Year group:	2
Type of test:	End of Year
Term:	Year 2
Test content:	Reasoning
Power Maths topic:	Books 2A, 2B, 2C
	Revision of Year 1

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
1	**4** or **4 apples**	1	**Possible incorrect answer 6 (An answer like this may suggest children have added 1 and 5)** Children may think the commutative property of addition problems can be applied to subtractions when it cannot. This revision topic is covered in Book 1A, Unit 4, Lessons 7 and 8.	Children can confidently draw bar models to represent addition and subtraction. They know that you can write the parts on the bar model in any order, but that it is more efficient and systematic to begin at one end.
2	**2, 3, right**	1	**Possible incorrect answers 3, 4 and left (An answer like this may suggest children counted the square that the mouse was on at the start, and that they are not confident with left and right yet)** This topic is covered in Unit 11, Lesson 1.	Children can design a treasure hunt with obstacles to avoid and ask a partner to work out a possible route.
3	**6** or **6 sweets**	1	**Possible incorrect answer 14 (An answer like this may suggest children have added 4 instead of subtracting)** Children may think the commutative property of addition problems can be applied to subtractions when it cannot. This topic is covered in Book 1A, Unit 4, Lessons 1 and 2.	Children can write down fact families from a part-whole model and identify what each number within a calculation represents.

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
4	Square (Accept misspellings)	1	**Possible incorrect answer rectangle, oblong, cube (An answer like this may suggest children have applied names of 3D shapes to 2D shapes)** Children may confuse key language, such as identifying edges as vertices. This topic is covered in Book 1A, Unit 5, Lesson 3; Unit 9, Lesson 1.	Children can name and describe a range of 2D shapes, identifying what features determine the type of shape and any similarities and differences between different types of shape.
5	Shorter	1	**Possible incorrect answer taller (An answer like this may suggest children are not confident with the vocabulary)** Children may lack the conceptual understanding of the given mathematical vocabulary and so select the incorrect word. This revision topic is covered in Book 1B, Unit 10, Lesson 1.	Children can compare and order two or more objects based on their height or length.
6	4 cylinders or 4	1	**Possible incorrect answer 3 (An answer like this may suggest children have counted the cones rather than the cylinders)** Children may confuse key language, such as the names of 3D shapes. This topic is covered in Book 1A, Unit 5, Lesson 1 and Unit 9, Lesson 1.	Children can name and describe a range of 3D shapes, identifying what features determine the type of shape and any similarities and differences between different types of shape.
7	3	1	**Possible incorrect answer 3 minutes past 12 (An answer like this may suggest children have confused the minute hand and hour hand)** Children may confuse the two clock hands, either reading them incorrectly or drawing them incorrectly. This revision topic is covered in Book 1C, Unit 17, Lesson 3.	Children can confidently read analogue clocks showing times to the hour and the half hour. Children can identify and explain the meanings of the hour and minute hands, and can draw hands showing 'o'clock' and 'half-past' times on blank clock faces.

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8	**20** or **20 dots**	1	**Possible incorrect answer 9 (An answer like this may suggest children have added 5 and 4 rather than multiplying them)** When thinking about multiplication in context, children may add together the number in a group of objects and the number of groups instead of multiplying them. This topic is covered in Unit 5, Lessons 1 to 5.	Children can recognise equal and unequal groups using physical resources and pictorial representations and explain why the groups are equal or unequal. Children can simultaneously count the number of objects in a group and the number of groups, and can write correct repeated addition sentences using the number of equal groups and the number of objects in each group.
9	**1 kg 400 g**	1	**Possible incorrect answer 1 kg 4 g (An answer like this may suggest children have inaccurately recorded the place value of the digits in the given numbers)** Children's understanding of place value may limit their ability to answer this question accurately. Children may mistakenly record the 400 grams as 4 grams. **Possible incorrect answer 1400 g (An answer like this may suggest children have misread the question and ignored the required unit of measure)** Having totalled the amounts correctly, children may misread the question or ignore the required unit of measure. This topic is covered in Unit 14, Lessons 3 and 4.	Children can accurately measure the mass of objects in both kilograms and grams, and make sensible estimations for the mass of different items. Children can compare the mass of objects in kilograms.
10	**68** and **23** (both answers must be correct)	1	**Possible incorrect answers 77 and 111 (An answer like this may suggest children have made errors when calculating)** Children may try to complete problems using the column method, rather than making links between the number sentences. As a result, they may make mistakes because of a lack of understanding. This topic is covered in Unit 2, Lessons 1 to 3; Unit 12, Lesson 3.	Children can compare addition and subtraction statements without working out the calculations and use this understanding to work out missing numbers.

POWER MATHS

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
11	**8** or **8 butterflies**	1	**Possible incorrect answer 9 (An answer like this may suggest children have confused 16 with 18)** **Possible incorrect answer 6 (An answer like this may suggest children think 16 is double 6)** Children may struggle to split a group of objects in half. This topic is covered in Unit 10, Lesson 4.	Children can find one half of numbers of objects up to 20. They can also link this with dividing by 2 and times-table facts.
12	**Quarter past 10** **15 minutes past 10** **10:15**	1	**Possible incorrect answers 10:10, 10:20, 10:25 or 10:50 (An answer like this may suggest children have become confused with the 5s and 10s, or believe there are 100 minutes in an hour)** Children may find it difficult to recognise a quarter of the analogue clock, or to identify which quarter is 'past' and which is 'to'. This topic is covered in Unit 13, Lesson 2.	Children can identify 'quarter past' and 'quarter to', using the hour and minute hands, and match this vocabulary with pictures of appropriate clock faces. Children recognise that the word 'past' refers to the previous hour and 'to' refers to the following hour, and can use their understanding to accurately record the hands on a blank analogue clock.
13	triangle circle triangle	1	**Possible incorrect answer triangle circle triangle (An answer like this may suggest children think the pattern starts from the second shape shown)** Children may struggle to identify the pattern core, particularly when a shape is repeated within the core. This topic is covered in Unit 9, Lesson 7.	Children can identify the core of a pattern, using this to find missing terms and to make generalisations to find a given term.
14	**Nahla**	1	**Possible incorrect answer John (An answer like this may suggest children think 43 is greater than 47)** Children may not appreciate the importance of place value when comparing numbers. This topic is covered in Unit 1, Lesson 7.	Children can use their understanding of place value to compare and order numbers. They know to compare the tens in numbers before comparing the ones and can use different representations to support their reasoning.
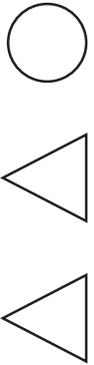
Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
15	**50p, 10p, 10p, 10p and 2p** Or **50p, 20p, 10p and 2p** Or **50p, 10p, 10p, 10p, 1p and 1p** Or **Any other combination that changes at least 2 coins.**	1	**Possible incorrect answers 20p, 20p, 20p, 20p, 1p, and 1p, or any combination that changes fewer than 2 coins from the original, or anything that makes a total other than 82p (An answer like this may suggest children do not understand how to make 82p)** Children may think that there is only one correct answer to an open-ended problem. This topic is covered in Unit 4, Lessons 4 and 5.	Children can confidently find a different combination of coins that equal the same amount of money.
16	**50 ml**	1	**Possible incorrect answer 40 ml or 60 ml (An answer like this may suggest children have misread the scale)** Children may not accurately work out the value of each increment on a scale which does not increase in 1s, and may therefore incorrectly read the value. This topic is covered in Unit 14, Lessons 6 and 7.	Children can explain and demonstrate different ways in which they can accurately measure capacity and volume using the standard unit of measure of millilitres and its associated symbol (ml).
17	**3 quadrilaterals** or **3**	1	**Possible incorrect answers 4 or 2 (An answer like this may suggest children consider the hexagon a quadrilateral or do not consider the rhombus a quadrilateral)** Children may confuse the features of a quadrilateral. This topic is covered in Unit 9, Lesson 1.	Children can name and describe a range of 3D shapes, identifying what features determine the type of shape and any similarities and differences between different types of shape. Children will begin to describe the faces of 3D shapes.
18	**21 cm**	1	**Possible incorrect answers 115 cm (An answer like this may suggest children have added the two numbers instead of subtracting one from the other)** Children may confuse addition and subtraction and find it difficult to change between the two operations. Children may confuse metres and centimetres. This topic is covered in Unit 8, Lesson 5.	Children can select and use appropriate techniques and representations to solve a range of problems involving length and height.

POWER MATHS

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19	**26p** or **£0.26(p) or 26 pence**	1	**Possible incorrect answer 170p (£1.70) (An answer like this may suggest children have added the two amounts together)** Children may lack the conceptual understanding of the mathematical vocabulary in the question and so not be able to discern the operations needed to successfully solve it. This topic is covered in Unit 4, Lessons 6 and 7.	Children can apply previous knowledge of money to solve word problems. Children display mastery through comprehension of the questions, understanding of the vocabulary and the use of efficient methods.
20	**5** or **5 white butterflies**	1	**Possible incorrect answer 1 (An answer like this may suggest children have forgotten 1 pictogram represents 5 birds)** Children may assume that one butterfly picture represents one butterfly in the data set. This will lead them to being 4 butterflies short for each butterfly symbol they count. This topic is covered in Unit 7, Lessons 4 and 5.	Children can confidently read a pictogram and explain it clearly, using the correct vocabulary. Children understand why pictograms are useful and can say where they might be used in real-life situations.
21	**6** or **6 bananas**	1	**Possible incorrect answers 10 or 14 (An answer like this may suggest children have added or subtracted 2 to or from 12)** Children may not understand that division is not commutative and might switch numbers round in a division number sentence. Children may repeat the number of equal groups in a division sentence instead of writing the number in one group. This topic is covered in Unit 6, Lessons 3 and 9.	Children can solve a problem involving dividing by 2 and can link this to finding one half of numbers and quantities.

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
22	**£2 and 10p or 210p**	1	**Possible incorrect answer £210 or 2.10p (An answer like this may suggest children have confused the symbols for pounds and pence)** Children may lack the conceptual understanding of the monetary symbols needed to solve this question and so muddle them with each other. **Possible incorrect answer 210 or 2.10 (An answer like this may suggest children have neglected to use the symbols for pounds or pence)** Children may lack the conceptual understanding of the monetary symbols needed to solve this question and so miss them out when recording their solution. This topic is covered in Unit 4, Lessons 7 and 9.	Children can securely calculate total amounts by adding together the pounds and then the pence.
23	¾ or **three quarters**	1	**Possible incorrect answers ¼ or a quarter (An answer like this may suggest children have identified the unshaded part)** **Possible incorrect answers 3 (An answer like this may suggest children have identified the shaded part only)** Children may have difficulty recognising the difference between ¼ and ¾. This topic is covered in Unit 10, Lesson 10.	Children can recognise different shapes that have been correctly or incorrectly split into four equal parts. They can identify three quarters of a shape.
24	**35p** or **£0.35** or **35 pence**	1	**Possible incorrect answers 30p or 40p (An answer like this may suggest children have incorrectly counted in 5s)** This topic is covered in Unit 4, Lessons 1 and 7, Unit 5, Lesson 7.	Children can use their knowledge of counting in twos, fives and tens to help them count a number of the same coins.

POWER MATHS

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
25	**3 and 9 (both answers must be correct)**	1	**Possible incorrect answers 10 and 40 (An answer like this may suggest children have subtracted instead of dividing)** Children may not understand that division is not commutative and might switch numbers round in a division number sentence. Children may repeat the number of equal groups in a division sentence instead of writing the number in one group. This topic is covered in Unit 6, Lesson 5; Unit 12, Lesson 3..	Children can divide a number by 5. They can link grouping to multiplication facts and link those multiplication facts with division facts. Children recognise that they can divide numbers that end in 0 or 5 by 5. Children can compare division and multiplication statements without working out the calculations and use this understanding to work out missing numbers.
26	**17** or **17 lengths**	1	**Possible incorrect answer 23 (An answer like this may suggest children have subtracted but mistakenly subtracted the lesser digit from the larger one)** Children may recognise that they are required to find the difference between the two given numbers, however, they may lack confidence at subtracting a larger 'one' from a smaller 'one' (i.e. the 4 – 7 from 64 – 47) This topic is covered in Unit 3, Lessons 5 and 6; Lessons 8 and 9.	Children can confidently draw bar models to represent addition and subtraction. They know that you can write the parts on a bar model in any order, but that it is more efficient and systematic to begin at one end. They can subtract a 2-digit number from another 2-digit number when exchange from the ten is required.
27	$>$ $=$ $<$	1	**Possible incorrect answer any other than the correct answer (An answer like this may suggest children have misunderstood what the signs mean)** Children may lack the conceptual understanding of the mathematical symbols and so mix up their use. Alternatively, children may have calculated the solutions to the calculations incorrectly and used the correct symbol but for their wrong result. This topic is covered in Unit 3, Lessons 8–9.	Children may show deeper understanding of these concepts by demonstrating the reasoning and justifying their solutions with appropriate written methods.

Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
28	**62**	1	**Possible incorrect answer 52 (An answer like this may suggest children have forgotten to add the extra 10)** When using the column method, children may have difficulty setting out the numbers. Highlight the importance of lining up the numbers based on their place value. This topic is covered in Unit 3, Lesson 2, Lessons 8–9.	Children can confidently draw bar models to represent addition and subtraction. They know that you can write the parts on a bar model in any order, but that it is more efficient and systematic to begin at one end.
29	**6** or **6 faces**	1	**Possible incorrect answer 4 (An answer like this may suggest children have confused a cube with a square and counted the number of sides)** Children may miscount the number of edges, vertices, faces or sides. Children may not be confident with the key vocabulary relating to 2D and 3D shapes. This topic is covered in Unit 9, Lesson 8.	Children can identify the number of faces on a range of 3D shapes and describe them based on their knowledge of 2D shapes.
30	**10** or **10 pencils**	1	**Possible incorrect answer 4 (An answer like this may suggest children have not been able to interpret the word problem)** Children may not understand that division is not commutative and might switch numbers round in a division number sentence. Children may repeat the number of equal groups in a division sentence instead of writing the number in one group. This topic is covered in Unit 6, Lessons 1 and 2, Lesson 9.	
31	Pet / Tally / Number table below	1	**Possible incorrect answer any other number (An answer like this may suggest children have miscounted the number of each animal)** Children may miscount symbols or tallies. Children may count a tally of 5 as 4 (because they do not understand that the oblique mark counts as 1). This topic is covered in Unit 7, Lesson 1.	Children can confidently read a tally chart and explain it clearly, using the correct vocabulary. They can construct a tally chart independently from a given set of data. Children understand why tally charts are useful and can say where they might be used in real-life situations.

Pet	Tally	Number
Dog	卌 卌	10
Fish	卌 ///	8
Guinea pig	卌 卌 //	12

POWER MATHS

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Q	ANSWER	MARK	INCORRECT ANSWERS AND MISCONCEPTIONS	EVIDENCE OF GREATER DEPTH
32	**a) Bus (accept Ali)** **b) 2 hours (longer)**	1 1	**Possible incorrect answer Laura and 14 hours (An answer like this may suggest children think that 3 o'clock refers to 3 am as opposed to 3 pm)** When finding the duration, children may start or end at the wrong time. They may not understand what to do with the time values in their calculations. This topic is covered in Unit 13, Lesson 5.	Children can recognise two points in time and, using everything they have learned so far about counting time, find the duration between the two points of time.
33	**£52 for 2 marks** 1 mark for evidence of correct method, such as (£)9 × 2 = (£)18 (£)18 + (£)34 = error Or (£)9 × 2 = error Error + (£)34 = Or (£)34 + (£)9 + (£)9 = error	2	**Possible incorrect answer £77 (An answer like this may suggest children have found the cost of 2 cakes and 1 pack of balloons)** **Possible incorrect answer £43 (An answer like this may suggest children have found the cost of 1 cake and 1 pack of balloons)** Children may not understand the importance of using known facts within calculations and instead use inefficient strategies such as counting on in ones using their fingers. This topic is covered in Unit 4, Lessons 7 to 9.	Children can securely calculate total amounts. Children can use the bar model effectively to support their understanding of a problem.

Mark range	Level
0 – 7	Below
8 – 13	Towards
14 – 21	Expected
22 – 27	Secure
28 – 31	Towards greater depth
32 – 35	Greater depth