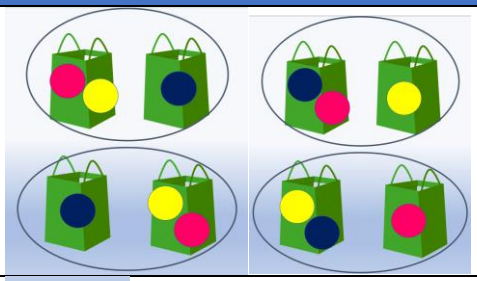
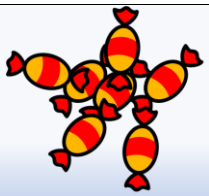
St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Finding All Possibilities

<table>
<tr><th colspan="2">Year 1 and 2</th></tr>
<tr><td>Key Skills and Strategy Development</td><td>Question stems</td></tr>
<tr><td>Work systematically.</td><td>How will I put my answers in order? What resources shall we use?</td></tr>
<tr><td>Check for repeats.</td><td>Are some of my answers the same?</td></tr>
<tr><td>Satisfy the criteria with solution/s.</td><td>Have I answered the question? Solved the problem?</td></tr>
<tr><td>Example problems</td><td>Model answers</td></tr>
<tr><td>This challenge involves three beads and lots of bags.
There are as many bags as you need.

Find a way to put the beads into some of the bags.
Find another, different way to put the beads into some of the bags.
How many different ways can you make?</td><td></td></tr>
<tr><td>There are 15 sweets altogether and 3 bags. There are 7 sweets in one bag.

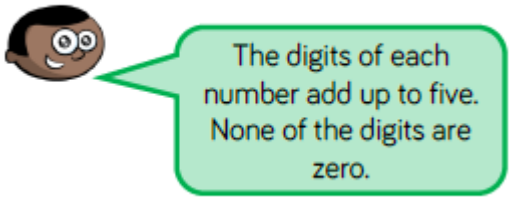
How many sweets could be in the other 2 bags?
Can you find some of the different ways they could be shared between the bags?
</td><td>7 ? ?
1 7
2 6
3 5
4 4</td></tr>
<tr><td>Whitney has this many cubes in one hand.

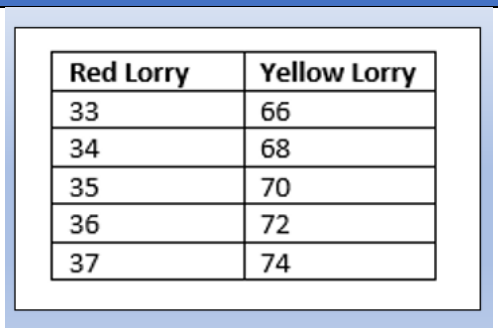
She has fewer cubes in the other hand.

How many cubes could she have in her other hand?</td><td>? < 5 so it could be

4
3
2
1</td></tr>
<tr><td>There are 2 ice-creams and up to 16 marshmallows.
How many ways can you share marshmallows between the 2 ice-creams so that the 2nd ice-cream has double the amount of marshmallows as the 1st ice-cream?
</td><td><table><tr><th>1st ice cream</th><th>2nd ice cream</th></tr><tr><td>1</td><td>2</td></tr><tr><td>2</td><td>4</td></tr><tr><td>3</td><td>6</td></tr><tr><td>4</td><td>8</td></tr><tr><td>5</td><td>10</td></tr></table></td></tr>
</table>

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Mo has written a list of 2-digit numbers.  Can you find all the numbers Mo could have written? Write the numbers in order from smallest to largest. What strategy did you use?	~~0 + 5~~ 1 + 4 2 + 3 3 + 2 4 + 1 ~~5 + 0~~ 14 23 32 41 Number bonds to 5 as the starting point

Year 3 and 4	
Key Skills and Strategy Development	Question stems
Work systematically. Where is the starting point?	What is the best way to show the results? A table? A list?
Check for repeats.	Are some solutions repeated? Does this affect the outcome?
Satisfy the criteria with solution/s.	Have I answered the question? Solved the problem? Is there more than one solution?
Example problems	Model answers
Red Lorry has travelled half the miles that Yellow Lorry has travelled. Red Lorry has travelled more than 32 miles and Yellow Lorry has travelled no more than 74 miles. Find **five** possible combinations of miles that the lorries could have travelled.	

Red Lorry	Yellow Lorry
33	66
34	68
35	70
36	72
37	74

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving



Using each digit card, which numbers can you make?

Use the place value grid to help.

Hundreds	Tens	Ones

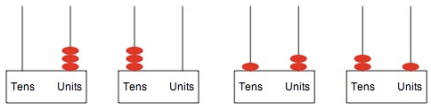
Compare your answers with a partner.

Systematic working is key for this.

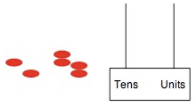
~~035~~
~~053~~
305
350
503
530

Children need to understand 0 is a place holder and therefore cannot sit in the hundreds space.

If you put three beads onto a tens/units abacus you could make the numbers 3, 30, 12 or 21.

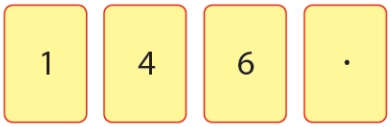


Explore the numbers you can make using six beads.



Tens	Units	NUMBERS
	6	6
1	5	15
2	4	24
3	3	33
4	2	42
5	1	51
6	0	60

Using these cards can you make a number between 4·1 and 4·61?



What is the smallest number you can make using all four cards?
What is the largest number you can make using all four cards?

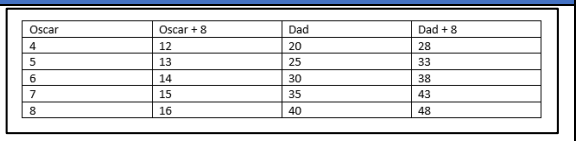
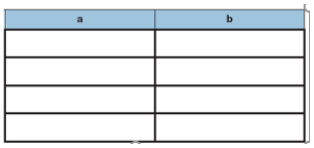
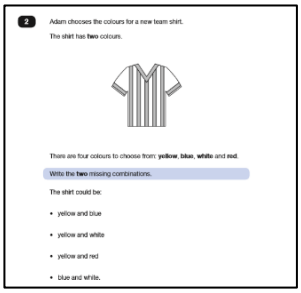
4.16

1.46
64.1

Amy started with a 3 digit number.
The number was > 200 but < 239, it was a multiple of 4 but not a multiple of 8.
Find all the possible numbers.

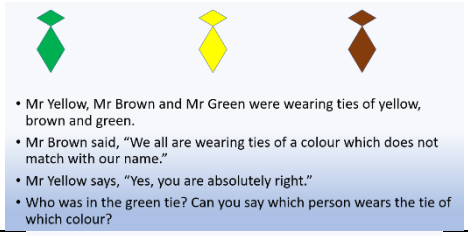
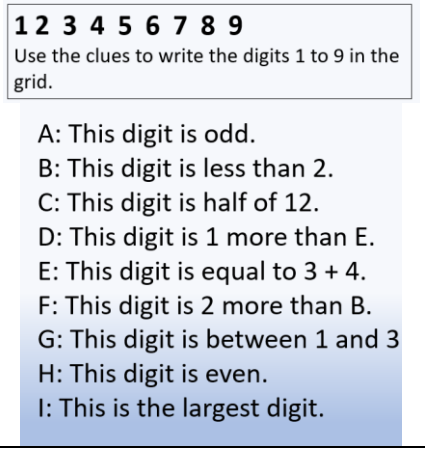
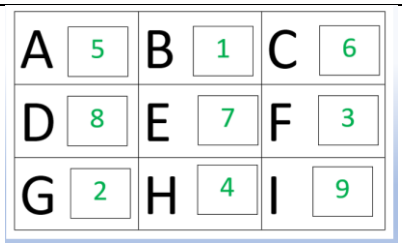
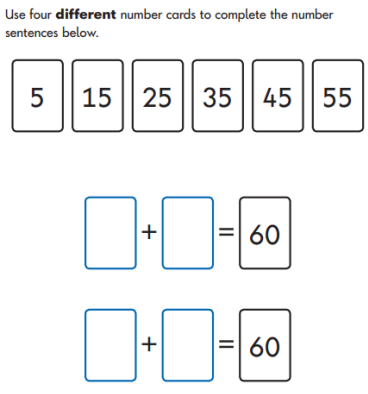
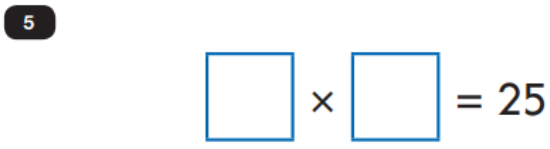
204, 212, 220, 228, 236

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Year 5 and 6	
Key Skills and Strategy Development	**Question Stems**
Work systematically. Identify the start and finish points to complete all possible solutions.	What is the best way to show the results? A table? A list? What are the starting and stopping points?
Check for repeats against the criteria in the problem.	Are some solutions repeated? Does this affect the outcome? What does the criteria allow for?
Satisfy the criteria with solutions or find an exact solution.	Have I answered the question? Solved the problem? Is there more than one solution? Is there an exact answer to be found?
Example problems	**Model answers**
	 Oscar | Oscar + 8 | Dad | Dad + 8 4 | 12 | 20 | 28 5 | 13 | 25 | 33 6 | 14 | 30 | 38 7 | 15 | 35 | 43 8 | 16 | 40 | 48
15 **a + b = 14** a and b are whole numbers. a is a one digit number. b is a two digit number. Find four different possibilities for a and b. a | b	 a = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 b = 10, 11, 12, 13, 14 Any 4 of these: 0 + 14 1 + 13 2 + 12 3 + 11 4 + 10
Jake's Number It is less than 50. It is a 2-digit number. 3 is a factor of this number. The sum of its digits is one third of the number. What is Jake's number?	10 → 50 ? ÷ 3 = a + b = 1/3 n
	Two combinations, as shown: blue and red OR red and blue AND white and red OR red and white.

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Logic

Year 1 and 2	
Key Skill and Strategy Development KS1	Question stems
Identify the starting point by generalising or classifying.	Where is your starting point? Which is the best clue? What do you know is true?
Check solutions match the criteria.	Have I answered the question?
Example problems	Model answers
	 Mr Green: B, Y Mr Yellow: G, B Mr Brown: Y, G
	
	Any 2 of the 3 options below: 5 + 55 15 + 45 25 + 35
	Knowledge of 5x table 1 x 25 5 x 5 25 x 1

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

11 Junaid has sorted some numbers in the table below.
The numbers must be greater than 10 but less than 50
Circle the number that is in the wrong place in the table.

Odd numbers	Even numbers
45 17 23 28 15	32 64 16 44 20

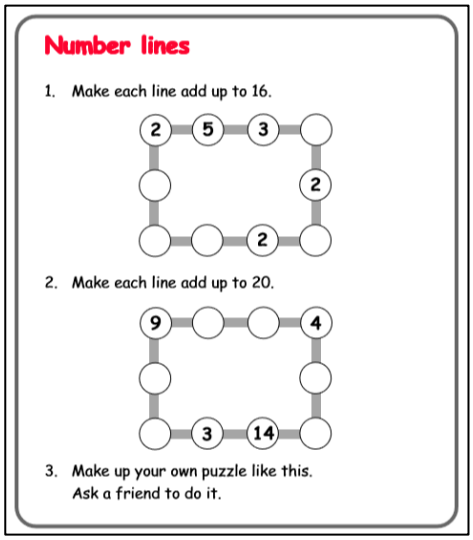
Put one more number in each group in the table.

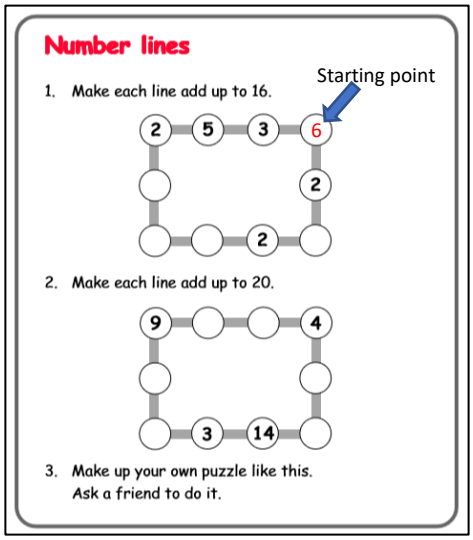
11 Junaid has sorted some numbers in the table below.
The numbers must be greater than 10 but less than 50
Circle the number that is in the wrong place in the table.

Odd numbers	Even numbers
45 17 23 28 15	32 64 16 44 20

Put one more number in each group in the table.

Odd = Any odd number between 11 - 49 that is not already listed.
Even = Any even number between 10 - 50 that is not already listed.





Year 3 and 4	
Key Skill and Strategy Development	Question stems
Identify the starting point by generalising or classifying.	Where is your starting point? Which is the best clue? What can you place with certainty? Is your deduction accurate?
Check solutions match the criteria.	Have I answered the entire question?
Example problems	Model answers
Use **different** whole numbers to complete the diagram. 2 × □, 48 × □, 48, 3 × □, □ × □, □ × □	Use **different** whole numbers to complete the diagram. 2 × 24, 48 × 1, 48, 3 × 16, 6 × 8, 4 × 12

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Use four **different** whole numbers to complete the sentences.

□ × □ = 24

□ × □ = 24

1 x 24
2 x 12
3 x 8
4 x 6
6 x 4
8 x 3
12 x 2
24 x 1

Here are six number cards.

They are all factors of the same number.

3	4	6
8	12	16

Use the cards to complete 3 factor pairs.

□ × □

□ × □

□ × □

Write one more factor pair for this number.

□ × □

Factors of 48

3 x 16
4 x 12
6 x 8

2 x 24
1 x 48

Numbers of boys and girls

Use these clues to find the number of boys and girls in each class.

- There are a total of 114 children in the school.
- There are 14 girls in Class 2.
- Class 4 has twice as many girls as class 2.
- No class has the same number of children.
- There are 52 boys in the school in total.
- In class 1 there are half as many boys as in class 2.
- In class 2 there are a total of 30 children.
- In class 3 there are an equal number of girls and boys.
- In class 4 there are 10 boys.
- There are a different number of boys and girls in the school.

	Class 1	Class 2	Class 3	Class 4	Total
Girls	2	14	18	28	62
Boys	8	16	18	10	52
Total	10	30	36	38	114

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

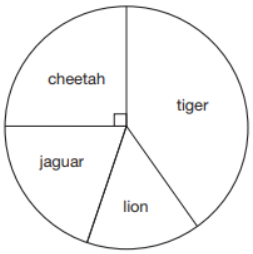
Ryan thinks of a 4-digit whole number where every digit is different. Use the clues to work out Ryan's number. / **All digits are even.** / **Ryan's number is smaller than 4500.** **The third digit is not 8.** / **Ryan's number is a multiple of 5.** / **Ryan's number is between 4000 and 5000.**	4260
Megan thinks of a sequence of four 2-digit numbers. Use the clues to work out the numbers in the sequence. / **The first number in the sequence is an odd number.** / **All of the numbers are multiples of 5.** **The last number in the sequence is less than 50.** / **The sequence goes up in regular steps.** / **9 is a factor of the last number in the sequence.**	15, 25, 35, 45

Year 5 and 6	
Key Skill and Strategy Development LKS2	Question stems
Identify the starting point by generalising or classifying. Manage positive and negative information.	Where is the most useful information? What are the generalisations and rules? What can you place with certainty? Can you eliminate information?
Check solutions match the criteria.	How shall I present the solution? In a table? Have I answered the entire question?
Example problems	Model answers
Put three whole numbers less than 10 to make this equation true. □ x □ x □ = 105	5 x 3 x 7 = 105
Here are four number cards. 2 3 4 7 Layla uses each card once to make a four-digit number. She places: • 4 in the tens column • 2 so that it has a higher value than any of the other digits • the remaining two digits so that 7 has the higher value. Write a digit in each box to show Layla's number. □□□□	Digits in correct order, as shown: 2743

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

This chart shows the number of different types of big cat in a zoo.

There are **20** big cats in the zoo altogether.



Here are some statements about the chart.

Tick the statements that are **true**.

- There are more cheetahs than jaguars. ☐
- The total number of lions and tigers is 10 ☐
- One-quarter of the big cats are cheetahs. ☐
- There are more than 5 jaguars. ☐

Award **TWO** marks for only two correct boxes ticked, as shown:

- There are more cheetahs than jaguars. ✓
- The total number of lions and tigers is 10 ☐
- One-quarter of the big cats are cheetahs. ✓
- There are more than 5 jaguars. ☐

Award **ONE** mark for:

- only one correct box ticked and no incorrect boxes ticked

OR

- two correct boxes ticked and one incorrect box ticked.

Accept alternative unambiguous positive indications, e.g. Y.

Up to 2 marks

---

1 Use each of the digit cards **once** to fill in the boxes.

-3	-7	0

☐ < ☐ < ☐

-7 < -3 < 0

Ross, Sam and Tim are brothers.

The shop sells three kinds of ice cream, strawberry, vanilla and banana.

Each brother only likes two flavours and each ice cream flavour is only liked by two of the brothers.

Sam said " Ross likes strawberry and I don't like banana."

Which ice cream does Tim like?



	Ross	Tim	Sam
Strawberry	✓	x	✓
Vanilla	x	✓	✓
Banana	✓	✓	x

St. Peter's CE Primary and Nursery School
Maths - Progression in Problem Solving

Sarah, Jenny, Ranjit and Paul each choose a sandwich filling. They can choose from:

- tuna,
- salad,
- cheese, or
- chicken.

Each child chooses a different filling.

Clues

- Sarah doesn't like fish.
- Jenny cannot eat dairy products.
- Ranjit does not eat meat or fish.
- Jenny doesn't like tuna or chicken.

Which sandwich filling does each child choose?

	Sarah	Jenny	Ranjit	Paul
Tuna	X	X	X	
Salad	X		X	X
Cheese	X	X		X
Chicken		X	X	X

Nick-names

Dawn, Mark, Josh and Tina are friends.



They each have a nick-name.
Their nick-names are Spider, Curly, Ace and Fudgy, but not in that order.

What is the nick-name of each of the friends?

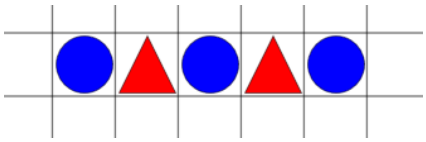
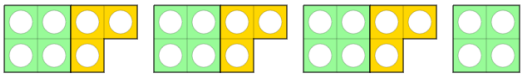
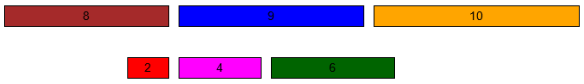
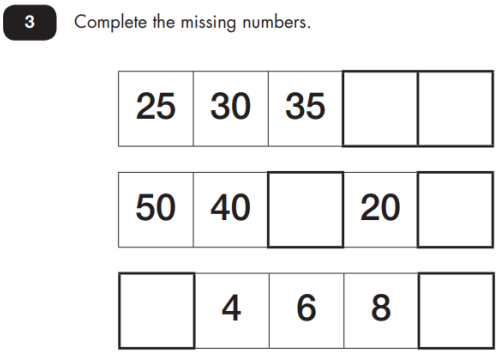
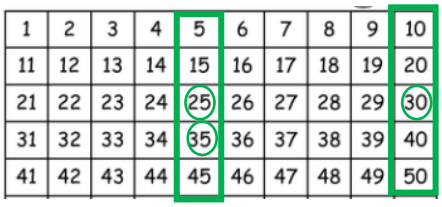
Clues

- Josh plays tennis with Curly and goes swimming with Ace.
- Tina has been on holiday with Curly but travels to school with Fudgy.
- Spider, Curly and Dawn play in the football team.
- Spider sometimes goes to tea with Josh.

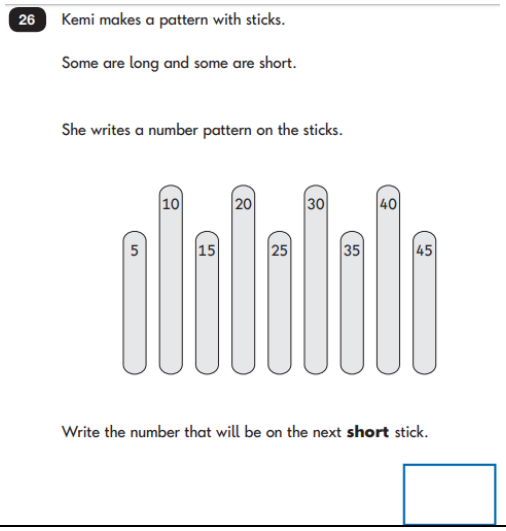
	Spider	Curly	Ace	Fudgy
Dawn	X	X	✦	X
Mark	X	✦	X	X
Josh	X	X	X	✦
Tina	✦	X	X	X

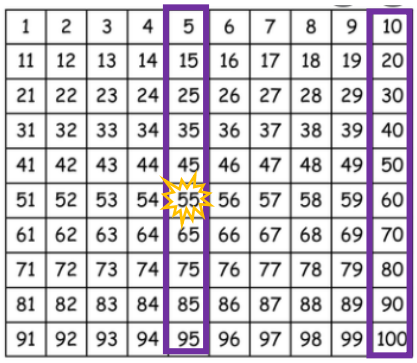
St. Peter's CE Primary and Nursery School
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Patterns and Rules

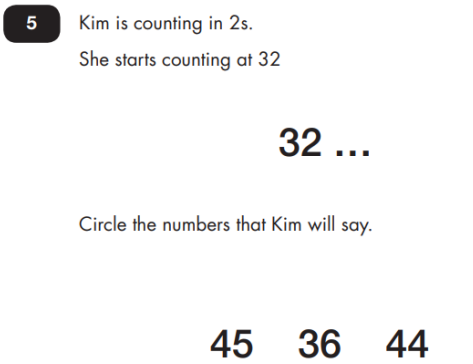
Year 1 and 2	
Key Skills and Strategy Development	Question stems
Spot the pattern/rule and describe it mathematically.	Is this a repeating pattern? Is this a step size, following a rule? Can you describe it mathematically?
Design a process or arithmetic strategy using the rules	What arithmetic knowledge will you use?
Prove mathematically	What will the proof look like?
Example problems	Model answers
  	Children could use physical equipment (shapes, Numicon, Cuisenaire) or draw in the next part of the pattern.
	 Children could use a blank hundreds square to highlight number patterns. Number line or number tracks could also be used in the same way.

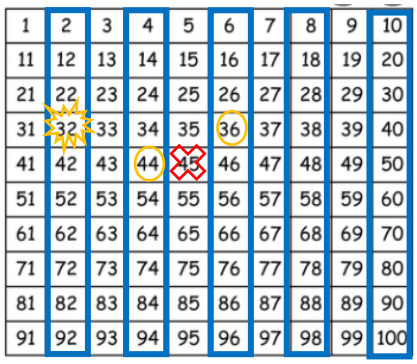
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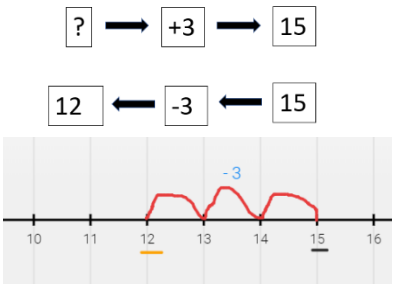
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100





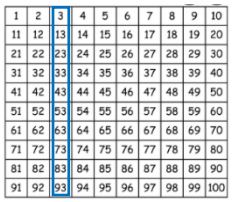
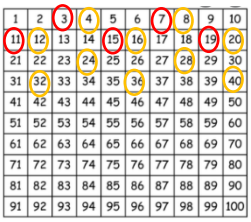
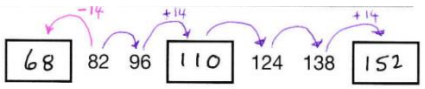
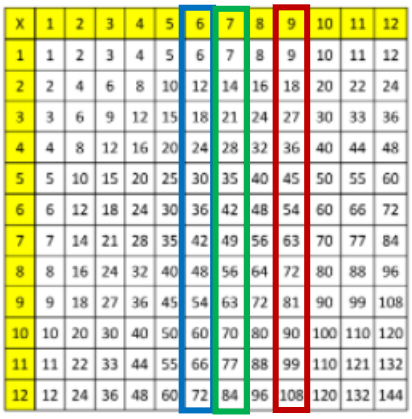
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

I think of a number and add 3. The answer is 15. What is my number?

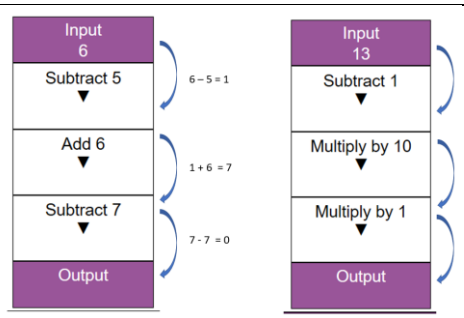
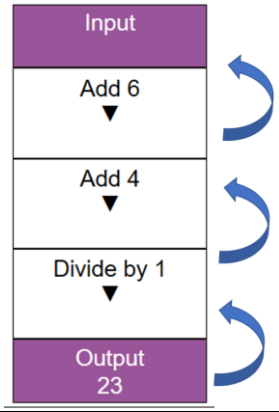


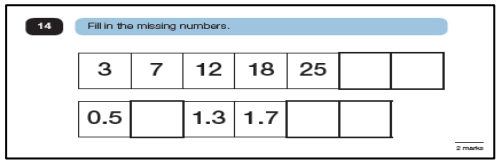
Year 3 and 4	
Key Skills and Strategy Development	Question stems
Spot the pattern/rule and describe it mathematically.	Is this a repeating pattern? Is this a step size, following a rule? Is it increasing or decreasing? Can you describe it mathematically?
Design a process or arithmetic strategy using the rules	What arithmetic knowledge will you use? What inverse relationships will you use?
Prove mathematically	What will the proof look like? Are there other examples that satisfy the rule?

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Example problems	Model answers
Three consecutive whole numbers will always equal a multiple of three.	1 + 2 + 3 = 6 ✓ 2 + 3 + 4 = 9 ✓ 4 + 5 + 6 = 15 ✓ 
"If you count in steps of 4 you will always say a multiple of 4."	 Yes, this is true if you started at 0 or a multiple of 4. Not true, if you started on a different number.
1 The numbers in this sequence increase by 14 each time. Write the missing numbers. ☐ 82 96 ☐ 124 138 ☐ 2 marks	
1 Write the next two numbers in each sequence. 6 12 18 ☐ ☐ 21 28 35 ☐ ☐ 90 81 72 ☐ ☐	
1 Complete the sequences. 2,000 3,000 ☐ 5,000 ☐ 5,400 4,400 3,400	Children need to look carefully at the pattern – is it going forwards or backwards? What steps is it going up or down in? 4,000 - counting forwards in steps of 1000 6,400 – counting backwards in steps of 1000

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	13 – 1 = 12 12 x 10 = 120 120 x 1 = 120
	Children need to work backwards from the output. They need to demonstrate their understanding of inverse too. 23 x 1 = 23 23 – 4 = 19 19 – 6 = 13 13 is the input

Year 5 and 6	
Key Skills and Strategy Development	Question stems
Spot the pattern/rule and describe it mathematically.	What is the rule in the sequence? Is it increasing or decreasing in regular step sizes? Can you describe it mathematically?
Design a process or arithmetic strategy using the rules	What arithmetic knowledge will you use? What inverse relationships will you use?
Prove mathematically	What will the proof look like? Are there other examples that satisfy the rule? Is there an expression for the rule? The nth term?
Example problems	Model answers
	+4, +5, +6, +7 + 8 = 33 + 9 = 42 +0.4 each time 0.9, 2.1, 2.5

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23 Here is a pattern of number pairs.

a	b
1	9
2	19
3	29
4	39

Complete the **rule** for the number pattern.

$b =$ ☐ $\times a -$ ☐

1 mark

Both numbers correct as shown:

$b =$ 10 $\times a -$ 1

---

21 The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

☐ | 1 | $1\frac{5}{8}$ | $2\frac{1}{4}$ | ☐

$\frac{3}{8}$ written in the first box

$2\frac{7}{8}$ **OR** $\frac{23}{8}$ written in the last box

---

17 $x + 2y = 20$

x and y are whole numbers **less than 10**

What could x and y be?

$x =$ ☐

$y =$ ☐

Award **ONE** mark for any pair of whole numbers less than 10 that satisfy the equation, i.e.

$x = 8$ **AND** $y = 6$

OR

$x = 6$ **AND** $y = 7$

OR

$x = 4$ **AND** $y = 8$

OR

$x = 2$ **AND** $y = 9$

---

9 Jack chose a number.

He multiplied the number by 7

Then he added 85

His answer was 953

What number did Jack choose?

Show your method

☐

2 marks

Award **TWO** marks for the correct answer of 124

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 953 – 85 = 868
  868 ÷ 7

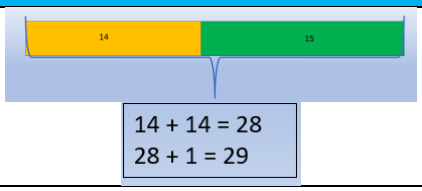
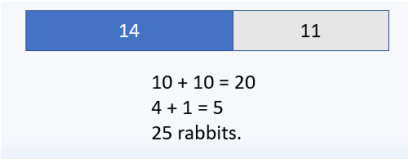
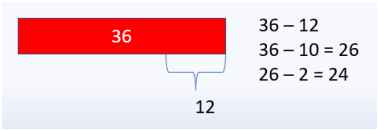
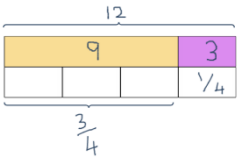
Answer need not be obtained for the award of **ONE** mark.

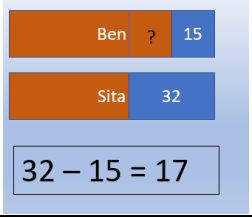
If the pupil's evaluation contradicts the appropriate method, the method mark will not be awarded.

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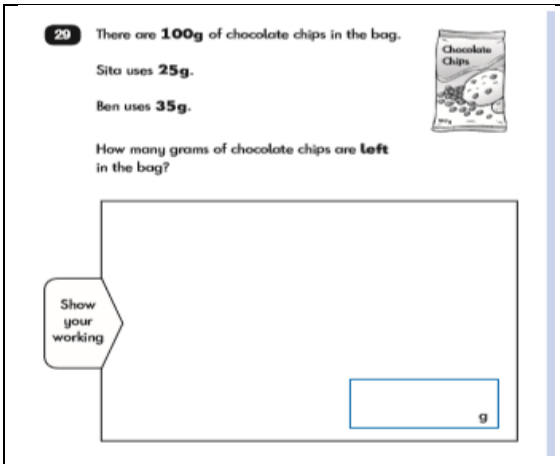
Word Problems

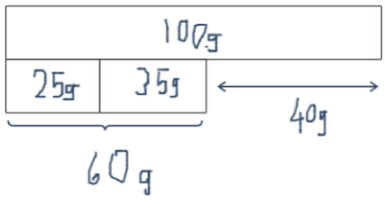
Year 1 and 2	
Key Skills and Strategy Development	Question stems
Read and analyse the problem.	What is the question about?
Identify the steps.	What do you need to do?
Calculate efficiently.	What methods would be best? What resources might you choose?
Check the solution.	Have you answered the question correctly?

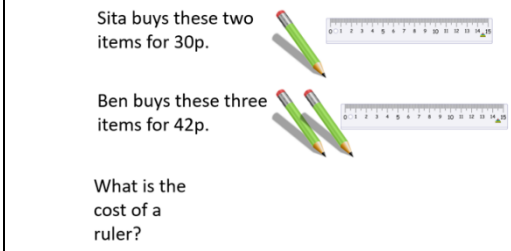
One Step Word Problems	Model answers
There are 14 girls and 15 boys in Katie's class. How many children are there in the class altogether?	
At the farm, there are 14 white rabbits and 11 grey ones. How many rabbits are there altogether?	
Tom has 36 toy cars. He gives Simon 12 of them. How many does Tom have left?	
Jenny is reading a book. She reads 9 pages. She has 3 pages left to read. What fraction of the book does she have left to read?	

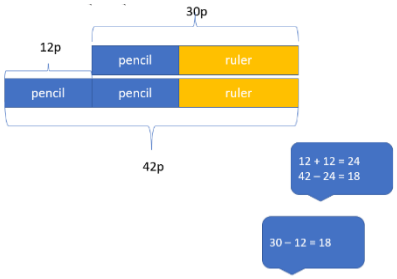
Two Step Word Problems	
Ben and Sita collect animal stickers. They have the same amount. Ben gives away 15 stickers. Sita gives away 32 stickers. How many more stickers does Ben have than Sita now?	

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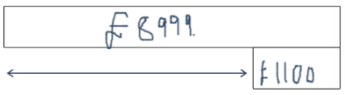








Year 3 and 4	
Key Skills and Strategy Development	Question stems
Read and analyse the problem.	What is the question asking you to do?
Identify the steps.	What arithmetic or calculations do you need?
Calculate efficiently.	What order do you need to proceed? What methods would be the most efficient?
Check the solution.	Have you answered the question correctly?

One Step Word Problems	Model answers
1 The **original** price of this car is £8,999 Sale £1,100 off  What is the **sale** price of the car? £	 8999 1100 – £7899 sale price

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Everyone in the Patel family likes toast for their breakfast, with either jam or marmalade.
Two people say their favourite spread is jam.
There are four more marmalade-lovers than jam-lovers.
How many people are in the family altogether?



14 A train has 8 carriages.

Each carriage has 56 seats.

How many seats are there on the train altogether?

Show your method

x	50	6
8	400	48

448 seats on the train

Two Step Word Problems

Model answers

8 Ken buys 3 large boxes and 2 small boxes of chocolates.

Each large box has 48 chocolates. Each small box has 24 chocolates.

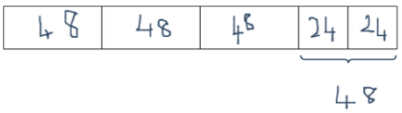
Large **48** chocolates

Small **24** chocolates

How many **chocolates** did Ken buy altogether?

Show your method

chocolates



x	40	8
4	160	32

192 chocolates

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Maths - Progression in Problem Solving

7 Fran, Simon and Abe count their football stickers.

Fran has 107 stickers.

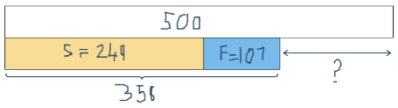
Simon has 249 stickers.

Altogether, the three friends have 500 stickers.

How many stickers does Abe have?

Show your method

2 marks



500 – 358 = Abe

500 – 358 = 142

Abe has 142 stickers.

6 Aisha cycles 5 laps of a track.

The total distance Aisha cycles is 20 km.

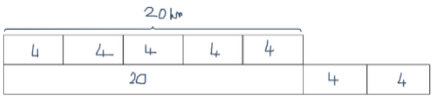
Ben cycles 7 laps of the same track.

How far does Ben cycle in total?

Show your method

km

2 marks



20 + 8 = 28km

Multi-Step Word Problems

A bag of 5 lemons costs £1

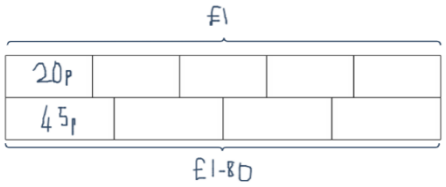
A bag of 4 oranges costs £1.80



How much **more** does one orange cost than one lemon?

Show your method

Model answers



Lemons are 20p each (£1÷5=20p)
Oranges are 45p each (£1.80÷4=45p)

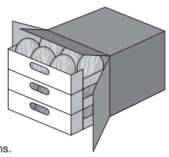
45p – 20p = 25p difference

An orange is 25p more than a lemon.

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Maths - Progression in Problem Solving

Year 5 and 6	
Key Skills and Strategy Development	**Question stems**
Read and analyse the problem.	What is the context of the question?
Identify the steps.	What arithmetic or calculations do you need?
Calculate efficiently.	What order do you need to proceed? What methods would be the most efficient?
Check the solution.	Have you answered the question correctly? Do you need to change the units of measurement in this answer?

Single Step Problems	Model answers
14 Mrs Hyde bakes 180 cookies. She sells them in boxes of 10 Each box costs £4 How much money does she make in total? £	180 cookies ÷ 10 = 18 boxes £4 x 18 = £72 x | 10 | 8 4 | 40 | 32
3 Class 6 have some fruit. For every 2 apples, they have 3 bananas.  They have 10 apples. How many bananas do they have?	2:3 2x5= 10 3x5= 15 15 bananas

Two Step Word Problems	Model answers
15 A box contains trays of melons. There are 15 melons in a tray. There are 3 trays in a box.  A supermarket sells **40** boxes of melons. How many melons does the supermarket sell? Show your method melons	Award **TWO** marks for the correct answer of 1800 If the answer is incorrect, award **ONE** mark for evidence of appropriate complete method with no more than one arithmetic error, e.g. • 40 × 15 = 500 *(error)* 500 × 3 = 1500 ***Do not** accept sight of a correct multiplication, e.g. 40 × 15 × 3, for **ONE** mark unless part of the calculation is evaluated correctly.* *Misreads are **not** allowed.* If no answer is given, the first part of the calculation must be evaluated correctly for the award of **ONE** mark, e.g. • 15 × 3 = 45 45 × 40 = **OR** • 40 × 15 = 600 600 × 3 = **OR** • 40 × 3 = 120 120 × 15 =

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Maths - Progression in Problem Solving

10 The mass of a box containing 6 tins of beans is 7.5 kg.



When 2 tins of beans are removed, the mass of the box is 5.1 kg.

What is the mass of one tin of beans?

Show your method

kg

The mass of a box containing 6 tins of beans is 7.5 kg.

When two tins of beans are removed, the mass of the box is 5.1 kg.

The mass of two tin is = 7.5 kg - 5.1 kg

= 2.4 kg

the mass of one tin of beans = 2.4 kg /2

= 1.2 kg.

Multi-Step Problem

16



potatoes
£1.50 per kg



carrots
£1.80 per kg

Jack buys $1\frac{1}{2}$ kg of potatoes and $\frac{1}{2}$ kg of carrots.

How much **change** does he get from **£5**?

Show your method

£

Model answers

Award **TWO** marks for the correct answer of £1.85

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $1\frac{1}{2} \times £1.50 = £2.25$
  $\frac{1}{2}$ of £1.80 = 70p (error)
  £2.25 + 70p = £2.95
  £5 − £2.95 =

OR

- £1.50 + 75 = £2.25
  £2.25 + 90 = 415p (error)
  £5.00 − 415p =

OR

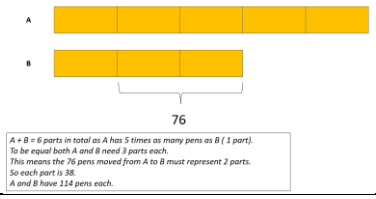
- sight of £3.15 **OR** 315p as evidence of evaluating the correct cost of the potatoes and carrots.

__Do not__ accept misreads for this question.
Answer need not be obtained for the award of __ONE__ mark.
Accept for __ONE__ mark an answer of £185 or £185p as evidence of an appropriate method.

Complex

There are 5 times as many pens in box A than box B.
Jaz moves 76 pens from box A to box B.
Both boxes now have the same amount of pens.
How many pens are in box A now?

Model answers



A + B = 6 parts in total as A has 5 times as many pens as B (1 part).
To be equal both A and B need 3 parts each.
This means the 76 pens moved from A to B must represent 2 parts.
So each part is 38.
A and B have 114 pens each.

23 The length of a day on Earth is 24 hours.

The length of a day on Mercury is $58\frac{2}{3}$ times the length of a day on Earth.

What is the length of a day on Mercury, in **hours**?

Show your method

hours

Award **TWO** marks for the correct answer of 1,408

OR

for an answer in the range of 1,406 to 1,409 inclusive.

If the answer is incorrect, award **ONE** mark for:

- sight of 1,392

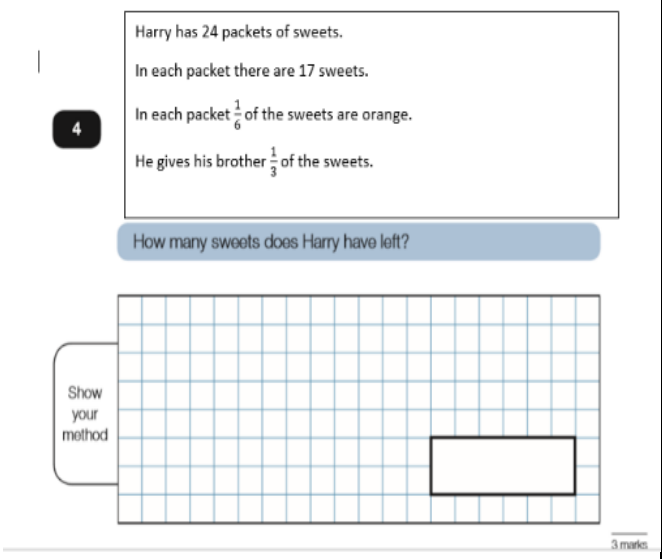
OR

- evidence of an appropriate method, e.g.
  - $24 \times 58\frac{2}{3}$ = answer

    Within an appropriate method, if a decimal equivalent for $\frac{2}{3}$ is given, it must be rounded or truncated to at least 2 decimal places.
  - 24 × 58 = 1,394 *(error)*
    $\frac{2}{3}$ of 24 = 16
    1,394 + 16 = answer
  - $24 \times \frac{176}{3}$ = answer
  - 24 × 58.67 = answer.

    A final answer is required for the award of __ONE__ mark.

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Irrelevant Information	Model answers
	17 sweets in a packet x 24 packets =

x	20	4
10	200	40
7	140	28

408 sweets in total
408 ÷ 3 = 136

136 sweets were given to his brother.

408 – 136 = 272 sweets are left.