



# Assessing pupils' progress in mathematics at Key Stage 3: Standards File

Pupil A





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# Pupil A – Year 7 – Low level 5

## Assessing pupils' progress in mathematics at Key Stage 3

### Assessment summary

Pupil A's teacher judges that her attainment in mathematics overall is best described as low level 5. Pupil A's performance is strongest in shape, space and measures and there is evidence that she is working at level 5 in some aspects of using and applying mathematics, number, algebra and handling data.

#### Using the Standards Files

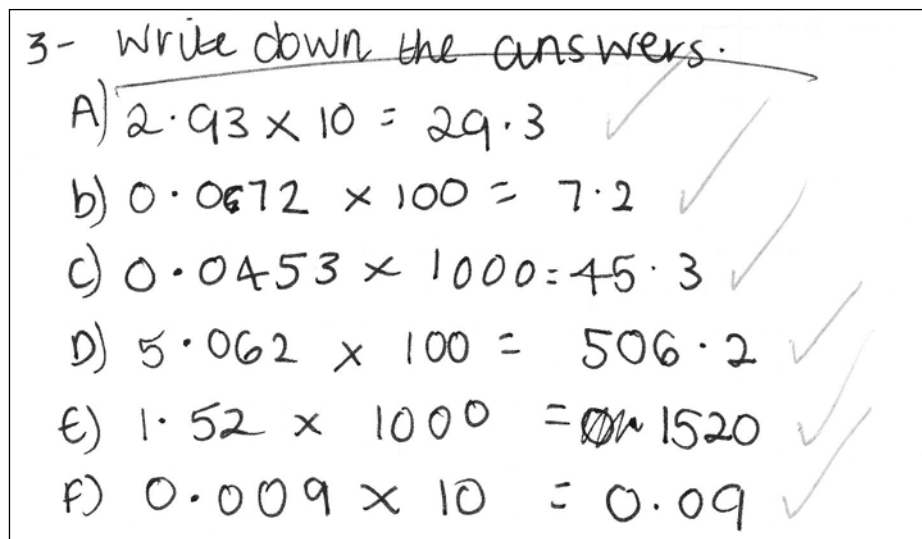
- The current Standards Files are based on work planned and assessed in relation to the 1999 National Curriculum programme of study. A new set of Standards Files based on the 2008 National Curriculum are currently in production, but the current set will provide useful guidance on making APP assessments against national standards in the transition period as the new programmes of study are introduced.
- The commentaries in the Standards Files are provided for guidance and reference, and are much more extensive than any teacher would be expected to make when carrying out APP assessments. It is also important to remember that APP encourages and enables a broader overview of current learning, and that there is no need to collect special portfolios of pupils' work. Evidence from pupils' written and oral work, backed up by brief teacher's notes where necessary, is all that is required.
- The evidence base presented in each Standards File is necessarily partial, as it would of course be impractical to reproduce all of each pupil's work. Examples of each pupil's work have been selected to provide evidence to support judgements against APP criteria. This evidence should be considered in conjunction with the teacher's notes, which will provide a broader context and further justification for the assessments that are made.

## Assessment focus

Calculating

### Context

At the start of a unit on place value, Pupil A investigated the effect of multiplying by 10, 100, and a 1000.



3- Write down the answers.

A)  $2.93 \times 10 = 29.3$  ✓

b)  $0.0672 \times 100 = 7.2$  ✓

c)  $0.0453 \times 1000 = 45.3$  ✓

d)  $5.062 \times 100 = 506.2$  ✓

e)  $1.52 \times 1000 = 1520$  ✓

f)  $0.009 \times 10 = 0.09$  ✓

### Teacher's notes

- mentally multiplies by 10, 100, 1000
- explains in her own words what happens, 'the numbers move one space when you multiply by ten and two spaces when you multiply by a hundred and three spaces for a thousand'
- discuss what happens when dividing by 10, 100, 1000

### Next steps

- set her own multiplication and division examples for a partner and calculate mentally to produce an 'answer sheet'
- multiply by 20, 200, 2000 etc

## Assessment focus

Calculating

## Context

Towards the end of a unit of work, Pupil A compared fractions.

Comparing Fractions.

1- Christobel  $\frac{3}{8}$  and  $\frac{1}{2}$  Tiny.

$3 \div 8 = 0.375 \downarrow$   $1 \div 2 = 0.5 = 0.5$   
 $0.38$   
 $= \frac{3}{8} < \frac{1}{2}$  ✓

2-  $\frac{2}{5}$  and  $\frac{3}{10}$

$2 \div 5 = 0.4 = \downarrow$   $3 \div 10 = 0.3 = 0.3$   
 $0.4 = \frac{2}{5} > \frac{3}{10}$  ✓

3-  $\frac{12}{15}$  and  $\frac{3}{5}$

$12 \div 15 = 0.8 \downarrow$   $3 \div 5 = 0.6 = 0.6$   
 $0.8$   
 A - False ✓

$\frac{3}{5}$  and  $\frac{12}{15}$  ✓  
 Working out same as A. ✓

B - True ✓

## Teacher's notes

- chooses to convert fractions to decimals to compare them
- uses a calculator to divide the numerator by the denominator
- decides how to record the work
- uses inequality signs accurately and reads her answers aloud as 'is greater than', 'is less than'
- notices the denominators 2, 5 and 10 result in 'easy decimals' i.e. one decimal place in this context

## Next steps

- compare methods with others in the class
- build on experience of a fraction wall to compare fractions using a common denominator

## Assessment focus

Algebra

### Context

At the beginning of a unit of work on algebraic expressions and equations, pupils worked in groups to create expressions to represent everyday situations and then created expressions for situations presented on a worksheet.

Algebra

objective:

To use algebra to represent information.

- Algebra is the use of letters and symbols to represent information.

Jacob has some pencils  
- He has  $N$  pencils

Ashley has five more  
- He has  $N$  plus 5

Olivia has got 4 times as many as Jacob.  
- She has  $4 \times N$   
✓ or  $4N$

Tom has  $p$  pencils  
✓ - How much have Tom & Jacob got  
They have  $p + N$ . Good Examples

11-  $A + b$  ✓  
12-  $x + y$  ✓  
13-  $A + b$  ✓  
14-  $p + 5$  ✓  
15-  $m + 23$  ✓  
16-  $2 + x$  ✓  
17-  $m + 3$  ✓  
18-  $x + 2$  ✓  
19-  $x + y$  ✓  
20-  $10 - 4$  ✓

Good work!

### Teacher's notes

- uses letter symbols to represent unknown numbers
- begins to use conventional notation, e.g.  $4N$  rather than  $4 \times N$

### Next steps

- interpret a broader range of situations that give rise to expressions involving all four operations



## Assessment focus

Algebra; Calculating

## Context

Homework: Using formulae to find the perimeter of given squares and rectangles

Handwritten student work on grid paper showing calculations for the perimeter of squares and rectangles using formulae.

1)  $P = 4L$

a)  $L = 5\text{cm}$   $P = 4 \times 5$   
 $P = 20\text{cm}$  ✓

b)  $L = 2\text{cm}$   $P = 4 \times 2$   
 $P = 8\text{cm}$  ✓

c)  $L = 3\text{cm}$   $P = 4 \times 3$   
 $P = 12\text{cm}$  ✓

d)  $L = 10\text{cm}$   $P = 4 \times 10$   
 $P = 40$  ✓

2)  $P = 2L + 2W$

a)  $L = 4, W = 3$   $P = (2 \times 4) + (2 \times 3)$   
 $P = 14$  ✓  $8 = L$   $6 = W$

b)  $L = 10, W = 4$   $P = (10 \times 2) + (4 \times 2)$   
 $P = L = 20$   $W = 8$   
 $P = 28$  ✓

## Teacher's notes

- substitutes values into the formula for the perimeter of a square and then a rectangle
- uses brackets to remind herself to multiply before adding
- checks her intermediate working but records this unconventionally

## Next steps

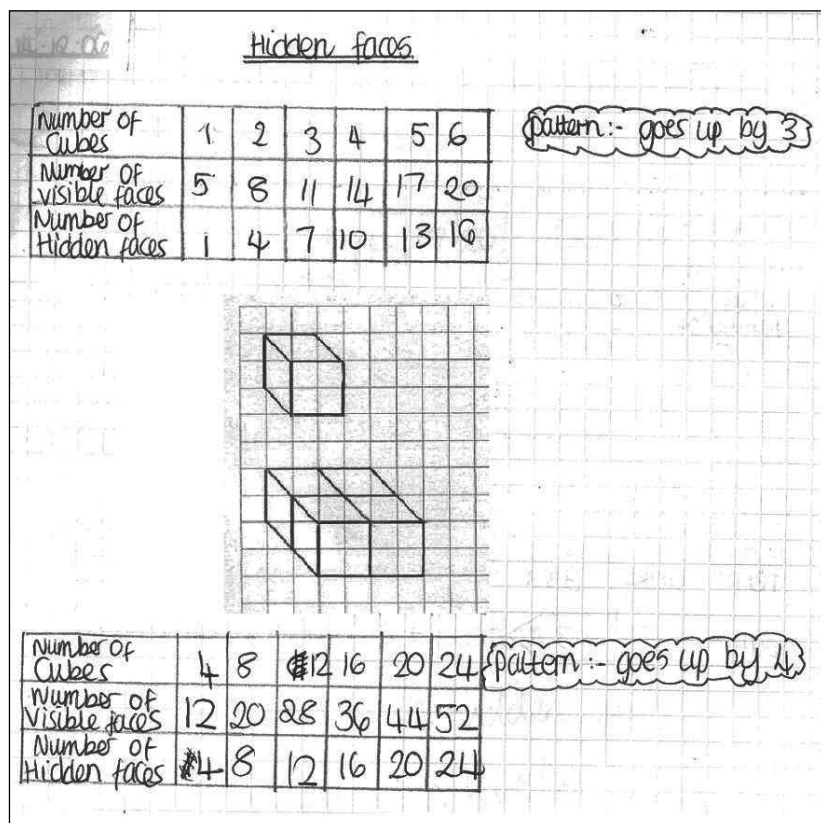
- present work conventionally
- work with formulae that represent less familiar situations to emphasise the use of algebra
- substitute positive and negative numbers into formulae
- find the value of variables that are not the subject of the formula

## Assessment focus

Using and applying mathematics; Algebra; Numbers and the number system

## Context

Homework: Pupils looked at some growth patterns in class and completed work on a hidden faces investigation with their own variation.



## Teacher's notes

- grows a line of linking cubes and records numbers of visible and hidden faces
- looks for number patterns and relationships in her results
- uses cubes to demonstrate why the numbers of visible and hidden faces go up in threes
- creates her own extension based on a unit of four linked cubes and counts visible faces correctly

## Next steps

- use cubes to check the number of hidden faces in her own pattern
- reflect on the total of visible and hidden faces at each stage in both examples

## What the teacher knows about Pupil A's attainment in number and algebra

Pupil A independently uses simple formulae, such as  $p = 2l + 2w$  for the perimeter of a rectangle. In the practical context of area and perimeter she recognised the different meanings of  $2a$  and  $a^2$ , explaining '2a is that part of the perimeter and it's 2a plus 2a altogether so that means four lots of a. And  $a^2$  is for the area and it's a times a'. Pupil A is beginning to construct expressions and formulae in symbolic form to represent practical situations. Following up her work on visible and invisible faces when joining cubes, she recognised that the total of visible and invisible faces was the number of cubes multiplied by six. In group discussion she suggested recording this as  $V + H = 6C$ , using  $V$  for the number of visible faces,  $H$  for the number of hidden faces and  $C$  for the number of cubes. She checked the formula by substituting values from her table of results. With the support of probing questions she explained, 'each cube has six faces and when the cubes are fixed together all of the faces must be visible or hidden so it's got to be six times the number of cubes you've used'.

Pupil A understands that repeated addition can be represented as multiplication and when matching equivalent expressions she matched  $a + a + a + a$  to  $4a$ . In arithmetic, she understands that  $12 \times 35 = 10 \times 35 + 2 \times 35$  and uses this understanding to multiply  $6(a + 4)$  for example. She also simplifies algebraic expressions by collecting like terms.

Pupil A plots graphs of linear functions in all four quadrants. She substitutes negative as well as positive numbers into expressions when constructing tables of values. She plots points and draws graphs as well as using ICT to create them.

Pupil A understands place value and uses this to order decimals with up to three decimal places. She rounds decimals to one decimal place. She understands the effect of multiplying and dividing by 10, 100 and 1000 and uses this to multiply 1250 by 25 for example. She uses her understanding of place value to change units and compare measurements in metres, centimetres and millimetres.

She knows the percentages that are equivalent to the fractions she uses most often, such as  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$  and  $\frac{1}{10}$ . She converts other fractions such as fifths or twentieths into tenths and hundredths to change them to percentages. She converts percentages to fractions and reduces them to their simplest form.

Pupil A calculates simple percentages of a number mentally, for example to find the value of a 10% discount on an item originally costing £22.50. In a similar way she calculates 10% of an amount and halves the result to find 5%. In her written methods she uses mental calculation of 50%, 25%, 10% and 1% as interim steps when calculating other percentages such as 65% of the 170 pupils in the year group. She makes good use of her knowledge of multiplication facts in both multiplication and division problems.

She knows and uses the correct order of operations when calculating. Her written methods of addition and multiplication are efficient and correct and are supported by mental strategies when using the four operations. Pupil A checks her work by considering whether her answer is reasonable in the context and by referring to the size of the numbers.

## Summarising Pupil A's attainment in number and algebra

Pupil A's attainment in number and algebra is best described as low level 5. To make further progress within the level, she needs to extend her work with equivalent fractions so that she can order fractions more efficiently. She should use a wider range of mental calculation strategies to support multi-step calculations, for example with brackets. She needs to refine her written methods of division, to divide a three-digit number by a two-digit number more efficiently for example. She needs to develop her understanding of ratio and direct proportion. She should begin to develop more efficient methods of calculating percentages based on multiplication. In algebra she needs opportunities to work with formulae that represent a range of less familiar situations and to evaluate formulae using positive and negative rational values. She should use algebra to find unknown values using more formal methods.

## Assessment focus

Shape, space and measures; Algebra; Calculating

## Context

Classwork: Textbook exercise on angles around a point and at a point on a straight line.

Homework

1- $\checkmark$ $110 + 150 + a = 360$ $a = 360 - (110 + 150)$ $a = 100^\circ$	1- $\checkmark$ $40 + a = 180$ $a = 180 - (40)$ $a = 140^\circ$
2- $\checkmark$ $95 + 105 + b = 360$ $b = 360 - (95 + 105)$ $b = 160^\circ$	2- $\checkmark$ $80 + b = 180$ $b = 180 - (80)$ $b = 100^\circ$
3- $\checkmark$ $90 + 90 + 140 + c = 360$ $c = 360 - (90 + 90 + 140)$ $c = 40^\circ$	3- $\checkmark$ $120 + c = 180$ $c = 180 - (120)$ $c = 60^\circ$
4- $\checkmark$ $35 + 85 + 50 + 90 + d = 360$ $d = 360 - (35 + 85 + 50 + 90)$ $d = 100^\circ$	4- $\checkmark$ $50 + d = 180$ $d = 180 - (50)$ $d = 130^\circ$
5- $\checkmark$ $140 + 20 + e = 360$ $e = 360 - (140 + 20)$ $e = 200^\circ$	5- $\checkmark$ $60 + 50 + e = 180$ $e = 180 - (60 + 50)$ $e = 70^\circ$
6- $\checkmark$ $90 + f = 360$ $f = 360 - (90)$ $f = 270^\circ$	6- $\checkmark$ $55 + 90 + f = 180$ $f = 180 - (55 + 90)$ $f = 325^\circ$
7- $\checkmark$ $35 + g = 360$ $g = 360 - (35)$ $g = 325^\circ$	7- $\checkmark$ $65 + 25 + g = 180$ $g = 180 - (65 + 25)$ $g = 90^\circ$
8- $\checkmark$ $30 + 110 + 40 + h = 360$ $h = 360 - (30 + 110 + 40)$ $h = 180^\circ$	8- $\checkmark$ $90 + h + h = 180$ $2h = 180 - (90)$ $h = 45^\circ$ $h = 45^\circ$

$\frac{8}{8}$        $\frac{16}{16}$        $\frac{8}{8}$

## Teacher's notes

- interpret diagrams of angles at a point on a straight line, at a point and in a triangle
- constructs equations
- manipulates equations and calculates accurately to solve them

## Next steps

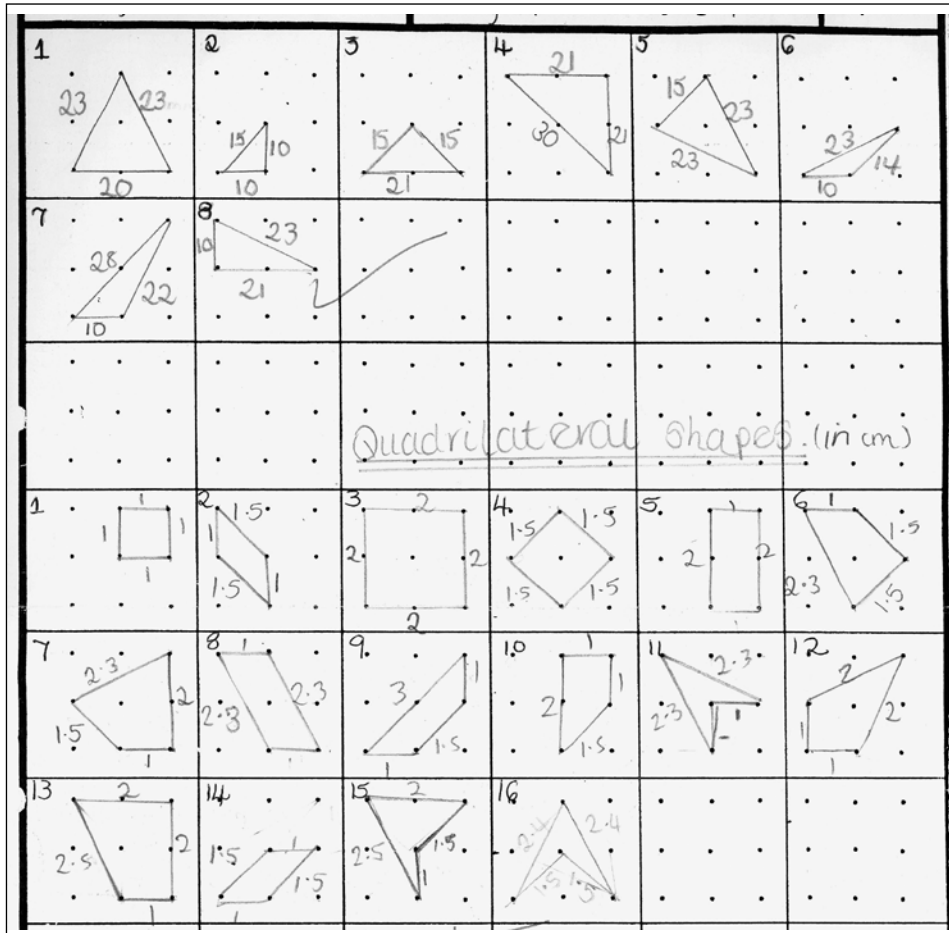
- use degree symbols consistently
- explore further angle properties of triangles and quadrilaterals
- extend problem solving to situations where intermediate working or construction is required

## Assessment focus

Shape, space and measures; Using and applying mathematics

## Context

Classwork: Pupils used a geoboard to find the distinct triangles and quadrilaterals that can be made on a 3×3 grid. They recorded their results on cm squared paper and measured the dimensions of the shapes to the nearest millimetre.



## Teacher's notes

- uses a pinboard to generate triangles and quadrilaterals
- records examples that are different
- reasons about shapes to check for repeats
- reviews results and begins to check she has all possibilities

## Next steps

- compare results with her group to check for further possible quadrilaterals and to identify her repeat
- explain how she knows she has all possible triangles

## **What the teacher knows about Pupil A's attainment in shape, space and measures**

In geometry Pupil A uses a range of 2-D shapes and properties such as parallel and perpendicular lines. Investigating polygons, she noticed that regular polygons with an even number of sides always have pairs of parallel sides and those with an odd number of sides do not have any. She knows the sum of angles at a point on a straight line, at a point and in a triangle. She used the angle sum of a triangle to explain why an equilateral triangle could not have perpendicular sides.

Pupil A recognises reflections, translations and rotations. When investigating triangles and quadrilaterals on a 9-pin geoboard, she excluded congruent shapes. As she compared her results with a partner she explained how she knew some examples represented the same shape in a different position. She named the transformations that would place the repeated shapes in the same position as her shape.

Pupil A reads and interprets scales on a range of measuring instruments in science as well as mathematics lessons. She draws and measures acute and obtuse angles to within  $2^\circ$  and lines to within 2mm. She converts millimetres to centimetres, recording a measurement of 28mm as 2.8cm for example. She uses the terms perimeter and area consistently accurately. She finds perimeters by measuring and adding lengths. She uses a formula to calculate the perimeter of a rectangle. Pupil A multiplies to find the area of a rectangle.

## **Summarising Pupil A's attainment in shape, space and measures**

Her teacher judges that Pupil A's attainment in shape, space and measures is best described as low level 5. To make further progress within level 5, Pupil A needs to develop her understanding of symmetry properties including the order of rotational symmetry. She needs to develop her reasoning about shapes to include a range of 3-D shapes and their nets. She needs to measure lines and angles more accurately and work with reflex angles. She also needs to solve a wider range of problems that involve converting units.



## Assessment focus

Handling data

## Context

Classwork: Interpreting data from charts in a text book.

Handling Data

Objective- to be able to interpret data in graphs.

Where 70 went on their main holiday.

Place	Male	female	Total
England	1	2	3
Scotland/ Ireland/Wales	2		2
Europe	7	4	11
outside Europe	2	2	4
Stayed at home	1		1
Total	13	8	21

15.3.07

1-  
a) Scotland - 8, Rest of Britain - 12, Europe - 5  
outside Europe - 5, At home - 10.  
b) 40 boys  
c)  $\frac{10}{40}$  Stayed at home.  $\frac{1}{4}$  ✓

2- a) Scotland - 9, Rest of Britain - 10, Europe - 8,  
outside Europe - 5, At home - 8.  
b) 40 ✓

3-  $\frac{10}{80}$  ✓ altogether had there holiday out-  
Europe.  
 $\frac{1}{8}$  Good  
Work learn how to Simplify

4-  
a) Rest of Britain ✓  
b) Europe ✓  
Graph Q. ✓

5-  
a) Rest of Britain ✓  
b) Scotland ✓  
Graph P. ✓  
Good

## Teacher's notes

- following a show of hands uses a table to record holiday data for her class
- compares information for her class with tables of information for other groups
- draws conclusions about the results, for example, that the 'rest of Britain' is the least common destination across all groups

## Next steps

- suggest her own questions to answer
- collect and analyse small sets of data
- write a short report of a statistical enquiry

## Assessment focus

Handling data

### Context

Classwork: Finding the possible outcomes of throwing a coin and a dice.

The outcomes of throwing a coin are :-

Heads & Tails

The outcomes of throwing a dice are :-

Coin	Dice
H	1
T	1
H	2
T	2
H	3
T	3
H	4
T	4
H	5
T	5
H	6
T	6

When the dice and coin are thrown together there are 12 outcomes.

This is like  $\frac{1}{12}$

There are 6 numbers on a dice

### Teacher's notes

- works out the possible outcomes of throwing a dice and tossing a coin together
- explains why there are 12 possible outcomes
- knows that with a fair dice and coin each outcome is equally likely and gives the probability  $\frac{1}{12}$

### Next steps

- gather experimental data from a large number of trials in the class
- compare theoretical probabilities and experimental data



## **What the teacher knows about Pupil A's attainment in handling data**

Pupil A contributes ideas about discrete data to collect to answer questions about matters such as methods of transport to school and pupils' favourite magazines. She collects primary data in lessons from a show of hands and records information in a frequency table. She uses the term 'mode' for the most common event and uses 'range' when describing the difference between minimum and maximum values for numerical data. Pupil A constructs bar charts using a vertical scale where one division represents 1, 2 or 10. She knows the convention of leaving a gap between bars that represent discrete data arising from a count.

Pupil A describes probabilities using everyday language such as 'certain', 'likely', 'even chance'. She is beginning to use fractions to describe probabilities such as the chance of drawing a domino with a three from a double-six set. She compares probabilities such as the chance of drawing a multiple of 3 with the chance of drawing an even number from a set of cards numbered 1 to 10. Pupil A lists possible outcomes from a simple experiment, for example from throwing a 1 to 6 dice and a coin. In this context, she recognised that all of the outcomes were equally likely and expressed the probability of any outcome as one twelfth. When her group tallied the results of throwing the dice and coin 50 times each, Pupil A noticed that each possible outcome did not occur the same number of times. She explained that if there were more results, the number of times each outcome occurred would be more similar but not necessarily exactly the same.

## **Summarising Pupil A's attainment in handling data**

Pupil A's attainment in handling data is best described as high level 4. To progress to level 5, she needs to plan how to answer a question, decide what data to collect and design a data collection sheet for herself. She needs to begin to work with median and mean values to compare sets of data. She needs to represent a wider range of data in different ways, for example to group data or use ICT to create a pie chart, and to interpret results.

## **What the teacher knows about Pupil A's attainment in using and applying mathematics**

Pupil A asks and answers questions to clarify a problem or to agree the parameters for an investigation. For example, when finding all possible triangles on a 9-pin geoboard, she decided to record only non-congruent triangles and reviewed her progress so that she was consistent. She develops her own approach to a problem and makes connections to previous work. For example, Pupil A independently used techniques she had learnt for comparing fractions in a number of activities.

She uses words and diagrams to represent situations and is beginning to use algebra, suggesting algebraic expressions to represent given situations and vice versa. When representing some situations, such as growing shapes to investigate hidden faces or finding all possible outcomes from throwing a dice and a coin, Pupil A records in an organised way. This helps her to check that she has all possibilities and to identify patterns in results.

Pupil A makes general statements in words. For example, she noticed that regular polygons with an even number of sides and vertices have pairs of parallel sides. In the hidden faces investigation she identified that the numbers of visible and hidden faces increased by three as each cube was attached to the line. She chose her own extension to the activity, adding four cubes each time. Without using cubes to build the pattern practically, she reasoned correctly about the number of faces that would be visible each time even though she was initially confused about the hidden faces. With the support of probing questions and group discussion Pupil A drew some conclusions from the work. She explained, 'each cube has six faces and when the cubes are fixed together all of the faces must be visible or hidden so it's got to be six times the number of cubes you've used'. She suggested recording  $V + H = 6C$ .

## **Summarising Pupil A's attainment in using and applying mathematics**

Her teacher judges that Pupil A's attainment in using and applying mathematics is best described as high level 4, even though she demonstrates some aspects of level 5. To progress into level 5, Pupil A needs to solve a wider range of problems that provide scope for applying appropriate mathematical procedures drawn from content at levels 4 and 5. She needs to articulate and refine her conclusions more independently and begin to record them in her written work to communicate clearly to others or to review her work at a later date.

Pupil name.....A.....Class/group.....Date.....

	Using and applying mathematics	Numbers and the number system	Calculating	Algebra	Shape, space and measure	Handling data
<b>Level 5</b>	<ul style="list-style-type: none"> <li>identify and obtain necessary information to carry through a task and solve mathematical problems</li> <li>check results, considering whether these are reasonable</li> <li>solve word problems and investigations from a range of contexts</li> <li>show understanding of situations by describing them mathematically using symbols, words and diagrams</li> <li>draw simple conclusions of their own and give an explanation of their reasoning</li> </ul>	<ul style="list-style-type: none"> <li>use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect</li> <li>round decimals to the nearest decimal place and order negative numbers in context</li> <li>recognise and use number patterns and relationships</li> <li>use equivalence between fractions and order fractions and decimals</li> <li>reduce a fraction to its simplest form by cancelling common factors</li> <li>understand simple ratio</li> </ul>	<ul style="list-style-type: none"> <li>use known facts, place value, knowledge of operations and brackets to calculate including using all four operations with decimals to two places</li> <li>use a calculator where appropriate to calculate fractions/percentages of quantities/measurements</li> <li>understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three-digit number by any two-digit number</li> <li>solve simple problems involving ordering, adding, subtracting, negative numbers in context</li> <li>solve simple problems involving ratio and direct proportion</li> <li>apply inverse operations and approximate to check answers to problems are of the correct magnitude</li> </ul>	<ul style="list-style-type: none"> <li>construct, express in symbolic form, and use simple formulae involving one or two operations</li> <li>use and interpret coordinates in all four quadrants</li> </ul>	<ul style="list-style-type: none"> <li>use a wider range of properties of 2-D and 3-D shapes and identify all the symmetries of 2-D shapes</li> <li>use language associated with angle and know and use the angle sum of a triangle and that of angles at a point</li> <li>reason about position and movement and transform shapes</li> <li>measure and draw angles to the nearest degree, when constructing models and drawing or using shapes</li> <li>read and interpret scales on a range of measuring instruments, explaining what each labelled division represents</li> <li>solve problems involving the conversion of units and make sensible estimates of a range of measures in relation to everyday situations</li> <li>understand and use the formula for the area of a rectangle and distinguish area from perimeter</li> </ul>	<ul style="list-style-type: none"> <li>ask questions, plan how to answer them and collect the data required</li> <li>in probability, select methods based on equally likely outcomes and experimental evidence, as appropriate</li> <li>understand and use the probability scale from 0 to 1</li> <li>understand and use the mean of discrete data and compare two simple distributions, using the range and one of mode, median or mean</li> <li>understand that different outcomes may result from repeating an experiment</li> <li>interpret graphs and diagrams, including pie charts, and draw conclusions</li> <li>create and interpret line graphs where the intermediate values have meaning</li> </ul>
<b>Level 4</b>	<ul style="list-style-type: none"> <li>develop own strategies for solving problems</li> <li>use their own strategies within mathematics and in applying mathematics to practical contexts</li> <li>present information and results in a clear and organised way</li> <li>search for a solution by trying out ideas of their own</li> </ul>	<ul style="list-style-type: none"> <li>recognise and describe number patterns</li> <li>recognise and describe number relationships including multiple, factor and square</li> <li>use place value to multiply and divide whole numbers by 10 or 100</li> <li>recognise approximate proportions of a whole and use simple fractions and percentages to describe these</li> <li>order decimals to three decimal places</li> <li>begin to understand simple ratio</li> </ul>	<ul style="list-style-type: none"> <li>use a range of mental methods of computation with all operations</li> <li>recall multiplication facts up to <math>10 \times 10</math> and quickly derive corresponding division facts</li> <li>use efficient written methods of addition and subtraction and of short multiplication and division</li> <li>multiply a simple decimal by a single digit</li> <li>solve problems with or without a calculator</li> <li>check the reasonableness of results with reference to the context or size of numbers</li> </ul>	<ul style="list-style-type: none"> <li>begin to use simple formulae expressed in words</li> <li>use and interpret coordinates in the first quadrant</li> </ul>	<ul style="list-style-type: none"> <li>use the properties of 2-D and 3-D shapes or edges and draw common 2-D shapes in different orientations on grids</li> <li>reflect simple shapes in a mirror line, translate shapes horizontally or vertically and begin to rotate a simple shape or object about its centre or a vertex</li> <li>choose and use appropriate units and instruments</li> <li>interpret, with appropriate accuracy, numbers on a range of measuring instruments</li> <li>find perimeters of simple shapes and find areas by counting squares</li> </ul>	<ul style="list-style-type: none"> <li>collect and record discrete data</li> <li>group data, where appropriate, in equal class intervals</li> <li>continue to use Venn and Carroll diagrams to record their sorting and classifying of information</li> <li>construct and interpret frequency diagrams and simple line graphs</li> <li>understand and use the mode and range to describe sets of data</li> </ul>
<b>BL</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>IE</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Key: BL-Below Level IE-Insufficient Evidence

Overall assessment (tick one box only)

Low 4 ☐Secure 4 ☐High 4 ☐Low 5 ☒Secure 5 ☐High 5 ☐

Audience: Secondary mathematics subject leaders

Date of issue: 12-2008

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