What I can do in mathematics – level 5

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What I can do: my own mathematics

Name: .....

My mental and written calculation methods		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can multiply and divide whole numbers and decimals by 10, 100 or 1000	I divided a number by 100. The answer was 24.8. What was my number? A pack containing 1000 sheets of paper is 9.8 cm thick. What is the approximate thickness of one sheet? Explain how you can use the fact 7 × 8 = 56 to find the answer to 5.6 ÷ 0.8.	
I can calculate with whole numbers and decimals, using mental and written methods as appropriate	Make up an example of an addition or subtraction, involving decimals, that you would do in your head. Now make up an example you would do on paper. Explain the reasons for using these two methods. Kim knows that 137 × 28 = 3836. Explain how she can use this information to work out the multiplications: 138 × 28 137 × 27 **KS2 1997 Paper A level 5 © QCA** Work out the missing digit: □92 ÷ 14 = 28 Shenaz buys a pack of 24 cans of cola for £6. What is the cost of each can? **KS2 1998 Paper A level 5 © QCA** Work out: 100 − 3 × 22.5.	
I can find fractions and percentages of numbers and quantities	Explain how you would find 35% of £60, without using a calculator. John says: 'I think three-eighths of a day is 10 hours.' Is he right? Work out which is larger: $^{3}/_{5}$ of 480 kg or $^{7}/_{8}$ of 320 kg. Write in the missing numbers: 40% of 80 is □ 40% of □ is 80	
I can add and subtract negative numbers	At the north pole, the temperature is –25 °C. At the equator the temperature is 77 degrees higher. What is the temperature at the equator?	

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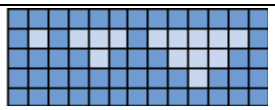
My explanations of patterns and reasoning		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can describe a problem and identify the mathematics I need to use to solve it	There are three airports on an island. Every day one aeroplane flies from each airport to each of the other airports. Use a diagram to make sense of the problem. How many flights are there each day? What if there were four airports, five airports...?	
I can explain my mathematical thinking clearly and systematically, using words, diagrams, numbers and symbols	p and q each stand for whole numbers. $p + q = 1000$ and p is 150 greater than q. Calculate the values of p and q. **KS2 2001 Paper B level 5 © QCA** Solve this problem, recording your thinking. Explain your method to a friend. Peter says that when you remove one square from the area of a shape, its perimeter will get smaller. Is this true sometimes, always or never? Justify your answer.	
I can identify and describe patterns and use them to make predictions and general statements	 Describe the third shape to a friend, using words. Now describe the sequence. Explain how the sequence increases in size. How many squares are there in each picture? Predict and check how many squares there will be in the next picture. Use what you have found to suggest how many small squares would be in the 10th picture, the 100th, the *n*th.	
I can write and use simple expressions in words and formulae	Write a formula for the 10th, 100th, *n*th term of the sequence: 3, 6, 9, 12, 15... One bottle holds 5 glassfuls. How many glassfuls in 2 bottles, 20 bottles, x bottles? Write a formula showing the relationship between the number of glassfuls, g, and the number of bottles, b. y stands for a number. Complete this table: Now make up your own tables, using letters to describe the relationships between the numbers in the columns.	y | $3y$ | $3y + 1$ 25 | | | | 28

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My understanding of fractions, ratio and proportion		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can solve problems using ratio and proportion and use mathematical language to describe my method	A recipe for 4 people requires 200 g of butter. How much butter would you need for 2 people? 6 people? 5 people? Explain how you found the quantities of butter that were needed. Sapna makes a fruit salad, using bananas, oranges and apples. For every one banana, she uses 2 oranges and 3 apples. Sapna uses 24 items of fruit. How many oranges does she use? **KS2 2005 Paper B level 5 © QCA**	
I can solve problems involving fractions and percentages	What fraction of 8 is 2? What fraction of 8 is 12? What fraction of 80 are 20, 100 and 120? Tell me two quantities such that one is 25% of the other. Now give me two quantities such that one is 5% of the other. What about 40%?	
I can simplify fractions and ratios	Write $^{18}/_{24}$ in its simplest form. What did you do to simplify this fraction? What clues do you look for to reduce fractions to their simplest form? How do you know when you have the simplest form of a fraction? The ratio of fruit to cereal in a packet of *Tasty* is 40 : 60. Write this ratio in its simplest form. **Y7 optional test Paper A level 5 © QCA** The manufacturer wants to reduce the ratio of fruit to 35 : 65. Simplify this ratio.	
I can find equivalent fractions, decimals and percentages	Would you rather have $^{3}/_{4}$ or $^{5}/_{6}$ of the same bar of chocolate? Explain your choice. Which of these represent equivalent amounts? 0.4 $^{1}/_{3}$ 60% 3/4 0.2 90% 40% 0.3 3/5 0.3 0.75 0.6 0.25 0.9	

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My solving of multi-step problems		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can solve problems involving more than one step, identifying the appropriate operation for each step	Every 100 g of brown bread contains 6 g of fibre. A loaf of bread weighs 800 g and has 20 equal slices. How much fibre is there in one slice? **KS2 2004 Paper B level 5 © QCA** How many 250 ml cups of tea can you pour from a tea urn that holds 8.5 litres? 50 000 people visited a theme park in one year. 15% of the people visited in April and 40% of the people visited in August. How many people visited the park in the rest of the year? Work out: 4 + 4 ÷ 4 + 4 and 5 − 2 × 3 + 4. Does your calculator give the same answers as you found?	
I can check that my answer to a problem sounds sensible	Steph wants to cut 4.55 m of ribbon into 25 cm strips. She wants to know if she had enough ribbon for 24 strips. She used a calculator to divide 4.55 by 24 and got an answer of 0.189 583 3. How could she use this calculation to help her decide if she had enough ribbon? If an isosceles triangle has one angle of 50º, what are the other two angles? Sam joins together two of these triangles to form a quadrilateral. He says he has a rhombus with an angle of 100º. Is he right?	
I can present my solutions to a problem clearly, both orally and in writing	The area of a rectangle is 24 cm^2. One of the sides is 3 cm long. What is the perimeter of the rectangle? If another rectangle with the same area had a side of 4 cm, would the perimeter be bigger too? Explain your thinking and record how you worked out the answer to this problem. I think of a number. I find $^1/_3$ of it then add 60. My answer is 85. What number did I think of? Explain how you can solve this problem. Make up and solve and share similar problems.	

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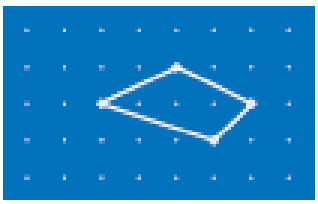
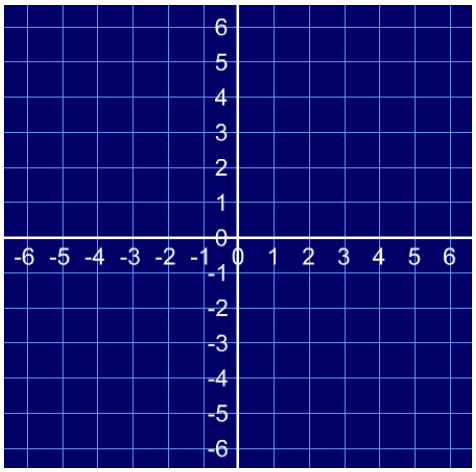
My use of shape and angle properties		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can describe 2-D and 3-D shapes, using accurate mathematical vocabulary	Visualise a hexagonal prism. How many faces does it have? What shape are they? Are any of the faces parallel to each other? Visualise two identical equilateral triangles placed side by side so that the edge of one matches exactly with the edge of the other. Describe the shape that they make together.	
I can use my knowledge of shape properties to solve problems	Describe how you could change this shape into a kite by moving one point. What about a rhombus? A non-isosceles trapezium? Use ICT to try out your ideas.	
I can use knowledge of angle facts to work out angles in shapes and diagrams	What is the angle between the hands of a clock at four o'clock? Explain how you know. Look at this diagram of an isosceles triangle. Calculate the value of *x*. Do not use a protractor (angle measurer). **KS2 2002 Paper A level 5 © QCA**	
I can use and answer questions about coordinates in all four quadrants	Draw the shape with the coordinates (−5, 1) (−4, −1) (−5, −4) (−6, −1). Describe the properties of this shape. Can you create the same shape in a position where all of the coordinates will be positive?	

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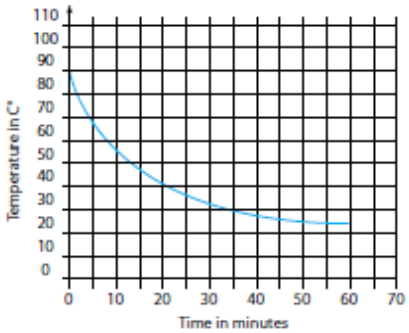
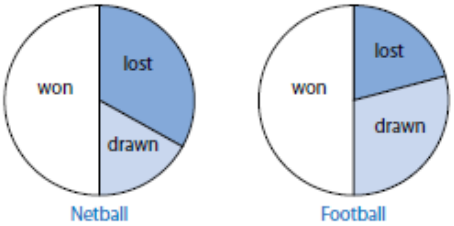
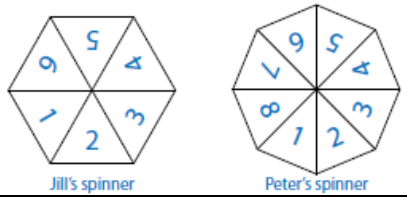
My understanding and comparison of graphs and outcomes		
My *I can* statements	**Examples of questions I can answer**	**My working and answers**
I can create line graphs and use them to answer questions	In a science experiment, a hot liquid is left to cool. This graph shows how the temperature of the liquid changes as it cools. Read from the graph how many minutes it takes for the temperature to reach 40 °C and for how many minutes the temperature is above 60 °C. **KS2 2001 Paper B level 5 © QCA**	
I can interpret data in graphs and charts and use this to answer questions and draw conclusions	The pie charts show the results of a school's netball and football matches. The netball team played 30 games. The football team played 24 games. Estimate the percentage of games that the netball team lost. David says: 'The two teams won the same number of games.' Is he correct? Explain how you know. **KS2 2003 Paper A level 5 © QCA**	
I can explain why events are equally likely and use this to find the probability of outcomes	Here are two spinners. Jill says: 'I am more likely than Peter to spin a 3.' Is Jill correct? Explain your reasoning. Peter says: 'We are both equally likely to spin an even number.' Is Peter correct? Explain your reasoning. 	
I can use the range, mode, median or mean to compare two sets of data and explain what they tell me	A group of children take the same spelling test twice, once in January and again a month later. Their scores in January are: 16, 13, 18, 13, 12, 16, 17 and in February they are: 15, 13, 20, 12, 20, 20, 12. How would you describe the group's progress in spelling from January to February? Justify your answer, making reference to the range, median, mean and mode. **KS2 1996 Paper A level 5 © QCA**	

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