

# THIRD SPACE LEARNING

Specialist 1-to-1 maths interventions  
and curriculum resources

**Rapid Reasoning**

**Year 4 | Weeks 13–18**



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**Rapid Reasoning**

**Year 4 | Week 15**

This week, the questions within *Rapid Reasoning* focus on multiplication and division for the final time.

The following objectives, which were first introduced in week 13, continue to be a focus this week:

- recall of multiplication and division facts for multiplication tables up to  $12 \times 12$
- written multiplication of two- and three-digit numbers by a single digit number
- division of a three-digit number by a single digit number.

As with previous weeks, other content from Year 4 that the children have met in previous weeks of *Rapid Reasoning*, along with Year 3 objectives, will also feature this week.

**Q1** Each missing digit in the calculation below is either a 2, 5, or 7.

$$\square \square \times 3 = \square \square$$

Complete the boxes to make the calculation correct.

1 mark

**Q2** Here are six digit cards.



Use all six cards to make three multiples of 3.

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2 marks

**Q3** Look at the calculation below.

$$\square \square \times 3 = 8 \square$$

Complete the boxes to make the calculation correct.

1 mark

**Q1** Each missing digit in the calculation below is either a 2, 5, or 7.

$$\boxed{2} \boxed{5} \times 3 = \boxed{7} \boxed{5}$$

Complete the boxes to make the calculation correct.

1 mark

**Q2** Here are six digit cards.



Use all six cards to make three multiples of 3.

$$\boxed{3} \boxed{6} \quad \boxed{5} \boxed{7} \quad \boxed{7} \boxed{2}$$

2 marks

**Q3** Look at the calculation below.

$$\boxed{2} \boxed{7} \times 3 = 8 \boxed{1}$$

Complete the boxes to make the calculation correct.

1 mark

	Requirement	Mark	Additional guidance
Q1	$25 \times 3 = 75$	1	
Q2	Award <b>TWO</b> marks for three multiples of 3, e.g. 36, 57, 72 <b>OR</b> 63, 72, 54 Award <b>ONE</b> mark if two multiples of 3 have been made.	2	Do <b>NOT</b> award marks if digits have been used more than once.
Q3	Accept either: $27 \times 3 = 81$ <b>OR</b> $28 \times 3 = 84$ <b>OR</b> $29 \times 3 = 87$	1	

**Q1** These are the opening times at Tower Hill Castle.

Monday	12 noon to 5pm
Tuesday to Friday	11am to 6.30pm
Saturday	9.30am to 6pm
Sunday	10.30am to 4.30pm

**a** How many hours is the castle open for on Saturday?

hours  minutes

1 mark

**b** Lily arrives at the castle at 4pm on a Thursday. How many hours can she stay before closing time?

hours  minutes

1 mark

**Q2** A group of friends earns £72 by washing cars. They share the money equally. They get £18 each.

How many friends are there in the group?

friends

1 mark

**Q3** 750ml of squash makes enough juice for 30 children.

How many litres of squash is needed to make enough juice for 120 children?

l

2 marks

**Q1** These are the opening times at Tower Hill Castle.

Monday	12 noon to 5pm
Tuesday to Friday	11am to 6.30pm
Saturday	9.30am to 6pm
Sunday	10.30am to 4.30pm

**a** How many hours is the castle open for on Saturday?

hours  minutes

1 mark

**b** Lily arrives at the castle at 4pm on a Thursday. How many hours can she stay before closing time?

hours  minutes

1 mark

**Q2** A group of friends earns £72 by washing cars. They share the money equally. They get £18 each.

How many friends are there in the group?

friends

1 mark

**Q3** 750ml of squash makes enough juice for 30 children.

How many litres of squash is needed to make enough juice for 120 children?

l

2 marks



	Requirement	Mark	Additional guidance
Q1a	8 hours 30 minutes	1	
Q1b	2 hours 30 minutes	1	
Q2	4	1	
Q3	3l Award <b>ONE</b> mark for evidence of an appropriate, complete, method but with an incorrect answer, e.g. $750 \times 4 = \text{error}$ $\text{error} \div 1000 = \text{wrong answer}$	2	Correct conversion ( $\div 1,000$ ) must be attempted for the award of TWO marks.

Q1

Fill in the boxes to complete this multiplication table.

x	9		
6	54	72	
		144	84
	81		63

2 marks

Q2

Write in the missing number.

$$\boxed{\phantom{000}} \div 5 = 23$$

1 mark

Q3

Add <, = or > to the boxes below to make these statements correct.

$$99,843 \boxed{\phantom{00}} 99,999$$

$$4,583 \boxed{\phantom{00}} 4,571$$

$$8,999 \boxed{\phantom{00}} 10,000$$

2 marks

Q1

Fill in the boxes to complete this multiplication table.

x	9	<b>12</b>	<b>7</b>
6	54	72	<b>42</b>
<b>12</b>	<b>108</b>	144	84
<b>9</b>	81	<b>108</b>	63

2 marks

Q2

Write in the missing number.

$$\boxed{115} \div 5 = 23$$

1 mark

Q3

Add <, = or > to the boxes below to make these statements correct.

$$99,843 \quad \boxed{<} \quad 99,999$$

$$4,583 \quad \boxed{>} \quad 4,571$$

$$8,999 \quad \boxed{<} \quad 10,000$$

2 marks

	Requirement	Mark	Additional guidance																
Q1	<p>Award <b>TWO</b> marks for all seven boxes completed correctly.</p> <table border="1" style="margin-left: 20px;"> <tr> <td>x</td> <td>9</td> <td><b>12</b></td> <td><b>7</b></td> </tr> <tr> <td>6</td> <td>54</td> <td>72</td> <td><b>42</b></td> </tr> <tr> <td><b>12</b></td> <td><b>108</b></td> <td>144</td> <td>84</td> </tr> <tr> <td><b>9</b></td> <td>81</td> <td><b>108</b></td> <td>63</td> </tr> </table> <p>Award <b>ONE</b> mark for four or more boxes completed correctly.</p>	x	9	<b>12</b>	<b>7</b>	6	54	72	<b>42</b>	<b>12</b>	<b>108</b>	144	84	<b>9</b>	81	<b>108</b>	63	2	
x	9	<b>12</b>	<b>7</b>																
6	54	72	<b>42</b>																
<b>12</b>	<b>108</b>	144	84																
<b>9</b>	81	<b>108</b>	63																
Q2	115	1																	
Q3	<p>Award <b>TWO</b> marks for all three symbols added correctly.</p> <p>99,843 &lt; 99,999</p> <p>4,583 &gt; 4,571</p> <p>8,999 &lt; 10,000</p> <p>Award <b>ONE</b> mark for two symbols added correctly.</p>	2																	

What are examiners looking for?

Q3

Add  $<$ ,  $=$  or  $>$  to the boxes below to make these statements correct.

$$99,843 \quad \boxed{<} \quad 99,999$$
$$4,583 \quad \boxed{>} \quad 4,571$$
$$8,999 \quad \boxed{<} \quad 10,000$$

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2 marksWhy are we asking this question?

This question is designed to assess children's ability to read and compare numbers beyond 1,000.

What common errors do we expect to see?

Some children may look at the digits in a number, rather than considering their place value. In particular, in the third example, they may see the 8 and 9 digits in the first number and compare them to the 1 and 0 digits in the second and think that 8,999 is a larger number than 10,000.

Some children may be able to identify which number is greater but confuse the symbols with which to denote this. A sign that children may have made this mistake is that they have answered each part of the question with the opposite symbol ( $99,843 > 99,999$ ,  $4,583 < 4,571$ ,  $8,999 > 10,000$ ). If they do this, it may be worth asking them to describe which number is larger and why. Their error could simply be one of using the wrong symbol.

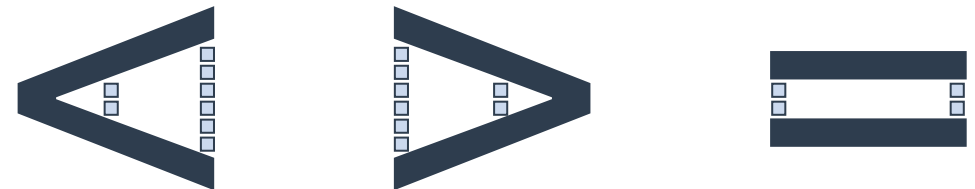
### How to encourage children to solve this question

Provide children with place-value grids and digit cards (or encourage them to sketch their own). Using these will help children assign the correct place-value to the digits in a number.

TTH	TH	H	T	O
1	0	0	0	0
	8	9	9	9

Children may find it beneficial to cover up their grid with a piece of paper and move it slowly from left to right, revealing one column at a time. This will enable them to focus on the columns with the largest value and compare these first.

For children who are unsure which way around the *greater than* and *less than* symbols are written, encourage them to make two small towers of cubes and use two strips of paper to form each symbol. They can read across each symbol from left to right to see whether it means *greater than* or *less than* (for example, 2 cubes are less than 6 cubes in the first symbol < below). Note that this method can also be used to show the meaning of the equals sign too:



**Q1** Gracie had a bag of cranberries.  
For every 6 cranberries she ate, she gave 3 to her brother.  
By the time she had finished the bag, she had given 18 cranberries to her brother.

How many cranberries were in the bag to start off with?

cranberries

2 marks

**Q2** The height of the K2 mountain is 28,251 feet.  
The height of Mount Kilimanjaro is 19,341 feet.

What is the difference in height between the two mountains?

feet

1 mark

**Q3** Eden has completed this calculation.

$$\begin{array}{r}
 8,755 \\
 + 3,821 \\
 \hline
 12,576
 \end{array}$$

Write both subtraction calculations Eden could use to check her answer.


1 mark

**Q1**

Gracie had a bag of cranberries.

For every 6 cranberries she ate, she gave 3 to her brother.

By the time she had finished the bag, she had given 18 cranberries to her brother.

How many cranberries were in the bag to start off with?

**54** cranberries

2 marks

**Q2**

The height of the K2 mountain is 28,251 feet.

The height of Mount Kilimanjaro is 19,341 feet.

What is the difference in height between the two mountains?

**8,910** feet

1 mark

**Q3**

Eden has completed this calculation.

$$\begin{array}{r} 8,755 \\ + 3,821 \\ \hline 12,576 \end{array}$$

Write both subtraction calculations Eden could use to check her answer.

		<b>12,576</b>			<b>12,576</b>
	<b>-</b>	<b>8,755</b>		<b>-</b>	<b>3,821</b>
		<b>3,821</b>			<b>8,755</b>

1 mark



	Requirement	Mark	Additional guidance
Q1	Award <b>TWO</b> marks for the correct answer of 54. Award <b>ONE</b> mark for evidence of a complete method, with up to one arithmetic error, for example: $18 \div 3 = 6$ $6 \times 6 = 36$ $36 + 6 = \text{wrong answer.}$	2	An answer must be arrived at for the award of <b>ONE</b> mark.
Q2	8,910 feet	1	
Q3	$12,576 - 8,755 = 3,821$ <b>AND</b> $12,576 - 3,821 = 8,755$	1	<b>Both</b> required for the award of <b>ONE</b> mark. Also accept $12,567 - 8,755$ and $12,567 - 3,821$ .

**Q1** Look at these digits.



Make the largest number possible with these digits. Write your answer in words.

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1 mark

**Q2** Mary had a bag of raisins.

For every 10 raisins she ate, she gave 4 to her brother.

Once she had finished the bag, she had given 16 raisins to her brother.

How many raisins were in the bag to start off with?

A large dotted rectangular area for writing the answer. At the bottom right corner of this area, there is a small rectangular box containing the word "raisins".

2 marks

Q3

Tennis courts are rectangular.

For a singles tennis match, the court is 24m long and 9m wide.

For a doubles tennis match, the court is 24m long and 11m wide.

How many metres more is the perimeter of a doubles tennis court compared to a singles tennis court?



2 marks

**Q1** Look at these digits.

5 8 3 7

Make the largest number possible with these digits. Write your answer in words.

**Eight thousand, seven hundred  
and fifty-three.**

1 mark

**Q2** Mary had a bag of raisins.

For every 10 raisins she ate, she gave 4 to her brother.

Once she had finished the bag, she had given 16 raisins to her brother.

How many raisins were in the bag to start off with?

**56** raisins

2 marks

Q3

Tennis courts are rectangular.

For a singles tennis match, the court is 24m long and 9m wide.

For a doubles tennis match, the court is 24m long and 11m wide.

How many metres more is the perimeter of a doubles tennis court compared to a singles tennis court?



4 m

2 marks

	Requirement	Mark	Additional guidance
Q1	Eight thousand, seven hundred and fifty-three.	1	Accept phonetically plausible spellings. Hyphenation and commas are not needed for the award of the mark. Do <b>NOT</b> accept plurals, (i.e. do <b>NOT</b> accept eight thousands seven-hundreds and eight-three). Do <b>NOT</b> accept answers without 'and' (i.e. do <b>NOT</b> accept eight-thousand, seven-hundred eighty-three).
Q2	Award <b>TWO</b> marks for the correct answer of 56. Award <b>ONE</b> mark for evidence of a complete method, with up to one arithmetic error, for example: $16 \div 4 = 4$ $4 \times 10 = 40$ $40 + 16 = \text{wrong answer.}$	2	An answer must be arrived at for the award of <b>ONE</b> mark.

	Requirement	Mark	Additional guidance
Q3	<p>Award <b>TWO</b> marks for the correct answer of 4m.</p> <p>Award <b>ONE</b> mark for evidence of calculating the perimeter of both courts. Allow for an arithmetic error in the calculation of each perimeter.</p> <p>For example, <b>ONE</b> mark would be awarded for:</p> <p><math>24 + 24 + 9 + 9 =</math> wrong answer</p> <p><math>24 + 24 + 11 + 11 =</math> wrong answer</p> <p><b>OR</b></p> <p>award <b>ONE</b> mark for sight of</p> <p><math>2m \times 4.</math></p>	2	Final answer need not be obtained for the award of <b>ONE</b> mark.



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