826	y=mx (GRAPH)	AT2	Gra	6
1828	Find the Shape w/s	AT3	PSh	3
1830	The 'Smoothing Out' Principle	AT2	UGr	8
1832	Minimum Information	AT3	Dra	EP
1833	Magic (NUM)	AT2	Mix	6
1834	Tenners (NUM)	AT2	Dec	5
1835	Magnify (SENSE/NO)	AT2	PV/N	5
1836	3 in a Line (COORD)	AT3	Coo	6
1839	Which Card is Missing?	AT4	L&S	1/2
1840	Point And Lines (GRAPH)	AT2	Gra	EP
1841	Interlocking Squares (DIME)	AT3	PSh	1/2
1842	Shapes Jigsaw (DIME)	AT3	PSh	1/2
1843	Polygons and Right Angles	AT3	PSh	8
1844	Straight Lines w/s	AT3	Dra	4
1845	Shading Strips	AT4	Pro	4
1847	Symmetrical Triangles w/s	AT3	Ref	4
1848	Three by Three	AT4	L&S	4
1849	100 Search w/s	AT2	Add	3
1851	Regions (GRAPH)	ReP.		
1852	Foxes & Chickens (GRAPH)	AT2	UGr	EP
1853	Pinball (INVEST)	ReP.		
1855	Quadratic Mappings (DIME)	AT2	Map	7
1856	What Shapes? w/s	AT3	PSh	1/2
1857	The Other Side	AT3	3-D	8
1858	Bengali ৯৯ Piece Puzzle (box)	AT2	PV/N	5
1861	Dipsticks	AT3	SA/V	7
1862	Even Animal w/s	AT2	PNo	1/2
1866	Mirror Match (DIME)	AT3	Ref	5
1867	Four Cubes	AT3	3-D	1/2
1868	Symmetry Match w/s	AT3	Ref	1/2
1872	Back to Back	AT3	3-D	4
1873	Polygon Symmetries	AT3	PSh	7
1874	Sevens Out	AT2	PV/N	3
1875	Urdu Multiples	AT2	PV/N	6
1876	Fill the Shape (DIME)	AT3	3-D	3
1877	Add a Cube or Two (DIME)	AT3	3-D	5
1878	Two Blocks (DIME)	AT3	3-D	4
1879	Build and Balance (DIME)	AT3	3-D	7
1880	More than Two Blocks (DIME)	AT3	3-D	6
1881	Hindi Additions	AT2	PV/N	7
1882	Wedges 1 (DIME)	AT3	3-D	6
1883	Wedges 2 (DIME)	AT3	3-D	8
1885	Optimising	AT3	SA/V	EP
1886	World View	AT3	A&P	6
1889	Regular Tilings 1 (DIME)	AT3	Sha	5
1890	Regular Tilings 2 (DIME)	AT3	Sha	6
1891	Regular Tilings 3 (DIME)	AT3	Sha	6
1892	Line Symmetry B 1-3 (DIME)	AT3	Ref	5
1893	Line Symmetry B 4-6 (DIME)	AT3	Ref	7
1894	Line Symmetry B 7-10 (DIME)	AT3	Ref	7
1896	Spatial Reasoning (DIME)	AT3	Sha	4
1897	Who is the Schoolkeeper?	AT4	L&S	5
1898	Who has the Microcomputer?	AT4	L&S	7
1899	Number Words	AT2	PaG	3
1902	Short, Middle, Long	AT3	Trig	6
1903	Numbers (PROP/NO)	ReP		
1904	Find the Operation w/s	AT2	Alg	7
1905	Sorting Triangles	AT3	S/En	4
1907	About How Long? w/s	AT3	Mea	3
1908	Pattern Pack A (DIME)	AT3	CTr	1/2
1909	Pattern Pack B (DIME)	AT3	CTr	1/2
1911	Dissection Pairs w/s	AT3	Sha	7
1912	Painted Tyres	AT3	Dra	7
1913	Bengali Numbers	AT2	PV/N	5
1914	Adding Counters w/s	AT3	Ref	5
1916	A Domino Trick	AT2	Equ	8
1917	Rising Gradients	AT3	Trig	7
1918	The Coin Problem	AT4	L&S	EP
1919	How many Cm Squares? w/s	AT3	A&P	1/2
1920	Pattern Spotting (PROP/NO Pg 16)	AT2	PNo	3
1921	Trig Lines	AT3	Trig	8
1922	Matrices and Area	AT3	S/En	EP
1927	Pentomino Puzzles	AT3	A&P	5
1928	Four Pentominoes	AT3	S/En	7
1929	Nine Pentominoes	AT3	S/En	8
1931	Which Scripts? (poster)	AT2	PV/N	6
1934	Translations	AT3	Tr/V	7
1935	Angles in a Semi-circle	AT3	APr	7
1936	Many Grids (PROP/NO Pg 25)	AT2	PaG	5
1937	Panjabi Numbers	AT2	PV/N	7
1938	Olympic Medals	AT4	DDa	6
1939	Sin and Cos Graphs	AT3	Trig	EP
1940	Dividing Investigation	AT2	Div	6
1941	Differences	AT2	Seq	8
1942	Growing Patterns w/s	AT3	Dra	1/2
1945	Square Diagonals w/s	AT2	Seq	3
1946	A Problem of Division	AT2	Div	5
1947	3-D Frameworks	AT3	Top	6
1948	$y = ax^2$	AT2	Gra	7
1949	Compass Game	AT3	Rot	3
1950	Diagonal Multiples (PROP/NO Pg 26)	AT2	PNo	7
1951	When x is?	AT2	Gra	8
1952	Reciprocal Graphs	AT2	Gra	8
1953	Sets of Signs	AT4	L&S	6
1954	Line Symmetry	AT3	Ref	5
1955	Rotational Symmetry	AT3	Rot	6
1956	Thinking and Braking	AT2	UGr	8
1958	Ealing Broadway	AT3	Top	6
1959	Making One w/s	AT2	Fra	3
1961	One Million (TARQUIN Poster)	AT2	Mix	6
1966	Curve Stitching (TARQUIN Poster)	O.R.		
1967	One Dice (DIME)	AT4	Pro	6
1968	Numbers Up (DIME)	AT4	Pro	7
1969	Two Dice (DIME)	AT4	Pro	6
1970	Five Beads (DIME)	AT4	Pro	7
1971	Seven Beads (DIME)	AT4	Pro	8
1999	Equiangular Spirals	AT3	Ang	7
2000	Fibonacci & Square Root Spirals	AT2	P&R	8
2002	Real Spirals	O.R.		
2003	Birthday Dates	AT2	Add	1/2
2004	54% is a little more than Half Marks	AT2	Per	6
2006	A Mountain Walk	AT2	Rat	7
2008	Curves of Pursuit (TARQUIN P)	O.R.		
2009	Three Counters (DIME)	AT4	Pro	6
2010	Six Beads (DIME)	AT4	Pro	6
2011	Four Beads (DIME)	AT4	Pro	5
2012	Tessellating Patterns (TARQUIN P)	AT3	Sha	6
2013	Round the Bend	AT3	CiM	6
2014	Probably Probable? (INVESTPg 43)	AT4	Pro	EP
2016	Target 24 - a 3 Digit Problem	AT2	Mix	8
2017	Fair Play	AT4	Pro	4
2018	Drawing the Curve	AT2	Gra	7
2019	Power Match w/s	AT2	P&R	6
2020	High Powered Matching w/s	AT2	P&R	7
2022	Fewest Keys	AT2	Mix	6
2023	Alphabet Symmetry w/s	AT3	CTr	5
2024	Excess Luggage	AT2	Per	7
2027	Similar Triangles	AT3	S/En	8
2028	Integer Graphs	AT2	Gra	EP
2029	Strings	AT2	Seq	8
2031	Spiralling Squares Patterns	AT3	Dra	7
2032	DIY Earrings	AT3	CiM	8
2033	Is it True?	AT4	CDa	5
2034	Likely or unlikely?	AT4	Pro	3
2035	Symmetry Codes w/s	AT3	Ref	5
2036	Fabric Designs	AT3	CiM	EP
2037	3 in 1 Maze (poster)	AT4	L&S	4
2038	Percentage Problems	AT2	Per	EP
2039	Finding Equivalent Fractions	AT2	Fra	5
2040	x^y Experiment	AT2	P&R	7
2041	Going Scientific	AT2	P&R	8
2042	Ans and Exe	AT2	Seq	7
2043	Unit Fraction Patterns	AT2	Fra	7
2044	Matching Graphs	AT2	Gra	EP
2045	Hot and Cold w/s	AT2	DNo	4
2047	Pegs in Squares	AT2	P&R	4
2049	Unpredictable Patterns?	AT2	Seq	8
2050	Vector Areas	AT3	Tr/V	EP
2051	The Log Button	AT2	Mix	EP
2052	Pythagoras Dissection	AT2	Rat	8
2053	Odd Add	AT2	Add	5
2054	Four Sides	AT3	PSh	3
2055	Ellipses by Folding	AT3	Dra	7
2056	Surrounding Right Angled Tris w/s	AT3	Trig	6
2058	Tie w/s	AT3	Dra	7
2059	Domino Patterns	AT2	Map	5
2060	Kit Bag	AT3	CiM	6
2061	Convince Yourself	AT2	Mix	7
2062	Angles in Circles	AT3	APr	8
2063	Islamic Designs	AT3	Dra	5
2064	Russian Multiplication	AT2	Mul	7
2065	Shrinking Earth	AT2	Rat	7
2067	Jeans	AT2	Rat	7
2069	Turn it Over!	AT4	L&S	8
2070	Card Towers	AT2	Seq	6
2071	Half a Cuboid	AT3	3-D	4
2072	Nepali Numbers	AT2	Mix	5
2073	Tricubes (DIME)	AT3	3-D	4
2074	Building with Tricubes (DIME)	AT3	3-D	5
2075	Tricube Plans (DIME)	AT3	3-D	5
2076	Building on a Square (DIME)	AT3	3-D	6
2077	Making a 3 x 3 x 3 Cube (DIME)	AT3	3-D	6
2078	Fibonacci-type Sequences	AT2	Seq	7
2079	A Sketchy Activity	AT2	Gra	8
2081	Inventing Mazes	AT4	L&S	6
2082	Opposite, Adjacent & Hypotenuse	AT3	Trig	8
2083	All about Circles	AT3	CiM	5
2084	Polygon Areas	AT3	A&P	7
2085	Scale Maps	AT3	CTr	EP
2086	Circles to Polygons (INVEST Pg 10)	AT2	PaG	4
2088	What's the Difference? w/s	AT4	L&S	5
2089	Oxford Street w/s	AT3	Top	1/2
2090	Black & Red Triangle Patterns	AT2	PNo	5
2092	What's Recurring?	AT2	Fra	EP
2093	Islamic Patterns in Logo	AT3	CTr	EP
2094	Squares (INVEST Pg 4)	AT2	PNo	3
2095	Squares, Cubes and Roots w/s	AT2	P&R	6
2096	Fraction Playing Cards	O.R.		
2097	Fraction Families	AT2	Fra	4

2100 - 2399

2100	Putting it to the test	AT4	Pro	7
2101	Logiblock Sets	AT4	L&S	7
2103	Circle Packing	AT3	CiM	8
2105	Equal Fraction Pairs	AT2	Fra	3
2106	Party Solutions	AT2	UGr	EP
2107	Oxfam Collection w/s	AT2	Add	4
2109	Another Trig Line	AT3	Trig	8
2110	Number Sort w/s	AT2	PV/N	1/2
2111	Rotational Symmetry Jigsaws	AT3	Rot	4
2112	Imaginings (Teacher)	O.R.		
2113	Mystery (Calculating Pg 3)	AT2	Mix	3
2114	2 Puzzles (Calculating Pg 5)	AT2	Mix	4
2115	Missing Digit (Calculating Pg 8)	AT2	Mix	6
2116	Operations (Calculating Pg 9)	AT2	Mix	4
2117	Rumour (Calculating Pg 10)	AT4	CDa	6
2118	Ticket Sales (Calculating Pg 11)	AT2	Mix	4
2119	Patterns (Calculating Pg 12/13)	AT2	Seq	5
2120	Productive (Calculating Pg 14)	AT2	Mul	5
2121	Hot and Cold (Calculating Pg 15)	AT4	AlDa	4
2122	Target 200 (Calculating Pg 16)	AT2	Mix	5
2123	Missing Signs (Calculating Pg 17)	AT2	Mix	6
2124	Date of Birth (Calculating Pg 18/19)	AT2	Mix	5
2125	Escape (Calculating Pg 20/21)	AT2	PaG	5
2126	Problems (Calculating Pg 22/23)	AT2	Or/R	6
2127	Tricube Codes	AT3	3-D	6
2128	Stacking	AT2	PaG	4
2129	Tens and fives w/s	AT2	Mul	3
2130	A Disappearing Act	AT2	Mix	EP
2131	Filing Cards w/s	AT2	PV/N	3
2132	Cutting Corners	AT3	3-D	7
2133	Out of 100 w/s	AT2	Per	3
2134	Similar Rectangles?	AT2	Rat	6
2135	Grey Areas	AT3	CiM	EP
2136	What could x be?	AT2	Equ	7
2137	Using Sine and Cosine 1	AT3	Trig	8
2138	Which Hand Works Hardest?	AT4	CDa	6
2139	Tricube Symmetries	AT3	Ref	6
2140	Quadratic Solutions	AT2	Gra	EP
2141	Constructive Designs	AT3	Dra	7
2142	Making Circles	AT3	CiM	5
2143	Percentages of Money w/s	AT2	Per	4
2144	Using Sine and Cosine 2	AT3	Trig	8
2145	Cross Stitch	AT3	CTr	7
2146	It's not Fair!	AT3	CiM	4
2147	Odd Animal w/s	AT2	PNo	1/2
2148	Transforming Triangles	AT3	CTr	8
2149	Circle Coverage	AT3	CiM	6
2150	Pizza Paradise	AT3	CiM	7
2151	The Root of the Problem	AT2	P&R	6
2152	How Likely?	AT4	Pro	4
2153	£1 Search w/s	AT2	Add	1/2
2154	Sum Dice	AT2	Mix	6
2155	Visualising	AT3	PSh	5
2156	Fraction Squares	AT2	Fra	6
2157	Some Sums for your Mind w/s	AT2	Mix	7
2158	Turning Green w/s	AT4	L&S	1/2
2159	Permutating Tricubes	AT4	Pro	8
2160	Folding Fractions	AT2	Fra	5
2161	Shape Names w/s	AT3	PSh	5
2162	Angles and Triangles	AT3	APr	6
2163	Geometry Facts	O.R.		
2164	Information Displayed	AT4	DDa	5
2166	Matching Equations	AT2	Gra	8
2167	Range of Area	AT3	Or/R	8
2168	Cube Root Calculator	AT2	P&R	6
2169	Pop of Britain 1880 and 1980	AT4	DDa	7
2170	Shape Up	AT3	PSh	6
2171	Pie Chart Match w/s	AT4	DDa	5
2172	Two Down	AT2	Or/R	4
2173	Unmarked Angles w/s	AT3	APr	6
2174	The Mode w/s	AT4	AlDa	4
2175	Grouping Data	AT4	AlDa	7
2176	Talking (poster)	O.R.		
2177	Population Projections	AT4	AlDa	5
2178	Volumes	AT3	SA/V	5
2179	Shakes and Adders	AT2	DNo	5
2181	Big Hand ... Big Foot?	AT4	CDa	5
2182	Shongo Networks	AT2	PaG	7
2183	Using Standard Form	AT2	P&R	8
2184	Powers of Integers	AT2	P&R	8
2186	Missing Pieces w/s	AT2	Mul	1/2
2187	Pythagoras Plus	AT3	Trig	8
2188	Population Pyramids	AT4	DDa	7
2189	Strange Dice Game	AT4	Pro	4
2190	Twice as Many	AT2	Rat	3
2191	Calculator Graphs	AT2	Gra	7
2192	Solving Quadratic Equations	AT2	Equ	EP
2193	Number Square Words w/s	AT2	PV/N	3
2194	Tossing Coins (INVEST Pg 38 - 40)	AT4	Pro	7
2195	The Higher the Better	AT2	PV/N	1/2
2197	Blue in the Face	AT3	3-D	7
2198	*Testing Dice*	AT4	AlDa	5
2199	Percentage Estimation w/s	AT2	Per	4

2200	Pie Charts for Breakfast	AT4	DDa	5
2201	Vectors and Squares	AT3	Tr/V	7
2202	Visiting Every Point (INVEST Pg 8)	AT2	PNo	5
2203	Algebra Match w/s	AT2	Alg	7
2205	Making 25p	AT2	Add	1/2
2206	Exploring Sine Curves	AT3	Trig	EP
2207	Pinball Experiments	AT4	Pro	7
2208	Best Marks	AT4	AlDa	7
2209	Short Orders	AT2	Alg	5
2210	Handspan	AT4	AlDa	3
2211	Equivalent Expressions w/s	AT2	Alg	7
2212	10 Search w/s	AT2	Add	1/2
2213	Sum Message w/s	AT2	Mix	1/2
2214	Shape Sequences	AT3	CTr	7
2215	Identicubes	AT2	Alg	8
2216	From Matches to Mappings w/s	AT2	Map	5
2217	Magic Circles	AT2	Add	5
2218	Origami Dodecahedron	AT3	3-D	7
2219	Origami Cube	AT3	3-D	5
2220	Trig for any Triangle	AT3	Trig	EP
2221	Jigsaws	AT2	PaG	5
2222	Equal Area? w/s	AT3	A&P	6
2223	Fractions to Decimals Match w/s	AT2	Dec	6
2224	Shajjad's Collection	AT2	Mix	3
2225	Wildlife Collection	AT2	Mix	3
2226	Sum Number Cards	O.R.		
2227	5p a line	AT2	Add	1/2
2228	Vector Match	AT3	Tr/V	6
2229	Quadratics and Primes	AT2	PNo	8
2230	Which has the Largest Area? w/s	AT3	A&P	1/2
2231	Hexiamonds	AT3	PSh	5
2232	Cut a Cube	AT3	3-D	7
2233	Cafe Menu	AT2	Mix	1/2
2234	Defining Regions	AT2	Gra	8
2235	Headlines	AT4	DDa	6
2236	25% of What?	AT2	Per	5
2237	Words Won't Fail Me w/s	AT2	Alg	6
2238	What is the perimeter?	AT3	A&P	1/2
2239	Putting in Order w/s	AT2	PV/N	3
2240	Ask Me Another w/s	AT3	PSh	6
2241	Cuts to Pieces	AT2	PaG	5
2242	Decimal Flags w/s	AT2	Dec	6
2243	Who's Rule, Okay?	AT2	Alg	7
2244	Packing Balls	AT3	SA/V	EP
2245	Rows and Columns	AT2	Add	4
2246	Sieve of Eratosthenes	AT2	PNo	5
2247	More Than, Less Than	AT2	Equ	6
2248	Snails' Trails	AT3	Mea	1/2
2249	Gradients and Intercepts	AT2	Gra	8
2250	A Puzzling Walk (poster)	AT4	L&S	6
2251	Put them in their Place w/s	AT2	Mix	7
2252	Something and a Half w/s	AT2	Fra	1/2
2253	Solving Inequalities	AT2	Equ	7
2254	Calculator Brackets	AT2	Mix	6
2255	Adding One	AT2	Fra	6
2256	Matching Fractions w/s	AT2	Fra	3
2257	Right Angled Triangular Prisms	AT3	SA/V	5
2258	Substituting into Formulae	AT2	Equ	8
2259	Multiplication Flags w/s	AT2	Alg	4
2261	Shape-Tiles w/s	AT3	Tr/V	1/2
2262	Find the Route w/s	AT2	Mix	3
2263	Spreadsheet Squares	AT2	Mul	6
2264	Plus and Minus Grids w/s	AT2	Mix	3
2265	Rational Numbers	AT2	PNo	8
2266	Irrational Numbers	AT2	PNo	EP
2267	Introducing Ratio	AT2	Rat	5
2268	Logo is Amazing	AT3	Ang	4
2269	Amazing Logo	AT3	Ang	5
2270	Measuring Pencils	AT3	Mea	4
2271	I've got the Power	AT2	P&R	8
2272	Lines, Regions and Inequalities	AT2	Gra	7
2273	Looping Chains	AT2	Seq	5
2274	abc w/s	AT2	Alg	5
2275	Algebra Problems	AT2	Equ	8
2276	Curvy Tiles in LOGO	AT3	Dra	6
2277	Brackets	AT2	Alg	7
2278	Mapping Jigsaw w/s	AT2	Map	3
2279	Island Game	AT3	Tr/V	1/2
2280	Equal Angles	AT3	Ang	3
2281	Simultaneous Match	AT2	Gra	7
2283	Jumping	AT3	Mea	3
2284	BoxN (SENSE/NO)	AT2	Or/R	4
2285	GuessN (SENSE/NO)	AT2	Or/R	5
2286	Quadrants and Squares (DIME)	AT2	Alg	4
2287	Add & Sub Squs & Quads (DIME)	AT2	Alg	6
2288	Algebra Tak-Tiles on a Grid (DIME)	AT2	Alg	6
2289	Alg Tak-Tiles without a Grid (DIME)	AT2	Alg	7
2290	A New Unit of Area (DIME)	AT2	Alg	7
2291	Comparing Areas (DIME)	AT2	Alg	7
2292	Towers (box)	O.R.		
2293	Negative Sequences	AT2	Seq	5
2294	Sum, product & difference	AT2	Mix	4
2295	Histograms	AT4	DDa	8
2296	Mapping Rectangles w/s	AT2	Map	3
2297	Harder Negative Sequences	AT2	DNo	7

2300	Fraction Bingo	AT2	Fra	5
2301	Sim Equations from Graphs	AT2	Gra	7
2302	Bearings	AT3	Ang	5
2303	Hundred Fit (box)	AT2	Seq	4
2304	Favourite Ice Cream	AT4	AlDa	3
2305	Hexagon Puzzle w/s	AT2	PV/N	1/2
2306	Patterns on a Line w/s	AT3	CTr	1/2
2307	Triangle Sums Game	AT2	Add	1/2
2308	Word Match w/s	AT3	PSh	1/2
2309	Rangoli Patterns	AT3	Ref	5
2310	Sequences Jigsaw w/s	AT2	Seq	4
2311	Start with 60°	AT3	Dra	6
2312	Number Challenge	AT2	PNo	7
2313	Turning the Cards	AT4	Pro	3
2314	Describing Sequences	AT2	Seq	3
2315	With a ruler	AT3	Mea	3
2318	A Mean Challenge!	AT4	AlDa	7
2319	Pizza or Pasta?	AT4	Pro	4
2320	Patterns in Spirals	AT2	Seq	5
2321	The Algebra Game	AT2	Alg	6
2322	The Algebra Game 2	AT2	Alg	7
2323	Statistical Invs Helpbook	O.R.		
2324	Reckonings (Teacher)	O.R.		
2325	Grouped Data, Reviewed	AT4	AlDa	8
2326	Hanoi (MATH PUZ)	AT2	PaG	7
2327	Hats (MATH PUZ)	AT4	L&S	5
2328	Quadratic Rules	AT2	Alg	7
2329	The Median	AT4	AlDa	4
2330	Missing Angles w/s	AT3	APr	5
2332	Decimals on a Number Line w/s	AT2	Dec	3
2333	Quiz Times w/s	AT2	Mul	3
2334	Beat the code	AT2	Alg	5
2335	Using Decimals	AT2	Dec	3
2336	Comparing Ratios	AT2	Rat	5
2338	Decimal Search w/s	AT2	Dec	4
2339	2 x Table w/s	AT2	Mul	1/2
2340	3 x Table w/s	AT2	Mul	3
2341	4 x Table w/s	AT2	Mul	3
2342	5 x Table w/s	AT2	Mul	3
2343	6 x Table w/s	AT2	Mul	3
2344	7 x Table w/s	AT2	Mul	4
2345	8 x Table w/s	AT2	Mul	4
2346	9 x Table w/s	AT2	Mul	3
2347	10 x Table w/s	AT2	Mul	3
2348	11 x Table w/s	AT2	Mul	3
2349	12 x Table w/s	AT2	Mul	4
2350	End of level Review	AT2/3/4		3
2351	End of level Review	AT2/3/4		4
2352	End of level Review	AT2/3/4		5
2353	End of level Review	AT2/3/4		6
2354	End of level Review	AT2/3/4		7
2355	End of level Review	AT2/3/4		8
2356	End of level Review	AT2/3/4		EP
2357	Matching Algebraic Exps w/s	AT2	Alg	7
2358	Angle Fit w/s	AT3	APr	4
2359	Approximate Solutions	AT2	Or/R	5
2360	Rotational & Line Symmetry Review	AT3	CTr	5
2361	Right-angle or not?	AT3	Ang	1/2
2362	Decimal Routes w/s	AT2	Dec	5
2363	Conversion Pack 1	AT3	Rat	5
2364	Decimal Playing Cards	O.R.		
2365	Higher Decimal Win	AT2	Or/R	5
2366	Decimal Difference	AT2	Dec	6
2367	Sixteen Quadrilaterals	AT3	PSh	5
2368	Matching Decimals	AT2	Or/R	4
2369	Decimal Sort	AT2	Dec	4
2370	Conversion Pack 2	AT3	Rat	6
2371	Rounding to 10	AT2	Or/R	3
2372	Powers of Ten Flags w/s	AT2	Dec	5
2373	Queens (MOVE)	ReP.		
2374	Equivalent Fractions Pairs	AT2	Fra	5
2375	Polygons in Circles	AT3	Dra	6
2376	Maths in Your Head	O.R.		
2377	TenSprint(NUM)	AT2	Add	1/2
2378	Matching Fractions(NUM)	AT2	Fra	5
2379	Ordering Fractions (NUM)	AT2	Fra	5
2380	Number Lines (NUM)	AT2	Rat	4
2381	Number LinesD (NUM)	AT2	Rat	6
2382	Areas of Polygons w/s	AT3	A&P	5
2383	Solid Expressions	AT3	SA/V	8
2384	Angles in a Regular Hexagon w/s	AT3	APr	5
2385	Nine Nine Nine	AT2	PaG	4
2386	Multiplication Review	AT2	Mul	6
2387	Multiples of Ten w/s	AT2	Add	3
2388	Six Pyramids	AT3	Trig	7
2389	Percentages Puzzles w/s	AT2	Per	6
2390	Consecutive Products	AT2	Mul	5
2391	Matching Weights w/s	AT3	Mea	3
2392	Sensible Answers	AT2	Or/R	5
2393	Equivalent Pairs (ENRICH)	AT2	Per	4
2394	Make that Number (ENRICH)	AT2	Per	5
2395	Maximum Remainder (ENRICH)	AT2	Div	5
2396	Find The Line (GRAPH)	AT2	Gra	8
2397	Guess Inequality (GRAPH)	AT2	Gra	8
2398	Decimal Places Match w/s	AT2	Or/R	6
2399	Number Stories	AT2	Mix	3

2400 - 2403

2400	Circle Cut w/s	AT3	CiM	8
2401	Play Your Cards Right	AT2	PNo	3
2402	Equivalent Fractions Sort w/s	AT2	Fra	5
2403	Missing the Point	AT2	Dec	5

SMILE MATHEMATICS

Name _____

Network 1 – 5

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						
Year 9						

Key Stage 3	
TA	SAT's

Key Stage 4 Assessment

						Target Grade
Year 10						
Year 11						**Predicted Grade**

Numbers and the Number System

Place Value, Ordering and rounding

Integers, Powers and Roots

Fractions, Decimals, Percentages, Ratio and Proportion

Number Operations,

Place Value/ Number Systems

Ordering and Rounding

Powers and Roots

Properties of Number

Directed Number

Fractions

Decimals

Percentages

Ratio

Addition

Subtractio

Levels 1/2

19-Piece Jigsaw 1556

The Higher the Better 2195

Box (SENSE/NO) 1625

Hexagon Puzzle w/s 2305

Number Sort w/s 2110

Guess (SENSE/NO) 1605

Odd and Even 0265

Even Animal w/s 1862

Odd Animal w/s 2147

Joining Odds and Evens w/s 1359

Evens w/s 0868

Joining Multiples w/s 1358

Halves and Quarters w/s 1355

Something and a Half w/s 2252

Pegboard Sums 1324

Tens 1417

Making Ten 0248

How Many Ways? 0249

Adding Numbers 0458

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Number Clues 1648

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Play Your Cards Right 2401

Squares (INVEST Pg4) 2094

Matching Fractions w/s 2256

Shading Fractions w/s 0259

Making One w/s 1959

Equal Fraction Pairs 2105

Using Decimals 2335

Decimals on a Number Line w/s 2332

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Twice as Many 2190

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Multiples of Ten w/s 2387

Fifteen Game 1699

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Bowling Tom's Problem 0355

Calculator Problems 0085

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A Hundred 0376

Figures for Words 1461

Two Down 2172

BoxN (SENSE/NO) 2284

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Square Numbers 0298

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Pegs in Squares 2047

Factors 0307

Trominoes 0474

Hot and Cold w/s 2045

Boxes w/s 1799

Hexagons w/s 0396

Fractions 4 w/s 0058

Fraction Families 2097

Equivalent Fractions 0333

Wall (SENSE/NO) 1730

Fractions 3 w/s 0057

Decimal Sort 2369

Decimal Lines 1426

Decimal Lists 1751

Decimal Search w/s 2338

Percentage Estimation w/s 2199

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Equivalent Pairs (ENRICH) 2393

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Roman Numerals 1411

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Magnify (SENSE/NO) 1835

Minimax (SENSE/NO) 1729

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Measuring Windows 1300

Pounds and Pence w/s 1570

Mult & Div by 10, 100 & 1000 w/s 1317 (2)

Tenners (NUM) 1834

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Powers of Ten Flags w/s 2372

BoxD (SENSE/NO) 1728

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Decimal Jigsaw 1749

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50% is Half Marks 1572

Make That Number (ENRICH) 2394

25% of What? 2236

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Percentages w/s 1095

Under a Magnifying Glass 1752

Cooking Numbers 1294 (2)

Introducing Ratio 2267

Comparing Ratios 2336

Conversion Pack 1 2363

Magic Circles 2217 (*)

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Mixed

Bounce 1430

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Sum Message w/s 2213

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Puzzle w/s 0869 (2)

x Table w/s 340 (2)

x Table w/s 342 (2)

) x Table w/s 347 (2)

ens and ves w/s 129

mps w/s 895

umber nap 365

x Table w/s 341 (2)

x Table w/s 346 (2)

x Table w/s 348 (2)

ots w/s 735

uiz mes w/s 333

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Dividing Strips 0834

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Sequences, Functions and Graphs

Sequences

Jumping Jack w/s 0713

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Matchstick Sequences 1312

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Pattern/ Generalisation

Columns 0115

100 Square Patterns w/s 0121

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Number Words 1899 (*)

Mapping

A Secret Code 0241

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Junior Contig 0496

Ticket Sales (Calculating Pg 11) 2118

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Venus Clock 0461

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Sequences of Numbers 0317

Hundred Fit (box) 2303

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Reverse (MATH PUZ) 1608

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Domino Patterns 2059

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of level review: Number and Algebra 2352 (2)

Geometrical Reasoning

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Eight Cubes
1522

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1867

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Tak Tiles A (DIME)
0906 (2)

Tak Tiles B (DIME)
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0908 (2)

Cutting up Rectangles
0322

Tile Patterns
0851

Properties of Shape

Sam Shape w/s
0493

Word Match w/s
2308

Interlocking Squares (DIME)
1841

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1842

What Shapes? w/s
1856

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1669

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Topology

Oxford Street w/s
2089

Similarity/ Enlargement

Transformations

Rotation

Reflection

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0400

Two Folds
0406

Symmetry Match w/s
1868

Reflect -a-bug
1680

Translation/ Vectors

Border Patterns
0471

Island Game
2279

Shape Tiles w/s
2261

Combined Transformations

Patterns on a line w/s
2306

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1609

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0478

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1908 (4)

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Co-ordinates

Construction & Loci

Drawing

Growing Patterns w/s
1942

Fill the Shapes (DIME)
1876 (2)

Solids w/s
0404

Solid Shapes
1322

Two by Two
1765

Dissection 1
0050

Tak Tiles D (DIME)
0909 (2)

Fitting
1700

Squares and Triangles
0035

Triangle Pairs
0859

Diagonals
1384

Find Four Squares w/s
1812

Four Sides
2054

Find the Shape w/s
1828

Turning Patterns
0320

Rotations
0324

Angles: The Compass
0281

Compass Game
1949

Mirror Symmetry w/s
0251

Co-ordinate Messages w/s
1758

Co-ordinates 1
0261

Envelopes
0071

Midpoint Sequences w/s
0456

Spirals w/s
1557

Tricubes (DIME)
2073

Back to Back
1872

Two Blocks (DIME)
1878 (3)

A Red Cube
1523

Half a Cuboid
2071

Prism or Pyramid? w/s
1321

Dice
1377

Isometric Drawing
0070

Dissection 2
0051

Dissection 3
0052

Dissection 4
0053 (3)

Tangram 1
0005

Tangram Arrows w/s
1299 (2)

Spatial Reasoning (DIME)
1896 (3)

Equilateral Triangle
0040

Two Cuts Investigation w/s
1592

Rectangles in Circles
1422 (2)

Triangles in Circles
1427 (2)

2-Piece Square
0366

Getting into Shape (box)
1791

Matchstick Puzzles
0131

Angles of a Triangle
0159

Angle Fit w/s
2358

How Many Colours? w/s
0359

Colouring the Dots
1634 (*)

Economical Weaving w/s
1525

How Many Routes? w/s
0424

Sorting Triangles
1905

Rotation Symmetry Jigsaws
2111

Symmetrical Triangles w/s
1847

Symmetry w/s
1565

Vector Messages
0339

Vector Sea
0377

Locate the Error
0695

Board Order
1675

Tetromino
0048

Co-ordinates 3
0263

Rhino (COORD)
1621

Grids
0853

Changing Grids w/s
0384

Cartoon Co-ordinates w/s
0264 (2)

Co-ordinates 2
0262

Fishing w/s
1379

Concentric Circles
0394

Nets of a Cube
0295

Prisms and Pyramids
0008

Straight Lines w/s
1844

Pentagons w/s
1629

Tetrahedron Nets
0349

End of level review: Shape, Space and Measurements 2350

Add a Cube or Two (DIME)
1877 (3)

Building with Tricubes (DIME)
2074

4 Cube Solids
1524 (2)

Tricube Plans (DIME)
2075

Recognising Solids (DIME)
1334 (4)

Origami Cube
2219

Dissection 5
0054

Tangram 3
0007

Hexagon Dissection
0411

Tangrams (MA Poster)
0778

7 Piece Tangram
0105 (2)

Regular Tilings 1 (DIME)
1889 (4)

Tangram Teasers
0348

Squares Tangram
0721

Shape Names w/s
2161

Hidden Shapes w/s
0697

Visualising
2155

Sixteen Quadrilaterals
2367 (*)

Hexiamonds
2231

Identikit
1698

Midpoints
0455 (*)

Finding Angles of a Triangle
0235

Angles of a Quadrilateral
0072

About Angles
0039

Angles in a Regular Hexagon w/s
2384

Angles of a Polygon
0267

Exterior Angles of Polygons
0268

Equal Angles (DIME)
1331 (2)

Fold it
0809

Missing Angles w/s
2330

Networks
0075

Airline Networks
1757

Routey
0495

Nodes w/s
0341

Inside or Outside?
0452

Domino
0046

Double Up
1388

Rotations w/s
0730

Centres of Rotation w/s
0327

Wheels
1352

Line Symmetry A 1–4 (DIME)
1718

Add-a-Square w/s
1717

Symmetry Codes w/s
2035

Reflection
0709

Adding Counters w/s
1914

Mirror Match (DIME)
1866 (3)

Line Symmetry B 1–3 (DIME)
1892 (2)

Line Symmetry
1954

Rangoli Patterns
2309

More Vector Messages w/s
1309 (2)

Moving Pictures
0432 (2)

Alphabet Symmetry w/s
2023

Rotational and Line Symmetry Review
2360

Where's that Town?
0481

All Co-ordinates
0494

Lines (COORD)
1641

Octahedron Nets
0484

Ruler, Pencil and Compass
0732

Equilateral Construction
1287

Perpendicular Bisectors
0211

Bisecting an Angle
0212 (2)

Islamic Designs
2063

End of level review: Shape, Space and Measurements 2351 (3)

End of level review: Shape, Space and Measurements 2352 (2)

	rement	Measurements and Mensuration					Handling Data		Planning & Collecting Data	Processing, Representing & Interpreting Data		Probability	
		Area/ Perimeter	Circle Measurement	Surface Area/ Volume	Angle	Trigonometry	Logic and Sets		Collecting Data	Displaying Data	Analysing & Interpreting Data	Probability	
Levels 1/2	es (2)	Which has the Largest Area? w/s 2230 How Many Centimetre Squares? w/s 1919 What is the Perimeter? 2238		How Many Cubes? 1722	Right-angle or not? 2361		Turning Green w/s 2158 More Sorting 0244 Which Card is Missing? 1839 Jobs in Order 1376			Favourite Colours w/s 0448	It's Raining 0857	Colouring Triangles 0852	
Level 3	s ? er Weights ngo (2) (2) ry y?	Area 1 0022 Area 3 0024 Eight Squares 1628 Rectangles w/s 0178 Perimeter 0854			Equal Angles 2280 Right-Angles 0286		Find the Uncle w/s 1703 One Difference Logichains 0428 Two Loops 0579 Venn Diagrams 0245 *Surfaces* w/s 0390		Vehicle Survey w/s 0272 (2)	People in Villages 0864	Handspan 2210 (*) Favourite Ice *Cream* 2304	Likely or Unlikely? 2034	Turning the Cards 2313
							End of level review: Handling Data 2350						
Level 4	Pairs sswork ter (2)	Area 2 0023 Twelve Inch Perimeter 1413 The Same Area 0860 Which is Larger? 0185 Silver Earrings w/s 1824 Area 4 0025	It's not Fair! 2146	Layers 1750 Block Problems 1436	Angle 90° (ANGLE) 1721 Measuring Angles 0775 Drawing Angles 0776 Logo is Amazing 2268		Three by Three 1848 (*) All Change 0475 *Counter Puzzle* 0123 Out of Line 0133 Hopslide (MATH PUZ) 1755 Self-Portrait w/s 1627 Find the Stranger 0870 *Three Loops* 0585	Which Set? 0291 Three in a Line 1301 3 in 1 Maze (poster) 2037 An Honourable Problem 1304			Hot and Cold (Calculating Pg 15) 2121 The Mode w/s 2174 The Median 2329 The Mean 1409	Logical Kitty 1690 Shading strips 1845 (*)	Experiments 0290 Rolling two dice w/s 0288 Strange Dice Game 2189 Pizza or pasta? 2319 Lucky Dip 1643 Fair Play 2017 How Likely? 2152
							End of level review: Handling Data 2351 (2)						
Level 5	(*)	Pentomino Puzzles 1927 (2) Area and Perimeter 0119 Right Angled Triangles w/s 0168 Areas of Polygons w/s 2382 Make Half 1741 (2) Half a Rectangle 0169 Area of a Triangle 0166	Circumference 0392 (2) Making Circles 2142 All About Circles 2083	Volumes 2178 Right Angled Triangular Prisms 2257 Centicube Surprise 1720	Amazing Logo 2269 Snooker (ANGLE) 1624 Satellite Signals w/s 0777 Angle 360° (ANGLE) 1787 Angle Estimation 0772 Free Hand Angles 0788 Radar w/s 0510 Bearings 2302		Boat (MATH PUZ) 1626 (*) Logical Kitty 1615 Who's Who? 0727 Logic Maps 0677 Who is the Schoolkeeper? 1897 What's the Difference? w/s 2088 A Hungry Death? 0674 Hats (MATH PUZ) 2327		Big Hand .. Big Foot? 2181 Sampling Shoes 1292 Is it true? 2033 (*)	Feeling Hungry? 1792 Information Displayed 2164 Pie Chart Match w/s 2171 Pie Charts for Breakfast 2200	Testing Dice 2198 Statistics 3 Review 0897 (2) Population Projections 2177 Code Breaking 0808	Which Switches? 0694	What's the Probability? 1132 What Can I Wear? 0453 Four Beads (DIME) 2011 (2)
							End of level review: Handling Data 2352 (2)						

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

*

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids — To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources — SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

SMILE MATHEMATICS

Name _____

Network 4 - 7

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						
Year 9						

Key Stage 3

TA	SAT's

Key Stage 4 Assessment

						Target Grade
Year 10						
Year 11						**Predicted Grade**

Numbers and the Number System

Place Value, Ordering and rounding

Integers, Powers and Roots

Fractions, Decimals, Percentages, Ratio and Proportion

Number Operations,

Place Value/ Number Systems

Ordering and Rounding

Powers and Roots

Properties of Number

Directed Number

Fractions

Decimals

Percentages

Ratio

Addition

Subtractio

Level 4

A Hundred
0376

Figures for Words
1461

Two Down
2172

BoxN (SENSE/NO)
2284

Matching Decimals
2368

Square Numbers
0298

Triangle Numbers 1
0220

Pegs in Squares
2047

Factors
0307

Triominoes
0474

Hot and Cold w/s
2045

Boxes w/s
1799

Hexagons w/s
0396

Fractions 4 w/s
0058

Fraction Families
2097

Equivalent Fractions
0333

Wall (SENSE/NO)
1730

Fractions 3 w/s
0057

Decimal Sort
2369

Decimal Lines
1426

Decimal Lists
1751

Decimal Search w/s
2338

Percentage Estimation w/s
2199

Percentages of Money w/s
2143

Equivalent Pairs (ENRICH)
2393

Pencils
1710

Walking to School
1649

NumberLines (NUM)
2380

Exactly Ten
1825

Multiples of Ten w/s
2387

Marked Buttons
1632 (2)

Number Puzzle 1
0104

Rows and Columns
2245

Oxfam Collection w/s
2107

Darts (NUM)
1747

Sub-zero
1713

Level 5

Roman Numerals
1411

Bengali Piece Puzzle (box)
1858

Which Number?
1786

Bengali Numbers
1913

Magnify (SENSE/NO)
1835

Minimax (SENSE/NO)
1729

Sensible Answers
2392

GuessN (SENSE/NO)
2285

GuessD (SENSE/NO)
1606

Halving
1316

Higher Decimal Win
2365

Approximate Solutions
2359

Three Squared
0299

Square Pegs in Round Holes
0230

Finding Square Roots
1566

Squaring
0429

Prime Numbers
0308

Multiple Patterns
0330 (2)

Sieve of Eratostenes
2246

Identify (PROP/NO)
1745

Visiting Every Point (INVEST Pg8)
2202

Point Circles
1727 (*)

Triangle Numbers 2
0221

Black and Red Triangle Patterns
2090

The Factor Game
1655

Common Factors
0310

Factor Finder
0311

Odds and Evens Tables
0240

Summing the Odds
0338

Shakes and Adders
2179

Adding Shifts w/s
0550

Marbles
0549

Fraction Bingo
2300

Finding Equivalent Fractions
2039

Matching Fractions (NUM)
2378

Fraction Wall w/s
0367

Equivalent Fraction Pairs
2374

Folding Fractions
2160

Ordering Fractions (NUM)
2379

Fraction Flags
1689 (2)

Measuring Windows
1300

Pounds and Pence w/s
1570

Mult & Div by 10, 100 & 1000 w/s
1317 (2)

Tenners (NUM)
1834

Missing the Point
2403

Powers of Ten Flags w/s
2372

BoxD (SENSE/NO)
1728

Decimal Routes w/s
2362

Decimal Jigsaw
1749

Decimal Products
1743

Decimal Patterns
1484 (2)

50% is Half Marks
1572

Make That Number (ENRICH)
2394

25% of What?
2236

Wage Bargaining
0792

Percentages w/s
1095

Under a Magnifying Glass
1752

Cooking Numbers
1294 (2)

Introducing Ratio
2267

Comparing Ratios
2336

Conversion Pack 1
2363

Magic Circles
2217 (*)

Addsupto (NUM)
1767

Odd Add
2053

Domino Sums
1591

Level 6

Urdu Multiples
1875

Chinese Number Puzzle (box)
1754

Which Scripts? (poster)
1931

Problems (Calculating Pg 22/23)
2126

Decimal Place Match w/s
2398

Power
0388 (2)

Power Match w/s
2019

The Root of the Problem
2151

Squares, Cubes and Roots w/s
2095

Cube Root Calculator
2168

Turn the Tables
1394 (2)

Factor (PROP/NO)
1708

Define (PROP/NO)
1746

Multiplication Table Patterns
1395 (2)

Prime Factors
0331

Number Names
1618

Adding Directed Numbers
0516

Positive or Negative?
0884

Fraction Squares
2156

Tower (SENSE/NO)
1666

Who Won?
0443

Adding One
2255

Route Six
1737

Adding Fractions
0402

Fraction Sort
0683

Fraction Wall 2
1528

Fractions to Decimals Match w/s
2223

Decimal Difference
2366

Target 100
1631

Digit Division
1724

Decimal Flags w/s
2242

54% is a little more than Half Marks
2004

Percentage Puzzle w//s
2389

Marks to Percentages w/s
1096

Fractions to Percentages
1097

Ratio Problems
1709 (2)

Conversion Pack 2
2370

Similar Rectangles?
2134

Number Lines D (NUM)
2381

Car Trial Results
1696

Level 7

Hindi Additions
1881

Panjabi Numbers
1937

Significant Figures
1202

Square Roots Investigation
1589

Powerful Rules
0592 (3)

High Powered Matching w/s
2020

Paper Power
0463

Powers of Ten w/s
0614

x^y Experiment
2040

Diagonal Multiples (PROP/NO Pg26)
1950

Consecutives
1319 (*)

The Smith Family Circus
1658 (2)

The 'Times' Crossword
0748 (2)

Number Challenge
2312 (*)

HCF & LCM
1673

Subtracting Directed Numbers
0517

Harder Negative Sequences
2297

Multiplying Directed Numbers
1278

Dividing Directed Numbers
1279

Early Egyptian Fractions
1771 (3)

Unit Fraction Patterns
2043

Gelosia for Decimals
1800

Quarto
1639

Decimal Calculations
0153

Excess Luggage
2024

Percentage Sales
1208

Shrinking Earth
2065

A Mountain Walk
2006

Unibond Mixtures
1716 (2)

Jeans
2067

A Millionaire
0791

The Champion Flea
1660

International Paper Sizes
1315 (2)

ultiplication	Division	Mixed	Algebraic Structure	Equations	Sequences	Pattern/ Generalisation	Mapping	Graphs	Using Gra
x Table w/s 344 (2)	Short Division Carrying 0833	Sum product & difference 2294	Venus Clock 0461	Action Equations 1404	Triangle Spirals 0861	Doubling Patterns w/s 0292	Mapping Puzzle 1668 (2)		Old Oak 0889
x Table w/s 345 (2)	Patterns with 11 and 13 0164	Operations (Calculating Pg 9) 2116	Multiplication Flags w/s 2259	Jump Equations 1405	Sequences of Numbers 0317	Stacking 2128 (*)	Think of a Number 0386		
ultiplication acts w/s 390		Missing Signs 1357	Quadrants and Squares (DIME) 2286	Find the Number 4 w/s 0034	Hundred Fit (box) 2303	Tadpoles (MATH PUZ) 1756	Mapping Machines 0173		
! x Table w/s 349 (2)		Missing Keys 1462			Sequences in Squares w/s 0346	Circles to Polygons (INVEST Pg10) 2086	A Match for Anyone 0172		
apier's ods 066		Along the Line 1630			Sequences Jigsaw w/s 2310	Nine Nine Nine 2385			
ultiplying 528		Junior Contig 0496			Table Squares w/s 0352				
		Ticket Sales (Calculating Pg 11) 2118			Cardioid w/s 0069				
		2 Puzzles (Calculating Pg 5) 2114 (*)							
		Underground 0489							

of level review: Number and Algebra 2351 (2)

be ontinued 782 (2)	A Problem of Division 1946	(Do it first) 0518 (2)	Short Orders 2209	And Now Swahili 0691	Patterns in Spirals 2320	Cuts to Pieces 2241	The Inverse 0781		Graphs 1115
elosia 174	Odd One Out 0758	4 + 3 x 2 0398	Beat the Code 2334	Equality and Inequality 1406	Negative Sequences 2293	Many Grids (PROP/NO Pg25) 1936 (*)	Mapping w/s 0476		Time/ Distance Graph 0073
ing ultiplication evision 780	Multiples of 3 and 9 1429 (2)	Three Numbers 0749	abc w/s 2274	Puzzles 1081	Nephroid w/s 0470	Mind Reversal 1659	Alf, Mike or Leena 0181		
ultiplication oblem? 850	Dividing by Guessing 1424	Nepali Numbers 2072			Dots in Sequences 0314	Sections 1307 (*)	Domino Patterns 2059		
ore Calculator oblems 090	Decimal Estimation 1306	Harder Calculator Problems 0092			Patterns (Calculating Pg 12/13) 2119	Mystic Rose w/s 1555 (*)	From Matches to Mappings w/s 2216		
onsecutive oducts 390	Maximum Remainder (ENRICH) 2395	Get to One 1662			Looping Chains 2273 (*)	Frogs (MATH PUZ) 1651 (*)	x for Breakfast 0167		
oductive alculating 114) 120		Target 200 (Calculating Pg 16) 2122			Calculating Kitty 1613	Chess 0437	Flags (DIME) 1339 (3)		
		A Million 0365			Squidge 0257	Jigsaws 2221 (*)			
		Date of Birth (Calculating Pg 18/19) 2124			Squidgeree 0258	Reverse (MATH PUZ) 1608			
					Building Shapes w/s 0383	Star Puzzle 0483			
						Escape (Calculating Pg 20/21) 2125 (*)			

of level review: Number and Algebra 2352 (2)

losia oblems w/s 761	Dividing Investigation 1940 (*)	Calculator Brackets 2254	Add and Subtract Squares and Quadrants (DIME) 2287 (2)	Random Code 0689	Staircases 0315	Numbering the Pages 0603	Number Machines (DIME) 1341 (3)	Mappings to Graphs 0182	No Brakes Bruce 0362
osest Product 725	Dividing Pairs 1726	Using Brackets w/s 1463	Anywhere on the Number Line w/s 0849	Number Puzzle w/s 0184	Match Patterns 1313	Tricky Sum (MA Poster) 1482	x for Tea 0187	Graphs to Mappings 0183	
e Game 20 742	Tri-Umph 1638	Sum Dice 2154	Re-Grouping 0830	More Than, Less Than 2247	Triangle Patterns 1432	Jumping (MATH PUZ) 1778	Simple Mappings (DIME) 1343 (2)	Drawing the Line 0215	
ultiplication view 386	Getting Closer 1723	One Million (TARQUIN Poster) 1961	Words won't fail me w/s 2237	Number Codex 0696	Trick or Treat 0450 (*)	Quilts (INVEST) 1798	Mappings 1378	y=mx (GRAPH) 1826	
lculmaze 738	The Lost Divide 1656	Missing Digit (Calculating Pg 8) 2115	The Algebra Game 2321	Solve It 0740 (2)	Card Towers 2070	Rose (INVEST) 1731		Parallel Lines 0430	
readsheet uares 263	Repeating Digits 0752	Missing Digits w/s 1711	Algebra Tak-tiles on a Grid (DIME) 2288 (4)			142857 Times Table 0784			
	Quickly to Zero 0760	Magic (NUM) 1833				Bounce (DfEE) 1620 (*)			
	ISBN's and Errors 1454 (2)	Missing Signs (Calculating Pg 17) 2123							
		Millions 0903 (3)							
		Fewest Keys 2022							

of level review: Number and Algebra 2353 (2)

ssian ltiplication 064	The Great Divide 1657	Put them in their Place w/s 2251	Who's Rule Okay? 2243	Solving Equations 0736	Is There a Solution? 1540	Jugs (MATH PUZ) 1652	The Chinese Triangle 1790	Algebra Puzzle 1412	Drawing the Curve 2018	Helicopter Photographs 1818 (2
oduct of mes 322		Four Signs w/s 1712	Algebra Match w/s 2203	Pattern and Notation (DIME) 1340 (3)	Solving Simultaneous Equations 1538	Fibonacci Type Sequences 2078	Cubes from Tnangles 0783 (*)	Inverse Mappings 0837	Mappings and Graphs (DIME) 1342 (4)	Overtaking 1821
		Some Sums for Your Mind w/s 2157	Algebra Tak-Tiles without a Grid (DIME) 2289 (4)	Letters for Length 0982		Ans and Exe 2042	Patterns in Pascal's Triangle 1438 (2)	Inverses 0745	Solving by Graphs 0743 (2)	Time Distance Graphs 1127
		Calculator Trial and Error 0155	$(x+1)^2$ 1665	Centigrade and Farenheit 0757 (2)			Shongo Networks 2182 (*)	Further Mappings (DIME) 1344 (2)	Simultaneous Equations from Graphs 2301	
		2, 3, 4, 5 0162	Identities 0876 (2)	Solving Equations 1136 (2)			Investigating Queens (MOVE Pg32) 1785 (*)	Quadratic Mappings (DIME) 1855 (3)	Parallels (GRAPH) 1820	
		Convince Yourself 2061	Differences Between Squares 0818 (3)	Solving Inequalities 2253			Predict (PROP/NO) 1691		Calculator Graphs 2191	
			The Unknown Square 0616	What could x be? 2136			Counter Hopping Puzzle 0344		Lines, Regions and Inequalities 2272	
			Equivalent Expressions w/s 2211				Rectangle Diagonal 0439		Simultaneous Match 2281	
			The Algebra Game 2 2322				Hanoi (MATH PUZ) 2326 (*)		$y=ax^2$ 1948 (2)	
			A New Unit of Area (DIME) 2290 (4)						Equations and Graphs 0744	
			Find the Operation w/s 1904						Straight Line Graphs 0817 (2)	
			Matching Algebraic Expressions w/s 2357							
			Brackets 2277							
			Comparing Areas (DIME) 2291 (3)							
			Quadratic Rules 2328							

of level review: Number and Algebra 2354 (2)

Geometrical Reasoning

3-D

Tricubes (DIME) 2073

Back to Back 1872

Two Blocks (DIME) 1878 (3)

A Red Cube 1523

Half a Cuboid 2071

Prism or Pyramid? w/s 1321

Dice 1377

Isometric Drawing 0070

Shape

Dissection 2 0051

Dissection 3 0052

Dissection 4 0053 (3)

Tangram 1 0005

Tangram Arrows w/s 1299 (2)

Spatial Reasoning (DIME) 1896 (3)

Equilateral Triangle 0040

Properties of Shape

Two Cuts Investigation w/s 1592

Rectangles in Circles 1422 (2)

Triangles in Circles 1427 (2)

2-Piece Square 0366

Getting into Shape (box) 1791

Matchstick Puzzles 0131

Angle Properties

Angles of a Triangle 0159

Angle Fit w/s 2358

Topology

How Many Colours? w/s 0359

Colouring the Dots 1634 (★)

Economical Weaving w/s 1525

How Many Routes? w/s 0424

Transformations

Similarity/ Enlargement

Sorting Triangles 1905

Rotation

Rotation Symmetry Jigsaws 2111

Reflection

Symmetrical Triangles w/s 1847

Symmetry w/s 1565

Translation/ Vectors

Vector Messages 0339

Vector Sea 0377

Combined Transformations

Locate the Error 0695

Board Order 1675

Tetromino 0048

Coordinates

Co-ordinates

Co-ordinates 3 0263

Rhino (COORD) 1621

Grids 0853

Changing Grids w/s 0384

Cartoon Co-ordinates w/s 0264 (2)

Co-ordinates 2 0262

Fishing w/s 1379

Construction & Loci

Drawing

Concentric Circles 0394

Nets of a Cube 0295

Prisms and Pyramids 0008

Straight Lines w/s 1844

Pentagons w/s 1629

Tetrahedron Nets 0349

Me

Acc Mea 00

Mea Per 22

Hov Lon 02

Tim 06

Mat w/s 17

Abo Muc 17

Goo 13

The Rea 14

End of level review: Shape, Space and Measurements 2351 (3)

Add a Cube or Two (DIME) 1877 (3)

Building with Tncubes (DIME) 2074

4 Cube Solids 1524 (2)

Tricube Plans (DIME) 2075

Recognising Solids (DIME) 1334 (4)

Origami Cube 2219

Dissection 5 0054

Tangram 3 0007

Hexagon Dissection 0411

Tangrams (MA Poster) 0778

7 Piece Tangram 0105 (2)

Regular Tilings 1 (DIME) 1889 (4)

Tangram Teasers 0348

Squares Tangram 0721

Shape Names w/s 2161

Hidden Shapes w/s 0697

Visualising 2155

Sixteen Quadrilaterals 2367 (★)

Hexiamonds 2231

Identikit 1698

Midpoints 0455 (★)

Finding Angles of a Tnangle 0235

Angles of a Quadrilateral 0072

About Angles 0039

Angles in a *Regular Hexagon* w/s 2384

Angles of a *Polygon* 0267

Exterior Angles of *Polygons* 0268

Equal Angles (DIME) 1331 (2)

Fold it 0809

Missing Angles w/s 2330

Networks 0075

Airline Networks 1757

Routey 0495

Nodes w/s 0341

Inside or Outside? 0452

Domino 0046

Double Up 1388

Rotations w/s 0730

Centres of Rotation w/s 0327

Wheels 1352

Line Symmetry A 1–4 (DIME) 1718

Add-a-Square w/s 1717

Symmetry Codes w/s 2035

Reflection 0709

Adding Counters w/s 1914

Mirror Match (DIME) 1866 (3)

Line Symmetry B 1–3 (DIME) 1892 (2)

Line Symmetry 1954

Rangoli Patterns 2309

More Vector Messages w/s 1309 (2)

Moving Pictures 0432 (2)

Alphabet Symmetry w/s 2023

Rotational and Line Symmetry Review 2360

Where's that Town? 0481

All Co-ordinates 0494

Lines (COORD) 1641

Octahedron Nets 0484

Ruler, Pencil and Compass 0732

Equilateral Construction 1287

Perpendicular Bisectors 0211

Bisecting *an Angle* 0212 (2)

Islamic Designs 2063

Ro Mo 13

End of level review: Shape, Space and Measurements 2352 (2)

Wedges 1 (DIME) 1882 (3)

More Than Two Blocks (DIME) 1880 (3)

Soma Solids 1672 (2)

Tricube Codes 2127

3-D Maze (MOVE) 1732

Building Cubes 1794

Making a 3 x 3 x 3 Cube (DIME) 2077

Plaited Cube w/s 0098

Tetra-flexagon 0145 (2)

Building on a Square (DIME) 2076

Sketching Solids (DIME) 1335 (4)

Tessellations of Quadrilaterals 0326 (2)

Regular Tilings 2 (DIME) 1890

One Straight Cut w/s 1760

Regular Tilings 3 (DIME) 1891 (4)

Tessellating Patterns (TARQUIN Poster) 2012

Is It Rigid? 0340

Tangled Quadrilaterals 1764

Shape Up 2170

Four Triangles 1772

Two Triangles 1773

Using a Triangle 0364

Yes/No 1744

Paper Folding 1382 (5)

Ask Me Another w/s 2240

Finding Exterior Angles 0269

Versa-Tiles 1419 (2)

Angles from Tessellations 0284

Angles and Triangles 2162

Unmarked Angles w/s 2173

Angle 4 Review 0877 (3)

Acute/Obtuse 0433

Polygons; Interior Angles 0800 (2)

3-D Frameworks 1947

Traversable? 0426

Ealing Broadway 1958 (★)

Shapes that can grow w/s 1759

Scale Factor 0838 (2)

Rotational Symmetry 1955

Rotation 1112 (2)

Rotate This Way w/s 0839

Using a Mirror (DIME) 0581 (3)

Reflect w/s 0577

Tricube Symmetries 2139

Symmetncal Cross Cut 0560

Points and their Images 0255

Line Symmetry A 5–10 (DIME) 1719 (3)

Translation 1123 (2)

Vector Match 2228

Race Track w/s 0725

All out of line 0144

Trigg 1398

Queens (MOVE Pg33) 1714

Turning and Toppling (DIME) 1336 (5)

Locate (COORD) 1715

3 in a line (COORD) 1836

Elephant (COORD) 1607

Cuboid Nets 0719

Start with 60° 2311

The Circumcircle 0213 (2)

Inscribed Circle 0232

Compass Constructions 1170 (2)

Polygons in Circles w/s 2375

Curvy Tiles in Logo 2276 (2)

How 08

End of level review: Shape, Space and Measurements 2353 (3)

Blue in the Face 2197 (★)

Build and Balance (DIME) 1879 (3)

Euler Solids (MA Poster) 1354 (3)

Cutting Corners 2132

Cut a Cube 2232

Origami Dodecahedron 2218

Dissection Pairs w/s 1911

Weaving w/s 1647

Polygon Symmetries 1873 (★)

Angles in a Semi-circle 1935

Cyclic Quadrilateral 0165

About Nodes 0342

The Inseparables 0492 (★)

Four Pentominoes 1928 (2)

Areas of Similar Shapes 1559 (2)

Line Symmetry B 4–6 (DIME) 1893 (2)

Line Symmetry B 7–10 (DIME) 1894 (2)

Reflections (DIME) 1337 (5)

Translations 1934

Race Game (MOVE) 1654

Journeys 1329

Vectors and Squares 2201

Avoiding Each Other (MOVE Pg30) 1777

Combining Transformations 1561 (2)

Shape Sequences 2214 (★)

Cube Cuts 0675 (★)

Cross Stitch 2145 (★)

Nets of Pyramids 0720

Spiralling Squares Patterns 2031

Constructive Designs 2141 (3)

Tie w/s 2058 (2)

Ellipses by Folding 2055

Painted Tyres 1912 (★)

Less are 059

End of level review: Shape, Space and Measurements 2354 (2)

Handling Data

Measurements and Mensuration

...ment	Area/ Perimeter	Circle Measurement	Surface Area/ Volume	Angle	Trigonometry
	Area 2 0023	It's not Fair! 2146	Layers 1750	Angle 90° (ANGLE) 1721	
	Twelve Inch Perimeter 1413		Block Problems 1436	Measuring Angles 0775	
	The Same Area 0860			Drawing Angles 0776	
	Which is Larger? 0185			Logo is Amazing 2268	
airs	Silver Earrings w/s 1824				
	Area 4 0025				
swork					
er					
(2)					

Planning & Collecting Data / Processing, Representing & Interpreting Data / Probability

Logic and Sets	Collecting Data	Displaying Data	Analysing & Interpreting Data	Probability	
Three by Three 1848 (*)			Hot and Cold (Calculating Pg 15) 2121	Logical Kitty 1690	Experiments 0290
All Change 0475			The Mode w/s 2174	Shading strips 1845 (*)	Rolling two dice w/s 0288
Counter Puzzle 0123			The Median 2329		Strange Dice Game 2189
Out of Line 0133			The Mean 1409		Pizza or pasta? 2319
Hopslide (MATH PUZ) 1755					Lucky Dip 1643
Self-Portrait w/s 1627					Fair Play 2017
Find the Stranger 0870					How Likely? 2152
Three Loops 0585					

Which Set?
0291

Three in a Line
1301

3 in 1 Maze (poster)
2037

An Honourable Problem
1304

End of level review: Handling Data 2351 (2)

Level 4

Measurements and Mensuration

Pentomino Puzzles 1927 (2)	Circumference 0392 (2)	Volumes 2178	Amazing Logo 2269	
Area and Perimeter 0119	Making Circles 2142	Right Angled Triangular Prisms 2257	Snooker (ANGLE) 1624	
Right Angled Triangles w/s 0168	All About Circles 2083	Centicube Surprise 1720	Satellite Signals w/s 0777	
Areas of Polygons w/s 2382			Angle 360° (ANGLE) 1787	
Make Half 1741 (2)			Angle Estimation 0772	
Half a Rectangle 0169			Free Hand Angles 0788	
Area of a Triangle 0166			Radar w/s 0510	
			Bearings 2302	

Planning & Collecting Data / Processing, Representing & Interpreting Data / Probability

Logic and Sets	Collecting Data	Displaying Data	Analysing & Interpreting Data	Probability	
Boat (MATH PUZ) 1626 (*)	Big Hand .. Big Foot? 2181	Feeling Hungry? 1792	Testing Dice 2198	Which Switches? 0694	What's the Probability? 1132
Logical Kitty 1615	Sampling Shoes 1292	Information Displayed 2164	Statistics 3 Review 0897 (2)		What Can I Wear? 0453
Who's Who? 0727	Is it true? 2033 (*)	Pie Chart Match w/s 2171	Population Projections 2177		Four Beads (DIME) 2011 (2)
Logic Maps 0677		Pie Charts for Breakfast 2200	Code Breaking 0808		
Who is the Schoolkeeper? 1897					
What's the Difference? w/s 2088					
A Hungry Death? 0674					
Hats (MATH PUZ) 2327					

End of level review: Handling Data 2352 (2)

Level 5

Measurements and Mensuration

World View 1886	Parallelogram Problems 0227	Round the Bend 2013	Volume of Cubes 0142	Bearings and Scale Drawings 1434 (2)
Chocolate Areas 0120	Shearing a Triangle 0177	Circle Coverage 2149	Cuboids from Matchboxes 0381	Pilot (MOVE) 1667
Rectangle Areas 1320		Kit Bag 2060	Volumes 2 0143	Rotation (DIME) 1332 (3)
Area of a Parallelogram 0224				
From Parallelogram to Rectangle 0228				
Equal Area? w/s 2222				
Triangle Problems 0236 (2)				
Shearing Parallelograms 0226				

Surrounding	
Right Angled Triangles w/s 2056	
Short, Middle, Long 1902	
Checking Pythagoras 0188	

Planning & Collecting Data / Processing, Representing & Interpreting Data / Probability

Logic and Sets	Collecting Data	Displaying Data	Analysing & Interpreting Data	Probability	
Inventing Mazes 2081 (2)	Rumour (Calculating Pg 10) 2117	Secondhand Cars 1295 (2)	Frequency Graphs 1233 (2)	Sidings 0634 (2)	What Chance? 0737
The Lewis Family 1770	Which Hand Works Hardest? 2138	Headlines 2235		The 3 Coin Problem 0161	Monopoly 0750
Counter Placing 0591		Olympic Medals 1938			Three Counters (DIME) 2009
Hex 0170 (*)		Pie Charts 1101 (2)			Six Beads (DIME) 2010
Sets of Signs 1953					One Dice (DIME) 1967
Logi-Puzzle 1302					Two Dice (DIME) 1969 (2)
Milk Crate 1685					
Sort the Cards 0472					
A Puzzling Walk (poster) 2250 (*)					

End of level review: Handling Data 2353 (2)

Level 6

Measurements and Mensuration

Square 1686 (*)	Pizza Paradise 2150	Volume of Cuboids 1257	Equiangular Spirals 1999 (3)	Using Pythagoras 0190
Polygon Areas 2084	Orbits 0761	Volume of Prisms 1094 (2)	Back Bearings 1435	Looking for Right-Angles 0189
Trapezium to Parallelogram 0806		Dipsticks 1861	Journeys 1130 (2)	Pythagoras Problems 0191
The Trapezium 0794		Volumes and Surface Areas of Cylinders 1275 (2)		Six Pyramids 2388 (3)
				Rising Gradients 1917
				From A to B 1762 (*)

Planning & Collecting Data / Processing, Representing & Interpreting Data / Probability

Logic and Sets	Collecting Data	Displaying Data	Analysing & Interpreting Data	Probability	
Master (MATH PUZ) 1653		Line of Best Fit 0574	Best Marks 2208	Forty Towers 0684	Putting it to the test 2100
An Islamic Design w/s 1734		Population Pyramids 2188 (2)	Average Pack of Workcards 0805 (3)	Pascal's Triangle 0746 (4)	Probability 1269 (2)
Flying Engineers 1766 (2)		Population of Britain 2169 (3)	A Mean Challenge! 2318	Pinball Experiments 2207	Probability Kitty 1614
Logic Block Sets 2101			Grouping Data 2175 (2)		Tossing Coins (INVEST Pg 38-40) 2194 (2)
Think 1706					Numbers Up (DIME) 1968 (2)
Who has the Microcomputer? 1898					Five Beads (DIME) 1970 (2)
In Your Mind 0600					
Domino Puzzle 0905 (2)					

End of level review: Handling Data 2354 (3)

Level 7

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

*

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids — To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources — SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

Teacher resources from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1701 Post Half Posters	Good display poster to encourage project work on area and fractions.
2112 Imaginings	A collection of lesson starters and enders, based upon 3-D visualisation.
2176 Talking Poster	Good display poster to encourage mathematical discussion.
2292 Towers (box)	A game for revision for Key Stages 3 & 4, based upon Trivial Pursuit.
2324 Reckonings	A collection of lesson starters and enders, based upon mental mathematics
2376 Maths in Your Head	A collection of lesson starters and enders, based upon mental mathematics

Support materials for students from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1783 Calculating Booklet	Each activity in this booklet has been referenced on the SMILE Network from SMILE 2113 to SMILE 2126.
2002 Real Spirals	A good resource for project work on spirals.
2096 Fraction Playing Cards	A resource for students, also needed for SMILE 2097 and SMILE 2105.
2163 Geometry Facts	This is referenced on many SMILE activities where students need to find definitions of shapes and angles.
2226 Number Playing Cards	A resource for students which is referenced on many SMILE activities where students require number cards.
2323 Statisical Inv. Help Book	A resource for students.
2364 Decimal Playing Cards	A resource for students, also needed for SMILE 2365, SMILE 2366, SMILE 2368 and SMILE 2369.

Additional resources available from SMILE Mathematics

The following SMILE materials do not come as part of the classroom materials, but are for use as whole class lessons, to aid group work and differentiation.

Bridging Units	2 units suitable for Year 7.
Nice Ideas in one place V. 1 & 2	Contains 25 and 20 activities respectively for KS 3 and 4.
Reasonings	Contains 27 activities suitable for KS 3.
Revision through Groupwork	9 topics allowing for differentiation.
Whole Class Projects	8 projects, suitable for KS 3 and 4.

Additional resources from SMILE Mathematics for Assessment

The following pack does not come as part of the classroom materials.

Assessment Pack	Provides starting activities and diagostic tests for Levels 2 to 6

Resource programs from SMILE Mathematics

The following programs do not come as part of the classroom materials.

1650 Take Part (DfEE)
1702 Circle (INVEST)
1776 Spirals (INVEST)
1796 Plotter (GRAPH)
1851 Regions (GRAPH)
1853 Pinball (INVEST)
1903 Numbers (PROP/NO)
2373 Queens (MOVE)

SMILE MATHEMATICS

Name _____

Network 6 - EP

April 2001 0001 - 2403

The grids below are designed to aid the recording of student assessment over a period of time.

Inital Teacher Assessment

						Key Stage 2

Key Stage 3 Assessment

Year 7						
Year 8						**Key Stage 3**
Year 9						TA / SAT's

Key Stage 4 Assessment

						Target Grade
Year 10						
Year 11						**Predicted Grade**

Level 6

Place Value, Ordering and rounding

Place Value/ Number Systems

Urdu Multiples
1875

Chinese Number Puzzle (box)
1754

Which Scripts? (poster)
1931

Ordering and Rounding

Problems (Calculating Pg 22/23)
2126

Decimal Place Match w/s
2398

Integers, Powers and Roots

Powers and Roots

Power
0388 (2)

Power Match w/s
2019

The Root of the Problem
2151

Squares, Cubes and Roots w/s
2095

Cube Root Calculator
2168

Properties of Number

Turn the Tables
1394 (2)

Factor (PROP/NO)
1708

Define (PROP/NO)
1746

Multiplication Table Patterns
1395 (2)

Prime Factors
0331

Number Names
1618

Directed Number

Adding Directed Numbers
0516

Positive or Negative?
0884

Fractions, Decimals, Percentages, Ratio and Proportion

Fractions

Fraction Squares
2156

Tower (SENSE/NO)
1666

Who Won?
0443

Adding One
2255

Route Six
1737

Adding Fractions
0402

Fraction Sort
0683

Fraction Wall 2
1528

Decimals

Fractions to Decimals Match w/s
2223

Decimal Difference
2366

Target 100
1631

Digit Division
1724

Decimal Flags w/s
2242

Percentages

54% is a little more than Half Marks
2004

Percentage Puzzle w/s
2389

Marks to Percentages w/s
1096

Fractions to Percentages
1097

Ratio

Ratio Problems
1709 (2)

Conversion Pack 2
2370

Similar Rectangles?
2134

Number Lines D (NUM)
2381

Car Trial Results
1696

Number Operations,

Addition

Subtractio

Level 7

Integers, Powers and Roots

Powers and Roots

Square Roots Investigation
1589

Powerful Rules
0592 (3)

High Powered Matching w/s
2020

Paper Power
0463

Powers of Ten w/s
0614

x^y Experiment
2040

Properties of Number

Diagonal Multiples (PROP/NO Pg26)
1950

Consecutives
1319 (*)

The Smith Family Circus
1658 (2)

The 'Times' Crossword
0748 (2)

Number Challenge
2312 (*)

HCF & LCM
1673

Directed Number

Subtracting Directed Numbers
0517

Harder Negative Sequences
2297

Multiplying Directed Numbers
1278

Dividing Directed Numbers
1279

Fractions, Decimals, Percentages, Ratio and Proportion

Fractions

Hindi Additions
1881

Panjabi Numbers
1937

Significant Figures
1202

Early Egyptian Fractions
1771 (3)

Unit Fraction Patterns
2043

Decimals

Gelosia for Decimals
1800

Quarto
1639

Decimal Calculations
0153

Percentages

Excess Luggage
2024

Percentage Sales
1208

Ratio

Shrinking Earth
2065

A Mountain Walk
2006

Unibond Mixtures
1716 (2)

Jeans
2067

A Millionaire
0791

The Champion Flea
1660

International Paper Sizes
1315 (2)

Level 8

Integers, Powers and Roots

Powers and Roots

Nim (MATH PUZ)
1604

Range of Area
2167 (*)

Very Large Numbers
0843 (2)

Very Small Numbers
0844

Going Scientific
2041

Using Standard Form
2183

I've got the Power
2271

Fibonacci and Square Root Spirals
2000 (2)

A Problem of Power
1684 (*)

Powers of Integers
2184 (*)

Properties of Number

Quadratics and Primes
2229

Rational Numbers
2265

Fractions, Decimals, Percentages, Ratio and Proportion

Percentages

Inflation
0804 (3)

Ratio

Pythagoras Dissection
2052

Golden Rectangle
0824 (4)

Exceptional Performance

Integers, Powers and Roots

Powers and Roots

Cuneiform Numbers
1793

Bi-Fractions
0414 (*)

A Special Number
0557

Base -2
1433 (*)

Babylonian Method
1399 (2)

Squares and Other Powers
1637

Properties of Number

Irrational Numbers
2266

Proof By Contradiction
1677

Primes and Proof
0831 (4)

Fractions, Decimals, Percentages, Ratio and Proportion

Fractions

What's Recurring?
2092 (*)

Percentages

Percentage Problems
2038

Ratio

Proportion
1533 (2)

ıtal, Written and Calculator Methods

Equations, Formulae and Identities

Sequences, Functions and Graphs

lultiplication

elosia
roblems w/s
761

losest Product
725

he Game
20
742

ultiplication
eview
386

alcumaze
738

preadsheet
quares
263

Division

Dividing Investigation
1940 (*)

Dividing Pairs
1726

Tri-Umph
1638

Getting Closer
1723

The Lost Divide
1656

Repeating Digits
0752

Quickly to Zero
0760

ISBN's and Errors
1454 (2)

Mixed

Calculator Brackets
2254

Using Brackets w/s
1463

Sum Dice
2154

One Million (TARQUIN Poster)
1961

Missing Digit (Calculating Pg 8)
2115

Missing Digits w/s
1711

Magic (NUM)
1833

Missing Signs (Calculating Pg 17)
2123

Millions
0903 (3)

Fewest Keys
2022

Algebraic Structure

Add and Subtract Squares and Quadrants (DIME)
2287 (2)

Anywhere on the Number Line w/s
0849

Re-Grouping
0830

Words won't fail me w/s
2237

The Algebra Game
2321

Algebra Tak-tiles on a Grid (DIME)
2288 (4)

Equations

Random Code
0689

Number Puzzle w/s
0184

More Than, Less Than
2247

Number Codex
0696

Solve it
0740 (2)

Sequences

Staircases
0315

Match Patterns
1313

Triangle Patterns
1432

Trick or Treat
0450 (*)

Card Towers
2070

Pattern/ Generalisation

Numbering the Pages
0603

Tricky Sum (MA Poster)
1482

Jumping (MATH PUZ)
1778

Quilts (INVEST)
1798

Rose (INVEST)
1731

142857 Times Table
0784

Bounce (DIEE)
1620 (*)

Mapping

Number Machines (DIME)
1341 (3)

x for Tea
0187

Simple Mappings (DIME)
1343 (2)

Mappings
1378

Graphs

Mappings to Graphs
0182

Graphs to Mappings
0183

Drawing the Line
0215

y=mx (GRAPH)
1826

Parallel Lines
0430

Using Gr

No Brakes Bruce
0362

of level review: Number and Algebra 2353 (2)

ussian
ultiplication
064

roduct of
rimes
822

The Great Divide
1657

Put them in their Place w/s
2251

Four Signs w/s
1712

Some Sums for Your Mind w/s
2157

Calculator Trial and Error
0155

2, 3, 4, 5
0162

Convince Yourself
2061

Who's Rule Okay?
2243

Algebra Match w/s
2203

Algebra Tak-Tiles without a Grid (DIME)
2289 (4)

$(x+1)^2$
1665

Identities
0876 (2)

Differences Between Squares
0818 (3)

The Unknown Square
0616

Equivalent Expressions w/s
2211

The Algebra Game 2
2322

A New Unit of Area (DIME)
2290 (4)

Find the Operation w/s
1904

Matching Algebraic Expressions w/s
2357

Brackets
2277

Comparing Areas (DIME)
2291 (3)

Quadratic Rules
2328

Solving Equations
0736

Pattern and Notation (DIME)
1340 (3)

Letters for Length
0982

Centigrade and Farenheit
0757 (2)

Solving Equations
1136 (2)

Solving Inequalities
2253

What could x be?
2136

Is There a Solution?
1540

Solving Simultaneous Equations
1538

Jugs (MATH PUZ)
1652

Fibonacci Type Sequences
2078

Ans and Exe
2042

The Chinese Triangle
1790

Cubes from Triangles
0783 (*)

Patterns in Pascal's Triangle
1438 (2)

Shongo Networks
2182 (*)

Investigating Queens (MOVE Pg32)
1785 (*)

Predict (PROP/NO)
1691

Counter Hopping Puzzle
0344

Rectangle Diagonal
0439

Hanoi (MATH PUZ)
2326 (*)

Algebra Puzzle
1412

Inverse Mappings
0837

Inverses
0745

Further Mappings (DIME)
1344 (2)

Quadratic Mappings (DIME)
1855 (3)

Drawing the Curve
2018

Mappings and Graphs (DIME)
1342 (4)

Solving by Graphs
0743 (2)

Simultaneous Equations from Graphs
2301

Parallels (GRAPH)
1820

Calculator Graphs
2191

Lines, Regions and Inequalities
2272

Simultaneous Match
2281

$y=ax^2$
1948 (2)

Equations and Graphs
0744

Straight Line Graphs
0817 (2)

Helicopter Photographs
1818 (

Overtaking
1821

Time Distanc Graphs
1127

of level review: Number and Algebra 2354 (2)

Four 4's
0179 (2)

Target 24-a Three Digit Problem
2016

Start with a^2
0734 (3)

Identicubes
2215

Operations
0397 (2)

Algebra Pairs
1736 (2)

Number Jumble
1682

Solving Harder Equations
1137 (2)

Pamphlets
0485 (2)

Problems
1308 (3)

Substituting into Formulae
2258

Algebra Problems
2275

A Domino Trick
1916

Simple Quadratics
1415 (3)

Digit Sum
0563

Differences
1941 (*)

Unpredictable Patterns
2049

Strings
2029

Threes and Sevens
1486 (*)

Rectangles to Regions
0755

Defining Regions
2234

Gradient
0789 (2)

Matching Equations
2166

Defining Regions
1511 (2)

Gradients and Intercepts
2249

Find The Line (GRAPH)
2396

Graph Matching
1707 (2)

When x is?
1951 (2)

Guess Inequality (GRAPH)
2397

Reciprocal Graphs
1952 (2)

A Sketchy Activity
2079

Sim. Equations & Inequalities
1537

Thinking and Braking
1956

The 'Smooth Out' Principle
1830

Motor-Cycle Ratios
1697 (

Modelling wit Graphs
1774 (

of level review: Number and Algebra 2355 (3)

Factorials!
1305

A Disappearing Act
2130

The Log Button
2051

Two Digit Sums
1396 (2)

Equations from Squares
0820 (3)

Tak Tile Areas
1323

Prove your Identity
0819 (2)

The 38th Triangle Number
0741

Prove It
0722

Subject of a Formula
1500

Perpendicular Proof
1420

Partners
1775

Changing the Subject
1501

Four Consecutive Numbers
1437

Points of Intersection
0756 (3)

Solving Quadratic Equations
2192 (3)

Pythagorean Triples
1676 (2)

Diophantine Equations
1460 (3)

Infinity
1369 (7)

Limits
1485 (2)

Series Geometrically
1418 (3)

Number Pattern Proof
0782

Geometric Progression
1439 (2)

Converging Sequences
1389 (2)

Composite Functions
1543 (2)

Quadratic Solutions
2140

Matching Graphs
2044

Lineover (GRAPH)
1779

PointAndLines (GRAPH)
1840

Integer Graphs
2028

Using Gradients
1281

Foxes and Chickens (GRAPH)
1852

Party Solutions
2106

Areas Under Graphs
1504 (

Velocity from Distance Time Graphs
1568 (

Distance, Velocity and Acceleration
1569

of level review: Number and Algebra 2356 (3)

Shape, Space and Measurements

	Geometrical Reasoning						Transformations					Coordinates	Construction & Loci	
…hs	3-D		Shape	Properties of Shape	Angle Properties	Topology	Similarity/ Enlargement	Rotation	Reflection	Translation/ Vectors	Combined Transformations	Co-ordinates	Drawing	M
	Wedges 1 (DIME) 1882 (3) More Than Two Blocks (DIME) 1880 (3) Soma Solids 1672 (2) Tricube Codes 2127 3-D Maze (MOVE) 1732 Building Cubes 1794 Making a 3 x 3 x 3 Cube (DIME) 2077	Plaited Cube w/s 0098 Tetra-flexagon 0145 (2) Building on a Square (DIME) 2076 Sketching Solids (DIME) 1335 (4)	Tessellations of Quadrilaterals 0326 (2) Regular Tilings 2 (DIME) 1890 One Straight Cut w/s 1760 Regular Tilings 3 (DIME) 1891 (4) Tessellating Patterns (TARQUIN Poster) 2012	Is It Rigid? 0340 Tangled Quadrilaterals 1764 Shape Up 2170 Four Triangles 1772 Two Triangles 1773 Using a Triangle 0364 Yes/No 1744 Paper Folding 1382 (5) Ask Me Another w/s 2240	Finding Exterior Angles 0269 Versa-Tiles 1419 (2) Angles from Tessellations 0284 Angles and Triangles 2162 Unmarked Angles w/s 2173 Angle 4 Review 0877 (3) Acute/Obtuse 0433 Polygons; Interior Angles 0800 (2)	3-D Frameworks 1947 Traversable? 0426 Ealing Broadway 1958 (*)	Shapes that can grow w/s 1759 Scale Factor 0838 (2)	Rotational Symmetry 1955 Rotation 1112 (2) Rotate This Way w/s 0839	Using a Mirror (DIME) 0581 (3) Reflect w/s 0577 Tricube Symmetries 2139 Symmetrical Cross Cut 0560 Points and their Images 0255 Line Symmetry A 5–10 (DIME) 1719 (3)	Translation 1123 (2) Vector Match 2228 Race Track w/s 0725 All out of line 0144 Trigg 1398 Queens (MOVE Pg33) 1714	Turning and Toppling (DIME) 1336 (5)	Locate (COORD) 1715 3 in a line (COORD) 1836 Elephant (COORD) 1607	Cuboid Nets 0719 Start with 60° 2311 The Circumcircle 0213 (2) Inscribed Circle 0232 Compass Constructions 1170 (2) Polygons in Circles w/s 2375 Curvy Tiles in Logo 2276 (2)	Ho…
	End of level review: Shape, Space and Measurements 2353 (3)													
	Blue in the Face 2197 (*) Build and Balance (DIME) 1879 (3) Euler Solids (MA Poster) 1354 (3) Cutting Corners 2132 Cut a Cube 2232	Origami Dodecahedron 2218	Dissection Pairs w/s 1911 Weaving w/s 1647	Polygon Symmetries 1873 (*)	Angles in a Semi-circle 1935 Cyclic Quadrilateral 0165	About Nodes 0342 The Inseparables 0492 (*)	Four Pentominoes 1928 (2) Areas of Similar Shapes 1559 (2)		Line Symmetry B 4–6 (DIME) 1893 (2) Line Symmetry B 7–10 (DIME) 1894 (2) Reflections (DIME) 1337 (5)	Translations 1934 Race Game (MOVE) 1654 Journeys 1329 Vectors and Squares 2201 Avoiding Each Other (MOVE Pg30) 1777	Combining Transformations 1561 (2) Shape Sequences 2214 (*) Cube Cuts 0675 (*) Cross Stitch 2145 (*)		Nets of Pyramids 0720 Spiralling Squares Patterns 2031 Constructive Designs 2141 (3) Tie w/s 2058 (2) Ellipses by Folding 2055 Painted Tyres 1912 (*)	Le… are…
	End of level review: Shape, Space and Measurements 2354 (2)													
	Wedges 2 (DIME) 1883 (3)	The Other Side 1857		Family of Quadrilaterals 0738 Polygons and Right Angles 1843 (*)	Regular Polygons 0731 (2) Angles in Circles 2062		Similar Triangles 2027 Lengths of Similar Objects 1259 (2) Nine Pentominoes 1929 (2) Similarity Problems 1560 Negative Scale Factor 0845 (2)		Combined Reflections 1562 (2)	Vectmeet (MOVE) 1622 Force Meet 0894 (2) Vector Magnitudes 1013	Transforming Triangles 2148 Matrices and Transformations 0797 (2) Square Jigsaw (box) 1688 (2) Wedges (DIME) 1338 (5) Transformations 1156 (2)			
	End of level review: Shape, Space and Measurements 2355													
	Spheres 1679 (4)			Folding 1681 Identical Halves w/s 1795			Similar Solids 1261 Matrices and Area 1922 (2)	Matrices for Rotations 1456 Combining Rotations 1457	Reflection Matrices Investigation 1458	Vectors 1177 More Vectors 1178 (2) Column Vectors 1179 (2) Dividing in a Given Ratio 1011 (2) Vector Areas 2050	Islamic Patterns in Logo 2093 A Transformation Technique 1400 (3) Scale Maps 2085 Isometries 1028 Matrices for Shears Investigation 1459		Minimum Information 1832	
	End of level review: Shape, Space and Measurements 2356 (3)													

Measurements and Mensuration

Area/ Perimeter

- World View 1886
- Chocolate Areas 0120
- Rectangle Areas 1320
- Area of a Parallelogram 0224
- From Parallelogram to Rectangle 0228
- Equal Area? w/s 2222
- Triangle Problems 0236 (2)
- Shearing Parallelograms 0226
- Parallelogram Problems 0227
- Shearing a Triangle 0177

Circle Measurement

- Round the Bend 2013
- Circle Coverage 2149
- Kit Bag 2060

Surface Area/ Volume

- Volume of Cubes 0142
- Cuboids from Matchboxes 0381
- Volumes 2 0143

Angle

- Bearings and Scale Drawings 1434 (2)
- Pilot (MOVE) 1667
- Rotation (DIME) 1332 (3)

Trigonometry

- Surrounding Right Angled Triangles w/s 2056
- Short, Middle, Long 1902
- Checking Pythagoras 0188

Handling Data

Logic and Sets

- Inventing Mazes 2081 (2)
- The Lewis Family 1770
- Counter Placing 0591
- Hex 0170 (*)
- Sets of Signs 1953
- Logi-Puzzle 1302
- Milk Crate 1685
- Sort the Cards 0472
- A Puzzling Walk (poster) 2250 (*)

Planning & Collecting Data

Collecting Data

- Rumour (Calculating Pg 10) 2117
- Which Hand Works Hardest? 2138

Processing, Representing & Interpreting Data

Displaying Data

- Secondhand Cars 1295 (2)
- Headlines 2235
- Olympic Medals 1938
- Pie Charts 1101 (2)

Analysing & Interpreting Data

- Frequency Graphs 1233 (2)

Probability

Probability

- Sidings 0634 (2)
- The 3 Coin Problem 0161

- What Chance? 0737
- Monopoly 0750
- Three Counters (DIME) 2009
- Six Beads (DIME) 2010
- One Dice (DIME) 1967
- Two Dice (DIME) 1969 (2)

Level 6

Area/ Perimeter

- Square 1686 (*)
- Polygon Areas 2084
- Trapezium to Parallelogram 0806
- The Trapezium 0794

Circle Measurement

- Pizza Paradise 2150
- Orbits 0761

Surface Area/ Volume

- Volume of Cuboids 1257
- Volume of Prisms 1094 (2)
- Dipsticks 1861
- Volumes and Surface Areas of Cylinders 1275 (2)

Angle

- Equiangular Spirals 1999 (3)
- Back Bearings 1435
- Journeys 1130 (2)

Trigonometry

- Using Pythagoras 0190
- Looking for Right-Angles 0189
- Pythagoras Problems 0191
- Six Pyramids 2388 (3)
- Rising Gradients 1917
- From A to B 1762 (*)

End of level review: Handling Data 2353 (2)

Logic and Sets

- Master (MATH PUZ) 1653
- An Islamic Design w/s 1734
- Flying Engineers 1766 (2)
- Logiblock Sets 2101
- Think 1706
- Who has the Microcomputer? 1898
- In Your Mind 0600
- Domino Puzzle 0905 (2)

Processing, Representing & Interpreting Data

Displaying Data

- Line of Best Fit 0574
- Population Pyramids 2188 (2)
- Population of Britain 2169 (3)

Analysing & Interpreting Data

- Best Marks 2208
- Average Pack of Workcards 0805 (3)
- A Mean Challenge! 2318
- Grouping Data 2175 (2)

Probability

Probability

- Forty Towers 0684
- Pascal's Triangle 0746 (4)
- Pinball Experiments 2207

- Putting it to the test 2100
- Probability 1269 (2)
- Probability Kitty 1614
- Tossing Coins (INVEST Pg 38-40) 2194 (2)
- Numbers Up (DIME) 1968 (2)
- Five Beads (DIME) 1970 (2)

Level 7

Area/ Perimeter

- Irregular Areas 0812 (2)

Circle Measurement

- DIY Earrings 2032
- Circle Cut w/s 2400
- Circle Packing 2103

Surface Area/ Volume

- Solid Expressions 2383 (2)
- The Biggest Vase 1258 (2)
- Cubes 0399 (*)

Angle

- Directions (DIME) 1333 (4)

Trigonometry

- Trig Lines 1921 (2)
- Opposite, Adjacent and Hypotenuse 2082
- Pythagoras Plus... 2187 (*)
- Another Trig Line 2109
- Using Sine and Cosine 1 2137
- Using Sine and Cosine 2 2144

End of level review: Handling Data 2354 (3)

Logic and Sets

- Blocked (poster) 1788
- Turn it Over 2069
- Mastermind 1345
- *Shunting* 0477

Processing, Representing & Interpreting Data

Displaying Data

- Histograms 2295

Analysing & Interpreting Data

- Cumulative Frequency from Grouped Data 1267 (2)
- Grouped Data, Reviewed 2325 (2)
- Cumulative Frequency and Quartiles 1007 (2)

Probability

Probability

- Permutating Tricubes 2159

- Seven Beads (DIME) 1971 (2)
- Find the Fakes 1670
- Probability Kitty 1646
- Combined Probability 1704 (2)

Level 8

Area/ Perimeter

- Clover Leaf 0827 (2)
- Circles, Triangles and Hexagons 1763 (2)
- Sectors of Circles 0813 (2)
- Darts Probability 0796 (2)
- Approximation and π 0793 (2)
- Fabric Designs 2036
- Grey Areas 2135 (*)

Surface Area/ Volume

- Cones 1541 (2)
- Packing Balls 2244
- Best Fitting Peg 0595 (*)
- Optimising 1885

Trigonometry

- Trig for Any Triangle 2220
- Big Wheel 1784
- Sin and Cos Graphs 1939 (3)
- Exploring Sine Curves 2206(*)
- Thinking in Three Dimensions 1487 (2)
- Angles Between Planes 1488 (2)
- Post Box 0454 (*)
- *Trig Problems* 1517 (2)

End of level review: Handling Data 2355

Logic and Sets

- The Coin Problem 1918 (*)

Processing, Representing & Interpreting Data

Analysing & Interpreting Data

- Lies, Damned Lies and Statistics 0882 (2)

Probability

Probability

- Combined Probabilities from Tree Diagrams 1272 (2)
- Probably Probable? (INVEST Pg43) 2014

Exceptional Performance

End of level review: Handling Data 2356

Name

Using and applying mathematics

The assessment criteria below are to be used to assess Using and applying mathematics in the context of Number and algebra and Shape, space and measures.
Separate assessment criteria must be used for assessing Handling data at Key Stage 4.

Level	Making and monitoring decisions to solve problems	Communicating mathematically	Developing skills of mathematical reasoning	Mark
1	Candidates use mathematics as an integral part of classroom activities.	Candidates represent their work with object or pictures and discuss their work.	Candidates recognise and use a simple pattern or relation ship, usually based on their experience.	
2	Candidates select the mathematics for some classroom activities.	Candidates discuss their work using familiar mathematical language and are beginning to represent it using symbols and simple diagrams.	Candidates ask and respond appropriately to questions including 'What would happen if ..?"	
3	Candidates try different approaches and find ways of overcoming difficulties that arise when they are solving problems. They are beginning to organise work and check results.	Candidates discuss their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams.	Candidates show that they understand a general statement by finding particular examples that match it.	
4	Candidates are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts.	Candidates present information and results in a clear and organised way, explaining reasons for their presentation.	Candidates search for a pattern by trying out ideas of their own.	
5	In order to carry through tasks and solve mathematical problems, candidates identify and obtain necessary information; they check their results, considering whether these are sensible	Candidates show understanding of situations by describing them mathematically using symbols, words and diagrams.	Candidates make general statements of their own based on evidence they have produced and give an explanation of their reasoning.	
6	Candidates carry through substantial tasks and solve quite complex problems by breaking then down into smaller, more manageable tasks.	Candidates interpret, discuss and synthesise information presented in a variety of mathematical forms. Their writing explains and informs their use of diagrams.	Candidates are beginning to give a mathematical justification for their generalisations; they test them by checking particular cases.	
7	Starting from problems or contexts that have been presented to them, candidates introduce questions of their own, which generate fuller solutions.	Candidates examine critically and justify their choice of mathematical presentation, considering alternative approaches and explaining improvements they have made.	Candidates justify their generalisations of solutions, showing some insight into the mathematical structure of the situations being investigated. They appreciate the difference between mathematical explanation and experimental evidence.	
8	Candidates develop and follow alternative approaches. They reflect on their own lines of enquiry when exploring mathematical tasks; in doing so they introduce and use a range of mathematical techniques.	Candidates convey mathematical meaning through consistent use of symbols.	Candidates examine generalisations or solutions reached in an activity, commenting constructively on the reasoning and logic employed, and make further progress in the activity as a result.	
Exceptional Performance	Candidates analyse alternative approaches to problems involving a number of features or variables. They give detailed reasons for following or rejecting particular lines of enquiry.	Candidates use mathematical language and symbols accurately in presenting a convincing reasoned argument.	Candidates' report includes mathematical justifications, explaining their solutions to problems involving a number of features or variables.	
	Candidates consider and evaluate a number of approaches to a substantial task. They explore extensively a context or area of mathematics with which they are unfamiliar. They apply independently a range of appropriate mathematical techniques.	Candidates use mathematical language and symbols accurately in presenting a concise reasoned argument.	Candidates provide a mathematically rigorous justification or proof of their solution to a complex problem, considering the conditions under which it remains valid.	

The SMILE 2001 Network

The 2001 SMILE Network reflects the Mathematics National Curriculum 2000 and the KS3 Framework for Teaching Mathematics 2001. The Network is intended to assist teachers in planning and recording a scheme of work for each student according to their mathematical needs.

The Network can be used as a formative record of the student's progress throughout Key Stages 3 and 4 and as an aid to summative teacher assessment at the end of Key Stage 3 because the SMILE activities are arranged to reflect the sections of the Programme of Study.

A student's Network provides evidence of the extent to which the Programme of Study has been covered. The final decision about which Level Description best fits the student should be made in the light of work satisfactorily completed and understood and the teacher's knowledge of the student's mathematical ability.

The Inside of the SMILE Network - The programmes of study for mathematics

The SMILE Network contains a variety of different codes which are intended to provide help for teachers when setting work for a student. These are explained below.

World View 1886	Activities which require thought and planning before being set for students.
Algebra Match w/s 2203	A SMILE activity which is a worksheet - found in the SMILE Worksheet Pack. Written in **lower case letters**.
Target 200 (Calculating Pg 16) 2114	A SMILE activity which can be found in SMILE 1783 Calculating Booklet, page 16 Written in **lower case letters** in brackets.
Hundred Fit (box) 2303	A SMILE activity which is not usually stored with the workcards or worksheets. Written in **lower case letters** in brackets, e.g. (poster).
Solve it 0740 (2)	A SMILE activity. The number inside a bracket indicates a longer activity. The number gives a guide to the approximate expected length of the activity.
Up the Stairs 2185 (*)	A SMILE activity. Either investigative or practical where the work can only be assessed **after** the activity has been completed.
Comparing Areas (DIME) 2291	Activities from other publishers and SMILE software are identified by the source written in **upper case letters** in brackets. Full details of all these are found on the SMILE Commercial References Sheet, available from SMILE Mathematics.

The Outside of the SMILE Network

Assessment Grids

To aid the recording of:

- NFER results
- termly assessment and attainment grades
- individual action targets
- SEN and IEP's

Using and applying mathematics criteria reflect the three stands for Key Stage 4.

Other Resources

SMILE resources which are:

- Teacher Resources
- Support materials for students
- Additional resources

Teacher resources from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1701 Post Half Posters	Good display poster to encourage project work on area and fractions.
2112 Imaginings	A collection of lesson starters and enders, based upon 3-D visualisation.
2176 Talking Poster	Good display poster to encourage mathematical discussion.
2292 Towers (box)	A game for revision for Key Stages 3 & 4, based upon Trivial Pursuit.
2324 Reckonings	A collection of lesson starters and enders, based upon mental mathematics
2376 Maths in Your Head	A collection of lesson starters and enders, based upon mental mathematics

Support materials for students from SMILE - in numerical order

The following SMILE materials come as part of either a Full Class Set or a Single Copy Set and are not recorded on the inside of the SMILE Network.

1783 Calculating Booklet	Each activity in this booklet has been referenced on the SMILE Network from SMILE 2113 to SMILE 2126.
2002 Real Spirals	A good resource for project work on spirals.
2096 Fraction Playing Cards	A resource for students, also needed for SMILE 2097 and SMILE 2105.
2163 Geometry Facts	This is referenced on many SMILE activities where students need to find definitions of shapes and angles.
2226 Number Playing Cards	A resource for students which is referenced on many SMILE activities where students require number cards.
2323 Statisical Inv. Help Book	A resource for students.
2364 Decimal Playing Cards	A resource for students, also needed for SMILE 2365, SMILE 2366, SMILE 2368 and SMILE 2369.

Additional resources available from SMILE Mathematics

The following SMILE materials do not come as part of the classroom materials, but are for use as whole class lessons, to aid group work and differentiation.

Bridging Units	2 units suitable for Year 7.
Nice Ideas in one place V. 1 & 2	Contains 25 and 20 activities respectively for KS 3 and 4.
Reasonings	Contains 27 activities suitable for KS 3.
Revision through Groupwork	9 topics allowing for differentiation.
Whole Class Projects	8 projects, suitable for KS 3 and 4.

Additional resources from SMILE Mathematics for Assessment

The following pack does not come as part of the classroom materials.

Assessment Pack	Provides starting activities and diagostic tests for Levels 2 to 6

Resource programs from SMILE Mathematics

The following programs do not come as part of the classroom materials.

1650 Take Part (DfEE)
1702 Circle (INVEST)
1776 Spirals (INVEST)
1796 Plotter (GRAPH)
1851 Regions (GRAPH)
1853 Pinball (INVEST)
1903 Numbers (PROP/NO)
2373 Queens (MOVE)

1828	Find the Shape
1844	Straight Lines
1847	Symmetrical Triangles
1849	100 Search
1856	What Shapes?
1862	Even Animal
1868	Symmetry Match (A3)
1902a	(Short Middle Long)
1904	Find the Operation
1907	About How Long?
1911	Dissection Pairs
1914	Adding Counters
1919	How many Centimetre Squares?
1931a	(Which Scripts?)
1942	Growing Patterns
1945	Square Diagonals
1959a-d	(Making One)
1999a	(Equiangular worksheet)
2003a*	(Birthday Dates)
2019	Power Match
2020	High Powered Matching
2022a	(Fewest Keys)
2023	Alphabet Symmetry
2031a+	(Spiralling Squares)
2034a	(Likely or Unlikely)
2035	Symmetry Codes
2037a	(3 in 1 Maze)
2045	Hot and Cold
2054a	(4 Sides)
2056	Surrounding Right-angled Tri.
2058	Tie
2079a	(Sketchy Activity)
2082a	(Opp, Adj and Hypotenuse)
2088	What's the Difference?
2089	Oxford Street
2095	Squares, Cubes and Roots
2107	Oxfam Collection
2110	Number Sort
2111a-c+	(Rot Symmetry Jigsaws)
2129	Tens and Fives
2131	Filing Cards
2133	Out of 100
2134a	(Similar Rectangles)
2143	Percentages of Money
2147	Odd Animal
2151a	(The Root of the Problem)
2153	£1 Search
2154a	(Sum Dice Number Cards)
2155a	(Visualising)
2157	Some Sums for your mind
2158a-c	Turning Green
2160a	(Fraction Ruler)
2161	Shape Names
2171	Pie Chart Match
2173	Unmarked Angles
2174	The Mode
2178a	(Volumes)
2186	Missing Pieces
2188a-b	(Population Pyramids)
2193	Number Square Words
2199	Percentage Estimation
2203	Algebra Match
2205a	(Making 25p)
2206a	(Exploring Sine Curves)
2207a	(Pinball Experiments)
2211	Equivalent Expressions
2212	10 Search
2213	Sum Message
2216	From Matches to Mappings
2219a	(Origami Cube)
2220a	(Trig for any Triangle)
2222	Equal Areas?
2223	Fraction to Decimal Match
2224a	(Shajjad's Collection)
2225a	(Wildlife Collection)
2230	Which has the Largest Area?
2233	(Cafe Menu)
2237	Words Won't Fail Me?
2239	Putting in Order
2240	Ask me Another
2242	Decimal Flags
2247a	(More Than, Less Than)
2251	Put them in their Place
2252	Something and a Half
2256	Matching Fractions
2258a	(Substitiiting into Formulae)
2259	Multiplication Flags
2261	Shape-Tiles
2262	Find the Route
2264	Plus and Minus Grids
2267a	(Introducing Ratio)
2274	abc
2278	Mapping Jigsaw
2279c-d	(Island Game)
2292a	(Towers)
2296	Mapping Rectangles
2305	Hexagon Puzzle
2306	Patterns on a Line
2308	Word Match
2310	Sequences Jigsaw
2321a	(The Algebra Game)
2330	Missing Angles
2332	Decimals on a Number Line
2333	Quiz Times
2336a	(Comparing Ratios)
2338	Decimal Search
2339**	2 x Table
2340**	3 x Table
2341**	4 x Table
2342**	5 x Table
2343**	6 x Table
2344**	7 x Table
2345**	8 x Table
2346**	9 x Table
2347**	10 x Table
2348**	11 x Table
2349**	12 x Table
2357	Matching Algebraic Exps
2358	Angle Fit
2360	Rotational & Line Symmetry Review
2362	Decimal Routes
2372	Powers of Ten Flags
2382	Areas of Polygons
2384	Angles in a Regular Hexagon
2387	Multiples of Ten
2389	Percentage Puzzle
2391	Matching Weights
2398	Decimal Places Match
2400	Circle Cut
2401a	(Play Your Cards Right)
2402	Equivalent Fractions Sort

DIME produced worksheets

These are available from Tarquin Publications. See Commercial Reference Sheet

1331	(Equal Angles)	
1332	(Rotation)	
1333	(Directions)	
1339	(Flags)	
1340	(Pattern and Notation)	
1341	(Number Machines)	
1342	(Mappings and Graphs)	
1343	(Simple Mappings)	
1344	(Further Mappings)	
1866	(Reflection Activities)	
2073	A1, A2, A3, A4	Tricube Puzzles
2074	B2, B6, B10	
2075	C1, C5, C6, C8	
2076	D1, D5, D8, D10	
2077	E3, E7, E10	
2286	A3, A4	Algebra through Geometry
2287	A5, A6	
2288	B1- B6	
2289	C1- C6	
2290	D1 - D6	
2291	E1, E3, E4	

SMILE MATHEMATICS

Worksheet List

0001 - 2403

April 2001

The SMILE Worksheet pack contains one copy of the following worksheets for duplication in school.
Those marked with:

* should be duplicated onto card so that it can be used to make models, to play a game, to use as a template, etc.

\+ should be duplicated onto coloured paper.

**should be made up into an 8 page booklet.

Where the name of the activity is in brackets, this indicates that an additional card is needed.

0027	Number Squares
0028	Number Squares 2
0030	Number Squares 4
0031	Find the Number 1
0033	Find the Number 3
0034	Find the Number 4
0057	Fractions 3
0058	Fractions 4
0066a*	(Napiers Rods)
0069	Cardioid
0074	Sum and Product
0098	Plaited Cube
0099	Sum and Product Again
0114	Nines
0121	100 Square Patterns
0168	Right Angled Triangles
0178	Rectangles
0184	Number Puzzle
0242	Cracking the Code
0251	Mirror Symmetry
0259	Shading Fractions
0264	Cartoon Co-ordinates
0272	A Vehicle Survey
0288	Rolling Two Dice
0292	Doubling Patterns
0316	Counting On/Back
0327	Centres of Rotation
0330a	(Multiple Patterns)
0341	Nodes
0346	Sequences in Squares
0352	Table Squares
0354	Tom the Bowling Champ
0359	How Many Colours?
0367	Fraction Wall
0383	Building Shapes
0384	Changing Grids
0390	Surfaces
0396	Hexagons
0397a*	(Operations)
0404	Solids
0424	How Many Routes?
0448	Favourite Colours
0456	Midpoint Sequences
0470	Nephroid
0475c	(All Change)
0476	Mappings
0493	Sam Shape
0510	Radar
0550	Adding Shifts
0577	Reflect
0579a	(Cut-outs for Two Loops)
0592a	(Powerful Rules)
0614	Powers of Ten
0617	Looking Around
0696a	(Number Codex)
0697	Hidden Shapes
0705	Cross Puzzles
0713	Jumping Jack
0725	Race Track
0730	Rotations
0735	Knots
0738a	(Family of Quadrilaterals)
0777	Satellite Signals
0808a	(Code Breaking)
0824h	Pentagram (Golden Rectangle)
0824j	Rectangle (Golden Rectangle)
0839	Rotate This Way
0845a	(Negative Scale Factor)
0849	Anywhere on the Number Line
0852a	(Colouring Triangles)
0853a	(Grids)
0868	Evens
0869	Puzzle Worksheet
0881	24 Squares
0894b	(Force Meet Pack)
0895	Jumps
0905a	(Domino Puzzle)
1095	Percentages
1096	Marks to Percentages
1278a	(Multiplying Directed Numbers)
1299	Tangram Arrows
1309	More Vector Messages
1317**	Mult & Div by 10, 100, 1000
1321	Prism or Pyramid?
1355	Halves and Quarters
1358	Joining Multiples
1359	Joining Odds and Evens
1360	Pictures from Multiples
1376a	(Jobs in Order)
1379	Fishing
1390	Multiplication Table Facts
1417a*	(Tens Counters)
1419a+	(Versa-Tiles)
1422a	(8/12/16 - point circles)
1463	Use Brackets!
1525	Economical Weaving
1555	Mystic Rose
1557	Spirals
1565	Symmetry
1570	Pounds and Pence
1592	Two Cuts Investigation
1627	Self Portrait
1628a*	(Eight Squares cut-out)
1629	Pentagons
1635	The Key to Success
1636	Calculator Flags
1643a*	Cards (Lucky Dip)
1643b	Score Sheet (Lucky Dip)
1647	Weaving
1668a	(Mapping Puzzle)
1669	Sim
1679d- f	(Spheres)
1703	Find the Uncle
1711	Missing Digits
1712	Four Signs
1717	Add-a-square
1733	An Even Code
1734	An Islamic Design
1749a	(Decimal Jigsaw)
1753	Matching Pairs
1758	Co-ordinate Messages
1759	Shapes That Can Grow
1760	One Straight Cut
1761	Gelosia Problems
1768	Zigzag
1792a	(Feeling Hungry)
1795	Identical Halves
1799	Boxes
1812	Find Four Squares
1813	Crossword
1818a	(Helicopter Photographs)
1824	Silver Earrings

SMILE MATHEMATICS

EQUIPMENT LIST

SMILE 0001 - 2403
April 2001

The following are likely to be needed for many of the SMILE activities.

angle indicators
box of coins
box of shapes (labelled with names)
box of solids
calculators (4 function, scientific and graphic)
centicubes
compasses
computer
counters
dice
DIME solids
dominoes
drawing pins
elastic bands
glue
logiblocks (Attribute blocks)
maps - (LT map etc.)
matches
match boxes
metre rule
mirrors
multilink cubes
pack of cards
paper clips
pegs
pegboards
pentominoes
pinboards
protractors
rotograms
rulers (mm and cm)
scissors
sellotape
set square
Tak-Tiles (DIME)
tape measure

The following are needed specifically for only one or two SMILE activities.

ball
base 10 apparatus
cocktail sticks
dice labelled:

0	0	1	1	2	2
1	2	3	4	5	6

} red and white

N	E	NE	NW	NW	SW
S	W	SW	SE	NE	SE

Highway Code
Karnaugh map (4 x 4 grid to accommodate logiblocks)
2 loop and 3 loop boards
marbles
Napier's Rods (optional)
newspapers
probability maze
shopping catalogue
Soma Cube
stop clock
thermometer
Tricubes (DIME)
weights

The following types of paper will be required.

1cm square paper
1cm square dotty paper
2cm square paper
1cm isometric paper
1cm isometric dotty paper
2cm isometric paper
100 squares
multiplication squares
plain paper
tracing paper
gummed paper
card
graph paper (1mm and 2mm)
paper circles (filter papers)
gummed strips

Materials to support the use of technology in the mathematics classroom.

LOGO, a spreadsheet and a geometry drawing package.

Spreadsheets from SMILE

Teachers' book (SMILE)
Hints and Answers Book (SMILE)

For a list of commercially published materials which are referred to on the 2001 SMILE Network, please see the Commercial Reference Sources sheet obtainable from SMILE Mathematics.

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