FOCUSMATHS

A positive approach to the Maths Curriculum

Year 4

By Clive Davies

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ABOUT THE AUTHOR

Clive Davies, OBE is one of the founding Directors of Focus working with school both nationally and internationally. He draws on a vast experience, including work as a headteacher, Ofsted inspector, trainer and consultant.

Clive has a wealth of experience working with schools to analyse their current position and supporting leaders to construct purposeful and fit-for-purpose self-evaluation systems which impact on pupil outcomes. Over recent years, Clive has been focusing particularly on the development of an approach to leading and delivering the curriculum which ensures a high degree of engagement for children. This approach to the curriculum is being used in schools across England. He is one of the innovators for the learning challenge curriculum which has gained national acclaim for its success. Clive works in all areas of school improvement and works from early years through the secondary phase.

As a headteacher, Clive's school gained a National Curriculum Award and featured in the TES as one of three schools recognised for its quality practice. Awarded an OBE for Services to Education in 2009, he still works with schools on an advisory basis, and is a highly sought after key note speaker at conferences both nationally and internationally.

Clive has written a wide range of publications which have become known for their straight forward and useful style; helping school leaders focus on what is most important to making a difference, including the best-selling 'Raising Standards by Setting Targets'. Some of Clive's most recent and best selling publications are:

- Making Good Lessons Outstanding
- Maths Learning Challenge Curriculum: Pre and Post Learning Challenges
- Talk for Success
- Science Learning Challenge Curriculum
- History & Geography Learning Challenge Curriculum
- Leading the EYFS (co-authored with Sarah Quinn)
- Assessing Science and Non Core Subjects: In the new National Curriculum (Years 1 to 6)
- Focus on Maths (co-authored with Helen Rowland)
- Assessing without Levels
- Empowering Learners: A Focus on Learning Behaviours
- Step up to the Challenge Series
- Making Book Scrutiny more Meaningful

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YEAR 4 : AUTUMN 1: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
1 Place Value Negative Numbers	**2 Place Value**	**1 Addition & Subtraction**	**2 Addition & Subtraction**	**1 Geometry Shape**	**1 Measures Time**
Count backwards through zero to include negative numbers	Count in multiples of 6, 7, 9, 25 and 1000.	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.	Estimate and use inverse operations to check answers to a calculation.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	Read, write & convert time between analogue and digital 12- and 24-hour clocks.
➢ Know that the value of any negative number is less than 0 ➢ Know which of two negative numbers is greater ➢ Know which of two negative numbers is smaller ➢ Count accurately forwards from any negative number to any positive number, moving across 0 ➢ Count accurately backwards from any positive number to any negative number, moving across 0 ➢ Order a set of negative and positive numbers showing smallest to largest ➢ Order a set of negative and positive numbers showing largest to smallest	➢ Count on and back in 1000s from 0 to 10,000 ➢ Count on and back in 10s from any given multiple between 0 and 10,000 ➢ Count on and back in 100s from 0 to 10,000 ➢ Count on and back in 50s from 0 to 1000 starting at any given multiple ➢ Count on and back in 25s from 0 to 1000 starting at any given multiple ➢ Count on and back in 9s from 0 to 1000 starting at any given multiple ➢ Count on in 8s from 0 to 1000 starting at any given multiple ➢ Count on in 7s from 0 to 1000 starting at any given multiple ➢ Count on in 6s from 0 to 1000 starting at any given multiple.	➢ Add numbers with 4-digits without exchanging ➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10 ➢ Subtract a number from a 4-digit number which requires no exchanging ➢ Subtract a number from a 4-digit number where exchanging is required	➢ Estimate the answer to any given addition involving two 2-digit numbers to the nearest 10. ➢ Estimate the answer to any given addition involving two 3-digit numbers to the nearest 100. ➢ Estimate the answer to any given addition involving two 3-digit numbers to the nearest 10. ➢ Estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10. ➢ Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100. ➢ Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10. ➢ Explain the term 'inverse' and exemplify with an example. ➢ Check the answer to any calculation with 2 and 3 digit numbers using the inverse.	➢ Sort shapes according to their properties using correct vocabulary ➢ Draw and classify shapes based on given criteria, then sort	➢ Know how to set out each analogue time in digital format ➢ Know how to set out each digital time in analogue format. ➢ Convert between analogue and digital and vice versa ➢ Explain how the digital clock system works, e.g. 10 past 2 in the afternoon = 2:10pm = 14:10.

Year 4: Autumn 1

Week 1: Place Value – Negative Numbers

Count backwards through zero to include negative numbers.

Autumn 1: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 1: Week 1
Objective: Place Value	**Count backwards through zero to include negative numbers.**

Which number is the greatest?		***Finish off these sequences***	
0, 2, -2		3, 2, 1, 0, -1,	
-4, 0, -5		-5, -4, -3, -2, -1	
9, -4, 0, -14		-2, -3, -4, -5	
-8, 0, 6, -3		1, 0, -1, -2, -3	

Autumn 1: Week 1: Practice and Consolidation

Place Value 1: Count backwards through zero to include negative numbers.

Teaching Sequence

- Know that the value of any negative number is less than 0
- Know which of two negative numbers is greater
- Know which of two negative numbers is smaller
- Count accurately forwards from any negative number to any positive number, moving across 0
- Count accurately backwards from any positive number to any negative number, moving across 0
- Order a set of negative and positive numbers showing smallest to largest
- Order a set of negative and positive numbers showing largest to smallest

Oral and Mental Activities Examples:

- Use a number line with pupils. The number line will be from -10 to +10.
- Get pupils to count in ones starting from a negative number and emphasising the zero.
- Use a number line with and without negative numbers and show how counting on is a move to the right and how counting back is a move to the left.
- Talk about the way we record temperature in Celsius. On very cold days our recording could be a negative number.

Pencil and Paper Activities Examples:

In these pairs of numbers, which number is the greater?

+ 5 or -5 ☐ +2 or -6 ☐

-8 or +1 ☐ 0 or -2 ☐

In these pairs of numbers, which number is the greater?

-5 or -9 ☐ -4 or -7 ☐

-3 or -10 ☐ - 6 or -8 ☐

Put in the missing numbers in this sequence:

-5, -4, ☐ -2, ☐ 0 +1, +2, +3 ☐

Put these numbers in a line starting with the smallest number first:

-4, +2, -5, -1, 0, +6, +1, -7, -9

-10, +10, -9, +9, -8, +8, +7, -7

Autumn 1: Week 1: Mastering this Objective: Deeper Understanding

Place Value 1: Count backwards through zero to include negative numbers.

Teaching Sequence

- Know that the value of any negative number is less than 0
- Know which of two negative numbers is greater
- Know which of two negative numbers is smaller
- Count accurately forwards from any negative number to any positive number, moving across 0
- Count accurately backwards from any positive number to any negative number, moving across 0
- Order a set of negative and positive numbers showing smallest to largest
- Order a set of negative and positive numbers showing largest to smallest

If pupils have mastered this objective they will be able to complete these activities independently:

Put in the missing numbers:

	-2					3			6
	-7					-2		0	
		-4				0			3

What temperature is 10 degrees lower than 4 degrees Celsius?

On a very cold day is the temperature more likely to be -4 degrees Celsius or +16 degrees Celsius?

Put the numbers between -5 to +5 accurately on a number line.

Put the numbers between -15 to +1 accurately on a number line.

Put the numbers between -3 and + 3 accurately on a number line.

Autumn 1: Week 1: Working at greater depth

Place Value 1: Count backwards through zero to include negative numbers.

Teaching Sequence

- Know that the value of any negative number is less than 0
- Know which of two negative numbers is greater
- Know which of two negative numbers is smaller
- Count accurately forwards from any negative number to any positive number, moving across 0
- Count accurately backwards from any positive number to any negative number, moving across 0
- Order a set of negative and positive numbers showing smallest to largest
- Order a set of negative and positive numbers showing largest to smallest

Activities for pupils working at greater depth:

Floor 10
Floor 9
Floor 8
Floor 7
Floor 6
Floor 5
Floor 4
Floor 3
Floor 2
Floor 1
Floor 0
Floor -1
Floor -2
Floor -3
Floor -4
Floor -5

This is a diagram of a hotel.
There are 10 floors above ground and 5 floors below ground.
The entrance is on Floor 0.
The swimming pool is on Floor -3.
The Laundry room is on Floor -5.
Floor 10 is known as the penthouse.
The restaurant is on Floor 9.

A man enters the hotel at the entrance and then goes to his room on Floor 6 before going for a swim. How many floors will he have travelled altogether.

Now make up more examples to try out on your friends.

What will the 19th number in this sequence be:

-4, -3, -2, ……..

What will the 16th number in this sequence be:

-9, -8, -7, -5 ……..

What will the 7th number in this sequence be:

-8, -6, -4……

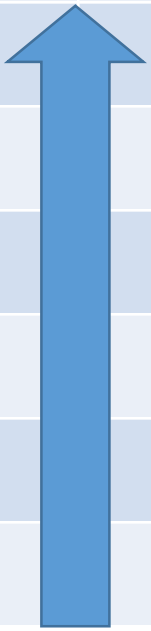
What will the 7th number in this sequence be:

-7, -5, -3, ……

Autumn 1: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value 1: Count backwards through zero to include negative numbers.	Me	My Teacher
Can you order a set of negative and positive numbers showing largest or smallest first?		
Can you count accurately backwards from any positive number to any negative number, moving across the 0?		
Can you count accurately forwards from any negative number to any positive number, moving across the 0?		
Do you know which of 2 negative numbers is the smaller, eg. -7 is smaller than -4?		
Do you know which of 2 negative numbers is the greater, eg. -2 is greater than -5?		
Do you know the that the value of any negative number is less than 0?		



Year 4: Autumn 1

Week 2: Place Value

Count in multiples of 6, 7, 9, 25 and 1000.

Autumn 1: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 1: Week 2
Objective Place Value 2	**Count in multiples of 6, 7, 8, 9, 10, 25, 50, 100 and 1000 from any given number.**

Can you count on or back as required?

3000,4000		200, 300	
2315, 3315		173, 273	
8000,7000		500, 400	
4136, 3136		883, 783	

Autumn 1: Week 2: Practice and Consolidation

Place Value 2: Count in multiples of 6, 7, 9, 25 and 1000.

Teaching Sequence

- Count on and back in 1000s from 0 to 10,000
- Count on and back in 10s from any given multiple between 0 and 10,000
- Count on and back in 100s from 0 to 10,000
- Count on and back in 50s from 0 to 1000 starting at any given multiple
- Count on and back in 25s from 0 to 1000 starting at any given multiple
- Count on and back in 9s from 0 to 1000 starting at any given multiple
- Count on in 8s from 0 to 1000 starting at any given multiple
- Count on in 7s from 0 to 1000 starting at any given multiple
- Count on in 6s from 0 to 1000 starting at any given multiples

Oral and Mental Activities Examples:

- Focus on 6, 7, 9 and 10 times tables.
- Check understanding by asking questions related to tables out of order.
- Now check inverses by asking how many 6s, 7s or 9s in 36, 42 or 81 respectively.
- Count rapidly forwards and backwards in 10, 100 and 1000s, then in 25s.
- Provide pupils with regular 'test' to check their rapid recall of table facts.

Pencil and Paper Activities Examples:

Continue these sequences:

2000…….3000…….4000…….. ☐ ☐

1006…….2006…….3006…….. ☐ ☐

7000…….6000……..5000…….. ☐ ☐

8015…….7015…….6015…….. ☐ ☐

1400…….1300……1200…….. ☐ ☐

3700……..3800…….3900…… ☐ ☐

Finish these sequences:

17, 24, 31, 38, …….. ☐ ☐

67, 58, 49, 40,…….. ☐ ☐

125, 150, 175, 200…….. ☐ ☐

19, 25, 31, 37, 43…….. ☐ ☐

Autumn 1: Week 2: Mastering this Objective – Deeper Understanding

Place Value 2: Count in multiples of 6, 7, 9, 25 and 1000.

Teaching Sequence

- Count on and back in 1000s from 0 to 10,000
- Count on and back in 10s from any given multiple between 0 and 10,000
- Count on and back in 100s from 0 to 10,000
- Count on and back in 50s from 0 to 1000 starting at any given multiple
- Count on and back in 25s from 0 to 1000 starting at any given multiple
- Count on and back in 9s from 0 to 1000 starting at any given multiple
- Count on in 8s from 0 to 1000 starting at any given multiple
- Count on in 7s from 0 to 1000 starting at any given multiple
- Count on in 6s from 0 to 1000 starting at any given multiple.

If pupils have mastered this objective they will be able to complete these activities independently:

Look at these numbers:
1357; 357; 2357; 7357; 4357; 2357; 5357; 6357.

If you put them in order (smallest first) what will be the 5th number?

If you carried on the sequence what would be the 9th number?

Look at these sequences:
12….18….24……..
What will be the 6th number?

21….28….35….
What will be the 10th number?

125….150….175….
What will be the 7th number?

Amjal counts in 25s from 75.
Circle the numbers that he will say.

500 125 555 970 1000

Helen counts in 7s from 28.
Count the numbers she will say.

77 210 37 177 84

Starting with 0 make a sequence of numbers up to 100 going up in 6s.
Then starting at 0 make a sequence of numbers up to 100 going up in 7s.

Which numbers appear in both sequences.

Now do the same but replace the 6 and 7 with 9 and 25.

Autumn 1: Week 2: Working at greater depth

Place Value 2: Count in multiples of 6, 7, 9, 25 and 1000.

Teaching Sequence

- Count on an back in 1000s from 0 to 10,000
- Count on and back in 10s from any given multiple between 0 and 10,000
- Count on and back in 100s from 0 to 10,000
- Count on and back in 50s from 0 to 1000 starting at any given multiple
- Count on and back in 25s from 0 to 1000 starting at any given multiple
- Count on and back in 9s from 0 to 1000 starting at any given multiple
- Count on in 8s from 0 to 1000 starting at any given multiple
- Count on in 7s from 0 to 1000 starting at any given multiple
- Count on in 6s from 0 to 1000 starting at any given multiples

Activities for pupils working at greater depth:

Make up a 4-digit number where the sum of the numbers is 9, e.g. 3312 or 4500.

- What is the largest number you can make?
- What is the second largest number you can make?
- What is the smallest number you can make?
- In relation to x9 what do you notice?

Amjal counts in 25s from 77.
Circle the numbers that he will say.

502 127 557 972 1002

Work out a quick way of finding the answers.

If you start at 0 and count on in 6s, then in 7s, then in 9s and finally in 25 up to 1000.

Eg, 6, 12, 18……
7, 14, 21……
9, 18, 27……
25, 50, 75……

Make a list of the numbers you will say twice, three times and four times. Don't forget the answer could be 0 for some of them.

Spot the Mistake

What is wrong with these sequences of numbers?

950, 975,1000,1250

2006, 4006, 6006, 7006, 8006

Every time Joey fills his cement mixer he has enough cement to lay 25 bricks.

Every day he aims to lay 1500 bricks on wall of a new house.

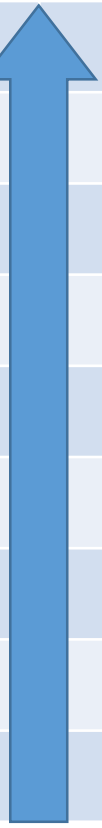
How many times does he have to fill his cement mixer?

Now create some more problems for your friend related to the cement mixer.

Autumn 1: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value 2: Count in multiples of 6, 7, 8, 9, 10, 25, 50, 100 and 1000 from any given number.	Me	My Teacher
Can you count on in 6s from 0 to 1000 starting at any given number?		
Can you count on in 7s from 0 to 1000 starting at any given number?		
Can you count on in 8s from 0 to 1000 starting at any given number?		
Can you count on and back in 9s from 0 to 1000 starting at any given number?		
Can you count on and back in 25s from 0 to 1000 starting at any given number?		
Can you count on and back in 50s from 0 to 1000 starting at any given number?		
Can you count on and back in 100s from 0 to 10,000?		
Can you count on and back in 10s from any given number between 0 and 10,000?		
Can you count on and back in 100s from 0 to 1000?		



Year 4: Autumn 1

Week 3: Addition and Subtraction 1

Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.

Autumn 1: Week 3: Pre-Learning Task

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Name	Autumn 1: Week 3
Objective Addition and Subtraction 1	**Add and subtract numbers with up to 4-digits using the formal written methods of columnar addition and subtraction, where appropriate**

Can you calculate these accurately?

1323 1234+	1062 2025+	3276 1033-	1569 2163-
1237 1459+	2723 1645+	3450 1126-	3819 2720-
3451 2429+	1273 3566+	5353 2466-	7351 5675-
5672 1345 1436+	8943 1923 4578+		

Autumn 1: Week 3: Practice and Consolidation

Addition and Subtraction 1: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.

Teaching Sequence	Oral & Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Add numbers with 4-digits without exchanging ➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10 ➢ Subtract a number from a 4-digit number which requires no exchanging ➢ Subtract a number from a 4-digit number where exchanging is required	• Say a 4-digit number and get pupils to say the thousands value; or the hundreds value or the tens value in the number. • Practise orally working out the number of 10s in a number like 1204. • Practice orally working out the number of 100s in 2903	**Look at the number 3682.** Break the number up in the following way: 3000 + 600 + 80 + 2 Now do the same with: 4591 3592 8501 7019 How many 100s in 3581? How many 10s in 381? How many 1000s in 3581? How many 10s in 5002? 3578 + 4580 = 5681 + 2368 = 3477 + 4623 = 1982 + 7609 = 3487 − 1653 = 6587 − 3458 = 3462 − 734 = 9825 − 973 =

Autumn 1: Week 3: Mastering this Objective – Deeper Understanding

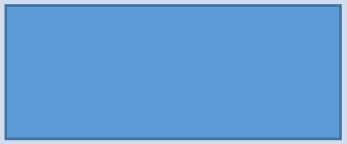
Addition and Subtraction 1: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.

Teaching Sequence

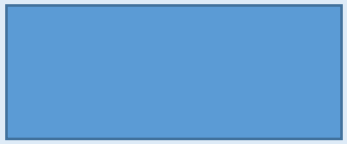
- Add numbers with 4-digits without exchanging
- Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10
- Subtract a number from a 4-digit number which requires no exchanging
- Subtract a number from a 4-digit number where exchanging is required

If pupils have mastered this objective they will be able to complete these activities independently:

The pop group Three Slaves had two concerts, one in in Glasgow and one in Cardiff. 1578 people attended the Glasgow concert and 2688 attended the Cardiff concert.
How many people attended the concerts altogether?



A biscuit factory produces 5670 packets of biscuits each day.
3578 are sent immediately to their shops in the South of England.
How many biscuits are left in the factory after 3578 have been sent?



2356 + 3679 + 3467 =

2479 + 5980 + 3792 =

2572 + 1932 =

5239 + 4612 =

3002 − 1987 =

7005 − 3569 =

2004 − 1523 =

5002 − 2158 =

Autumn 1: Week 3: Working at greater depth

Addition and Subtraction 1: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.

Teaching Sequence

- Add numbers with 4-digits without exchanging
- Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10
- Subtract a number from a 4-digit number which requires no exchanging
- Subtract a number from a 4-digit number where exchanging is required

Activities for pupils working at greater depth:

Using the numbers 0-9, set them out in a 3x3 matrix as shown below. Make three 3-digit numbers with all the horizontal lines and add them together, eg, 174 + 628 + 395. Now do the same with the vertical lines, eg 163 + 729 + 485.

1	7	4
6	2	8
3	9	5

Can you organise the numbers in such a way that when you add both sets together your answer will be more than 2000; less than 2000; between 1500 and 2000, etc. Now, make up some more questions where you take away the sum of the 3 vertical numbers from the sum of the 3 horizontal numbers.

Which of these number sentences have the answer that is between 550 and 600?

1174 – 611

3330 – 2779

9326 – 8777

What is the largest possible number that will go in the large rectangular box?

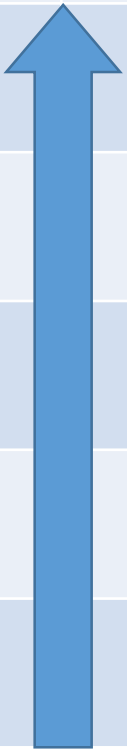
What is the smallest?

Explain your reasoning.

Autumn 1: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Addition and Subtraction 1 : Add and subtract numbers with up to 4-digits using the formal written methods of columnar addition and subtraction where appropriate	Me	My Teacher
Can you subtract a 4-digit number from another using columnar subtraction which requires exchange between the units, tens, hundreds or thousands (or any two of these)?		
Can you subtract a 4-digit number from another using columnar subtraction which requires no exchange between the units, tens, hundreds or thousands?		
Can you add 3 numbers with 4-digits using columnar addition where the units, tens or hundreds make more than 10?		
Can you add 2 numbers with 4-digits together using columnar addition, where the units, tens or hundreds when added make more than 10?		
Can you add 2 numbers with 4-digits together using columnar addition without exchange between units and tens?		



Year 4: Autumn 1

Week 4: Addition and Subtraction 2

Estimate and use inverse operations to check answers to a calculation.

Autumn 1: Week 4: Pre-Learning Task

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Name	Autumn 1: Week 4
Objective Addition and Subtraction 2	**Estimate and use inverse operations to check answers to a calculation**

Can you quickly estimate the answers to these calculations to the nearest 10?			***What do you notice about these calculations?***		
27 + 65			67 + 35		
39 - 13			102 - 67		
35 + 56					
26 + 19			135 + 121		
Can you quickly estimate the answers to these calculations to the nearest 100?			256 - 135		
345 - 190					
729 + 260			760 - 205		
845 + 190			205 + 555		
724 - 128					

Autumn 1: Week 4: Practice and Consolidation

Addition and Subtraction 2: Estimate and use inverse operations to check answers to a calculation.

Teaching Sequence

- Estimate the answer to any given addition involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10.
- Explain the term 'inverse' and exemplify with an example.
- Check the answer to any calculation with 2 and 3 digit numbers using the inverse.

Oral and Mental Activities Examples:

- Work with pupils on estimating addition and subtraction of 2 digit numbers by rounding (approximately) each 2-digit number to the nearest 10.
- Work with pupils on estimating addition and subtraction of 3 digit numbers by rounding (approximately) each 3-digit number to the nearest 100.
- Orally and mentally work with pupils so that they quickly understand inverse operation involving addition of 2, 3 or 4 digit numbers, eg, the inverse of 234 + 567 = 801 is 801 – 234 = 567
- Orally and mentally work with pupils so that they quickly understand inverse operation involving subtraction of 2, 3 or 4 digit numbers, eg, the inverse of 677 - 234 = 443 is 443 + 234 = 677

Pencil and Paper Activities Examples:

Estimate and then check: (to the nearest 10 or 100)

23 + 46 = 234 + 456 =
2367 + 1589 2050 + 2768 =

Estimate and then check: (to the nearest 10 or 100)

93 - 36 = 834 - 486 =
8387 - 3529 4050 - 2668 =

What do you notice about these calculations?

23 + 67 = 90 678 + 125 = 803
90 – 23 = 67 803 – 678 = 125

Check the answers of the following calculations by use the inverse operation.

675 + 239 =  238 – 178 = 

Autumn 1: Week 4: Mastering this Objective – Deeper Understanding

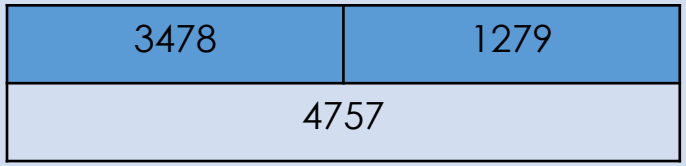
Addition and Subtraction 2: Estimate and use inverse operations to check answers to a calculation.

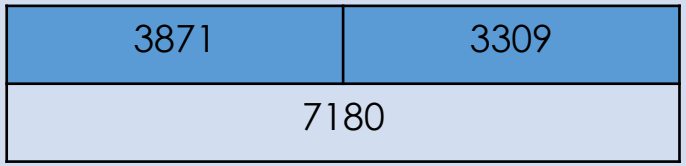
Teaching Sequence

- Estimate the answer to any given addition involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10.
- Explain the term 'inverse' and exemplify with an example.
- Check the answer to any calculation with 2 and 3 digit numbers using the inverse.

If pupils have mastered this objective they will be able to complete these activities independently:

Write down the four relationships you can see in the bar models:





____ + ____ = ____ ____ + ____ = ____

____ + ____ = ____ ____ + ____ = ____

____ - ____ = ____ ____ - ____ = ____

____ - ____ = ____ ____ - ____ = ____

372 + ____ = 678 therefore 678 – 372 = ____

901 - ____ = 345 therefore 345 + ____ = 901

1670 + 3810 = ____ therefore ____ - 1670 = 3810

7819 - ____ = 5610 therefore ____ + 5610 = 7819

Autumn 1: Week 4: Working at greater depth

Addition and Subtraction 2: Estimate and use inverse operations to check answers to a calculation.

Teaching Sequence

- Estimate the answer to any given addition involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given addition involving two 3-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100.
- Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10.
- Explain the term 'inverse' and exemplify with an example.
- Check the answer to any calculation with 2 and 3 digit numbers using the inverse.

Activities for pupils working at greater depth:

Identify the missing numbers in these bar models

4500		
	231	1896

2250		
129		1109

Now select your own numbers to make up a bar model

5500		

5300		

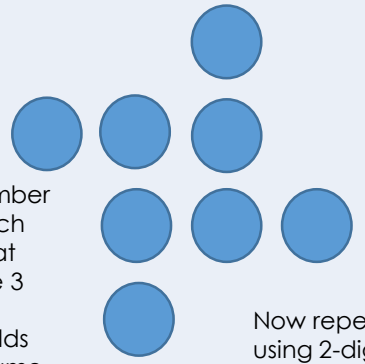
Find the missing digits:

4 ☐ 34 + 2 ☐ 12 = 7500

Now give a different answer.

Find the missing digits:

93 ☐ 7 - 364 ☐ = 5321



Put in a number 0 to 9 in each circle so that each of the 3 rows and columns adds up to the same amount.

Now repeat using 2-digit numbers.

Autumn 1: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Addition and Subtraction 2 : Estimate and use inverse operations to check answers to a calculation	Me	My Teacher
Can you check the answer to any given subtraction by using the inverse method?		
Can you check the answer to any given addition involving 2 numbers by using the inverse method?		
Do you know the meaning of the term 'inverse'?		
Can you estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10?		
Can you estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100?		
Can you estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10?		
Can you estimate the answer to any given addition involving two 3-digit numbers to the nearest 10?		
Can you estimate the answer to any given addition involving two 3-digit numbers to the nearest 100?		
Can you estimate the answer to any given addition involving two 2-digit numbers to the nearest 10?		

Year 4: Autumn 1

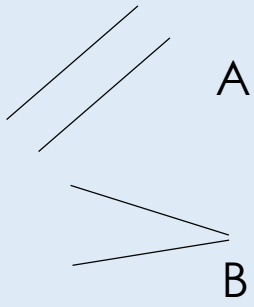
Week 5: Geometry - Shape

Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

Autumn 1: Week 5: Pre-Learning Task

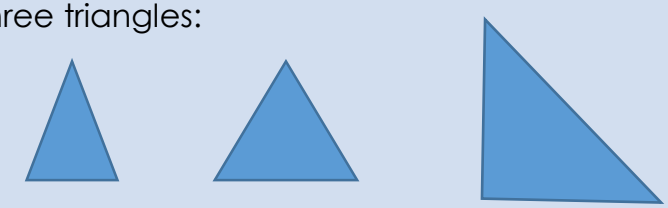
The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils books so that they can keep their own checks.

Name	Autumn 1: Week 5
Objective Geometry:	**Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.**

Which of the sets of lines are parallel?			Draw 3 vertical lines of different sizes.		
Draw 2 different triangles: One with a right angle and one which has two equal sides. Is it possible to create a triangle that has two equal sides and a right angle?			Draw a quadrilateral with each side being of different length.		

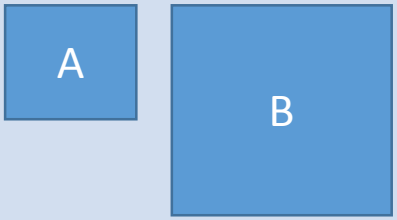
Autumn 1: Week 5: Practice and Consolidation

Geometry 1: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Sort shapes according to their properties using correct vocabulary ➢ Draw and classify shapes based on given criteria, then sort	• **Remind pupils of previous learning related to:** • Names of shapes, both 2D and 3D; the terms parallel, vertical and horizontal; right angles; quadrilateral; • Give pupils a set of properties and get them to draw them on a white board, eg, a triangle with a right angle. • The use of 'feely bag' can still help some pupils who may be struggling with the use of correct terminology.	Describe what is the same and different about these three triangles:  Now do the same with a set of quadrilaterals. Draw three different quadrilaterals that have different properties and then describe them. **Draw the following:** • A set of parallel lines; • A vertical line • A horizontal line • A quadrilateral that includes a right angle **Classify different shapes:** • According to size • According to number of parallel, vertical or horizontal lines • According to lines of symmetry • According to orientation

Autumn 1: Week 5: Mastering this Objective – Deeper Understanding

Geometry 1: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Sort shapes according to their properties using correct vocabulary ➢ Draw and classify shapes based on given criteria, then sort	 The side of square A is exactly half that of square B. How many of Square A will fit into Square B?	
	Is it always, sometimes or never true that the two diagonals of a rectangle meet at right angles? Explain your reasons. John says that he can draw a right angled triangle which has another angle which is obtuse. Is he right? Explain why.	
	Show or draw a quadrilateral that fits both of these criteria. 'Has exactly two equal sides.' 'Has exactly two parallel sides.' What do you look for?	Draw a non-right angled triangle with a line of symmetry. How many lines of symmetry does an equilateral triangle have?

Autumn 1: Week 5: Working at greater depth

Geometry 1: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

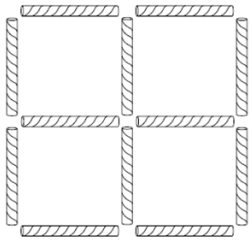
Teaching Sequence

- Sort shapes according to their properties using correct vocabulary
- Draw and classify shapes based on given criteria, then sort

Activities for pupils working at greater depth:

Describe a hidden shape to your friend so accurately that he or she can draw it so that it matches your original shape.

Now switch roles.



There are 12 straws in this pattern. It makes up 4 small squares plus one large square. 5 in total.

Now take 20 straws and place them in such a way so as to make as many squares as you can.

You cannot bend or break the straws.

Create an interesting pattern that includes at least 2 horizontal, 2 vertical and another set of parallel lines.

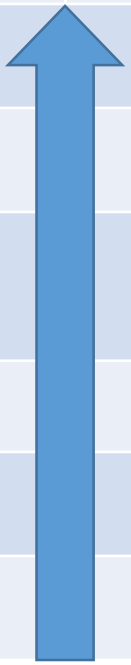
Now, design a special badge by using at least 2 horizontal, 2 vertical and another set of parallel lines.

Imagine a square cut along the diagonal to make two triangles.
Describe the triangles.
Join the triangles on different sides to make new shapes.
Describe them.
(You could sketch them.)
Are any of the shapes symmetrical?
Convince me.

Autumn 1: Week 5: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry 1: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	Me	My Teacher
Can you describe a shape accurately enough to someone so that they can draw it accurately?		
Can you recognise horizontal lines, vertical lines and right angles in the classroom and outside the classroom?		
Can you describe the properties of a given 2D shape by referring to the sides and angles; and vertical and horizontal lines?		
Do you know what is meant by a right angle?		
Do you know what is meant by parallel lines?		
Do you know what is meant by vertical and horizontal lines?		



Year 4: Autumn 1

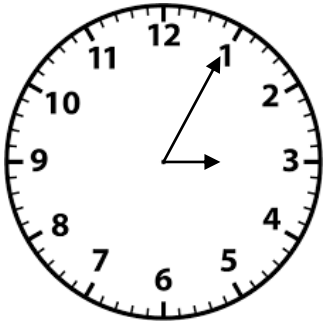
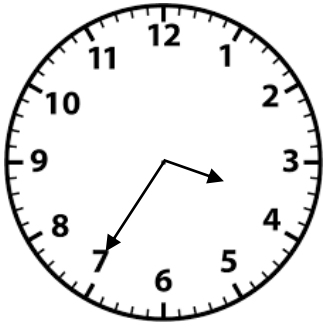
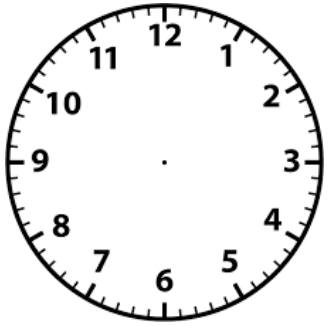
Week 6: Measurement– Time

Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Autumn 1: Week 6: Pre-Learning Task

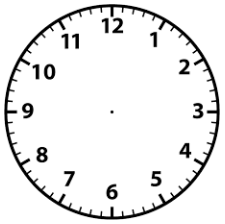
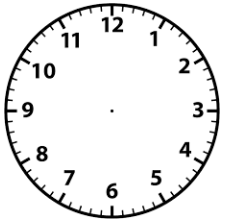
The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils books so that they can keep their own checks.

Name	Autumn 1: Week 4
Objective Measure: Time	**Read, write and convert time between analogue and digital 12- and 24-hour clocks.**

What is the time?		***Put the following times on the clock faces***	
		8:15	
		06:35	

Autumn 1: Week 6: Practice and Consolidation

Measurement - Time 1: Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know how to set out each analogue time in digital format ➢ Know how to set out each digital time in analogue format. ➢ Convert between analogue and digital and vice versa ➢ Explain how the digital clock system works, e.g. 10 past 2 in the afternoon = 2:10pm = 14:10.	• Remind pupils of various terminology associated with time by demonstrating on a clock face and by giving pupils clock faces to use; • Talk pupils through the 24 hour clock system and the way various times are written down; • Use small white boards for pupils to record times that are said to them.	 **Put the following times on a clock face:** Quarter past eight Quarter to five Twenty five to nine **Write the following times in digital format:** • Twenty five past three • Nine minutes past six • Twenty to five • Eleven minutes to five  **Put the following times on a clock face:** 09:35 11:25 7:45 **Write each of the following times as a time on a 24 hour clock system;** Twenty past six in the morning; 9.35 am; 11.15 pm; quarter to three in the afternoon; Ten to five in the evening; 8.15 pm; 8.15 am; half past three in the afternoon.

Autumn 1: Week 6: Mastering this Objective – Deeper Understanding

Measurement - Time 1: Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Teaching Sequence

- Know how to set out each analogue time in digital format
- Know how to set out each digital time in analogue format.
- Convert between analogue and digital and vice versa
- Explain how the digital clock system works, e.g. 10 past 2 in the afternoon = 2:10pm = 14:10

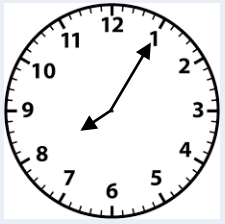
If pupils have mastered this objective they will be able to complete these activities independently:

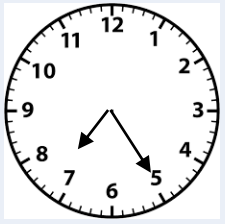
The time is 10:35 am.
Jack says that the time is closer to 11:00am than to 10:00am.
Is Jack right? Explain your answer.

The time is 10:35 pm.
Jack says that it is closer to 22:00 hours than it is to 23:00 hours.
Is he correct? Explain your answer.

Put these times of the day in order, starting with the earliest time.

A: Quarter to four in the afternoon
B: 07:56
C: six minutes to nine in the evening
D: 14:36





Set out this 'evening' time in digital and as a 24 hour clock and say it in analogue.

Now do the same for this 'morning' time.

It is quarter past three in the afternoon.

Which of these times is correct and which is incorrect?

3.15am; 15:15hours; the big hand points to the three and the small hand is just past the three.

Now make up some more to test our friends out.

Autumn 1: Week 6: Working at greater depth

Measurement - Time 1: Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Know how to set out each analogue time in digital format ➢ Know how to set out each digital time in analogue format. ➢ Convert between analogue and digital and vice versa ➢ Explain how the digital clock system works, e.g. 10 past 2 in the afternoon = 2:10pm = 14:10	If it is 02:45 what will it be in 2 hours? If it is 09:30 what was the time 2 and a half hours ago? If it is 7:30pm what will a 24 hour clock look like in 45 minutes? If it is 11:50am what will a 24 hour clock look like in 85 minutes?	**Why do you think clock faces have numbers 1 to 12 when there are 24 hours in the day?** Make a case for staying with the 12 hours face and make a case for inventing the 24 clock face. State your own preference before finding out your friends thoughts.
	Turkey is 2 hours ahead of us in the time zone so if it is 2pm in the UK it is 4pm in Turkey. Dubai is 3 hours ahead of us and New York is 5 hours behind us. Set out the time on a 24 hour clock for Turkey, New York and Dubai if it 5.30 pm in the UK and again if it is 8.15am in New York.	Imran's swimming lesson lasts 50 minutes and it takes 15 minutes to change and get ready for the lesson. What time does Imran need to arrive if his lesson finishes at 6.15pm?

Autumn 1: Week 6: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Measurement 1 – Time : Read, write and convert time between analogue and digital 12- and 24-hour clocks.	Me	My Teacher
Can you confidently convert between analogue, digital and a 24 hour clock?		
Do you know how a 24 hour clock system works, eg. ten past two in the afternoon = 02:10pm = 14:10 hours?		
Do you know that a time said like this: 01:30, is set out as a 24 hour clock?		
Can you, with confidence, convert between analogue and digital?		
Do you know how to set out each analogue time in digital format, eg. ten past two = 02:10?		
Do you know that a time set out like this: 02:10, is digital?		
Do you know that a time said like this: ten past two, is analogue?		
Do you know that you can tell the time using either analogue method or a digital method?		

YEAR 4 : AUTUMN 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
1 Multiplication & Division - Mental	**2 Multiplication & Division**	**3 Multiplication & Division**	**2 Measures Perimeter**	**1 Statistics**	**Consolidate and Assess**
Recall multiplication and division facts for tables up to 12x12.	Recognise and use factor pairs and commutativity in mental calculations.	Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.	Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.	Interpret and present discrete and continuous data using appropriate graphical methods, including: - bar charts - time graphs	Start this week by revising the learning covered in the Autumn term so as to ensure pupils are fluent and secure with their basic skills. Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn term. Analyse the results and use information to help focus the intervention and pre-teaching sessions, as needed, for the following term.
➢ Count in 6s; forward and backwards. ➢ Recite the x6 tables up to x12, without error. ➢ Answer any calculation involving x6, out of order. ➢ Know that 2x6 is the same as 6x2 etc. ➢ Answer any calculation involving ÷6, out of order. ➢ Count in 7s; forward and backwards. ➢ Recite the x7 table up to x12, without error. ➢ Answer any calculation involving x7, out of order. ➢ Know that 3x7 is the same as 7x3 etc. ➢ Answer any calculation involving ÷7, out of order. ➢ Count in 9s; forward and backwards. ➢ Recite the x9 table up to x12, without error. ➢ Answer any calculation involving x9, out of order. ➢ Know that 4x9 is the same as 9x4 etc. ➢ Answer any calculation involving ÷9, out of order. ➢ Recall multiplication facts for all tables up to 12x12 out of order ➢ Recall division facts for all tables up to 12x12 out of order	➢ Explain the term 'factor pair'. ➢ Know all the factors within all numbers to 10. ➢ Work out all the factors of any number to 144. ➢ Know the term 'square number' and recall all square numbers associated with numbers 1 – 144.	➢ Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x. ➢ Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x. ➢ Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.	➢ Know the formula for calculating the perimeter of a rectangle (2 x length plus 2 x breadth) ➢ Know that the perimeter of an irregular shape can be calculated by adding the length of each individual side together	➢ 'Tell the story' of a bar chart with no scales on the axes ➢ 'Tell the story' of a bar chart with scales on the axes ➢ 'Tell the story' of a time graph with no scales on the axes ➢ 'Tell the story' of a time graph with scales on the axes ➢ Construct a bar chart with correct labelling of both axes ➢ Plot information on a time graph	

Year 4: Autumn 2

Week 1: Multiplication & Division

Recall multiplication and division facts for tables up to 12x12.

Autumn 2: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 2: Week 1
Objective: Multiplication & Division	Recall multiplication and division facts for tables up to 12x12.

Rapidly calculate the following multiplications and divisions

6 x 7			3 x 9		
3 x 6			4 x 12		
4 x 7			6 x 12		
11 x 6			9 x 9		
9 x 7			11 x 9		
8 x 7			8 x 12		
How many 7s in 56?			How many 12s in 84?		
How many 6s in 42?			How many 9s in 99?		

Autumn 2: Week 1: Practice and Consolidation

Multiplication & Division: Recall multiplication and division facts for tables up to 12x12.

Teaching Sequence

- Count in 6s; forward and backwards.
- Recite the x6 tables up to x12, without error.
- Answer any calculation involving x6, out of order.
- Know that 2x6 is the same as 6x2 etc.
- Answer any calculation involving ÷6, out of order.
- Count in 7s; forward and backwards.
- Recite the x7 table up to x12, without error.
- Answer any calculation involving x7, out of order.
- Know that 3x7 is the same as 7x3 etc.
- Answer any calculation involving ÷7, out of order.
- Count in 9s; forward and backwards.
- Recite the x9 table up to x12, without error.
- Answer any calculation involving x9, out of order.
- Know that 4x9 is the same as 9x4 etc.
- Answer any calculation involving ÷9, out of order.
- Recall multiplication facts for all tables up to 12x12 out of order
- Recall division facts for all tables up to 12x12 out of order

Oral and Mental Activities: Examples:

- Start with a quick recall of the x4 and x8 tables.
- Introduce the 9x table showing how the ones figure reduces as the tens figure increases and how the sum of the digits is divisible by 9.
- Chant the x9 table and write them out.
- Now introduce the 6x and x7 tables. Pupils should chant them and write them down and make every effort to learn the inverses as well as respond out of order.
- Finally, introduce the x11 and x12 tables and look for the obvious patterns.

Pencil and Paper Activities Examples:

Rapid recall of x6 and x7:

4 x 7	5 x 6	6 x 7	9 x 6	10 x 7
3 x 6	7 x 7	10 x 6	11 x 7	12 x 6

Complete the missing numbers:

3 x 9				36
	63		1 x 9	
8 x 9			6 x 9	
	18			81
12 x 9			5 x 9	

How many 11s in 77?
How many 12s in 84?
How many 12s in 84?

How many 12s in 48?
How many 11s in 110?
How many 11s in 99?

12	45	21
36	144	77
12	84	60
30	90	132
14	121	18
54	88	72

x6	x7	x11	x9	x12

Place numbers into tables columns.
Some may belong in more than one.

Autumn 2: Week 1: Mastering this Objective – Deeper Understanding

Multiplication & Division: Recall multiplication and division facts for tables up to 12x12.

Teaching Sequence

- Count in 6s; forward and backwards.
- Recite the x6 tables up to x12, without error.
- Answer any calculation involving x6, out of order.
- Know that 2x6 is the same as 6x2 etc.
- Answer any calculation involving ÷6, out of order.
- Count in 7s; forward and backwards.
- Recite the x7 table up to x12, without error.
- Answer any calculation involving x7, out of order.
- Know that 3x7 is the same as 7x3 etc.
- Answer any calculation involving ÷7, out of order.
- Count in 9s; forward and backwards.
- Recite the x9 table up to x12, without error.
- Answer any calculation involving x9, out of order.
- Know that 4x9 is the same as 9x4 etc.
- Answer any calculation involving ÷9, out of order.
- Recall multiplication facts for all tables up to 12x12 out of order
- Recall division facts for all tables up to 12x12 out of order

If pupils have mastered this objective they will be able to complete these activities independently:

How close can you get?

Using only the digits 6, 7, 8 and 9 in the calculation above, how close can you get to 400?

How close can you get to 500?

Now try 250.

Boxing Eggs

Eggs are bought in boxes of 12. I need 140 eggs. How many boxes will I need to buy?

How many boxes will I need if I bought 200 eggs?

What if I bought 175 eggs?

Using Multiplication Facts

Explain how you could use:
63 ÷ 9 = 7

To work out:

126 ÷ 9 =

252 ÷ 7 =

Greater than or less than

Will the answer to the following calculations be greater or less (<, >) than 300?

32 x 7=

78 x 6 =

27 x 12 =

47 x 9 =

Autumn 2: Week 1: Working at greater depth

Multiplication & Division: Recall multiplication and division facts for tables up to 12x12.

Teaching Sequence

- Count in 6s; forward and backwards.
- Recite the x6 tables up to x12, without error.
- Answer any calculation involving x6, out of order.
- Know that 2x6 is the same as 6x2 etc.
- Answer any calculation involving ÷6, out of order.
- Count in 7s; forward and backwards.
- Recite the x7 table up to x12, without error.
- Answer any calculation involving x7, out of order.
- Know that 3x7 is the same as 7x3 etc.
- Answer any calculation involving ÷7, out of order.
- Count in 9s; forward and backwards.
- Recite the x9 table up to x12, without error.
- Answer any calculation involving x9, out of order.
- Know that 4x9 is the same as 9x4 etc.
- Answer any calculation involving ÷9, out of order.
- Recall multiplication facts for all tables up to 12x12 out of order
- Recall division facts for all tables up to 12x12 out of order

Activities for pupils working at greater depth:

Sticker Mad

2 friends have exactly the same number of stickers.
Jacqui has 3 full sheets and 4 loose stickers.
Hamid has 2 full sheets and 12 loose stickers.
Every full sheet has the same number of stickers.
How many stickers in each full sheet?

Sandcastle Building

In 5 days Ariana built 80 sandcastles.
Each day she made 4 fewer sandcastles than she built the day before.
How many sandcastles did she build on each day.

Day 1	
Day 2	
Day 3	
Day 4	
Day 5	

Henry has played for the school team six times more than Dan. They have played for the school team 49 times altogether.
How often has Henry played and how often has Dan played?

Sally has collected eight times as many merit stickers as Abdul.
Altogether they have 81 merit stickers.
How many has Sally and how many has Abdul?

Multiply a number by itself.
Now make one of the factors larger by one and the other factor smaller by one.
Look at what happens:

6 x 6 = 36 10 x 10 = 100
5 X 7 = 35 9 x 11 = 99

Does this happen for all cases?
Check and find out.

Autumn 2: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Recall multiplication and division facts for tables up to 12x12.	Me	My Teacher
Do you know the inverse of all table facts involving 6, 7, 9, 11 and 12x table, eg, how many 7s in 63?		
Can you recall all number facts for the 6, 7, 9, 11 and 12x table out of sequence?		
Can you recite all multiplication facts for the x12 table?		
Can you recite all multiplication facts for the x7 table?		
Can you recite all multiplication facts for the x11 table?		
Can you recite all multiplication facts for the x9 table?		
Can you recite all multiplication facts for the x6 table?		
Can you recite all multiplication facts for the x2; x3; x4; x5; x8 tables?		

Year 4: Autumn 2

Week 2: Multiplication & Division

Recognise and use factor pairs and commutativity in mental calculations.

Autumn 2: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 2: Week 2
Objective: Multiplication & Division	Recognise and use factor pairs and commutativity in mental calculations.

Write down the factor pairs that make up these numbers			***Write down the square of each of the numbers below***		
42			7		
55			8		
80			9		
63			10		
77			6		
49			5		
110			4		
144			11		

Autumn 2: Week 2: Practice and Consolidation

Multiplication & Division: Recognise and use factor pairs and commutativity in mental calculations.

Teaching Sequence

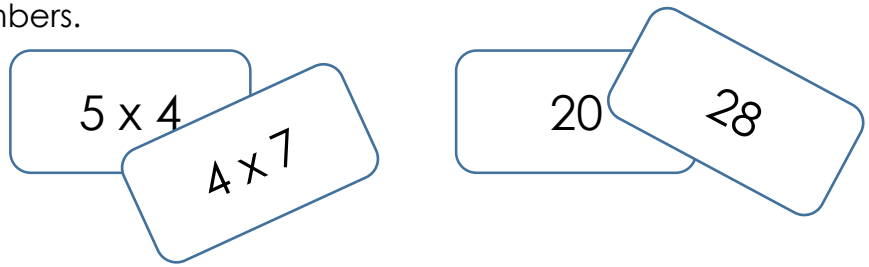
- Explain the term 'factor pair'.
- Know all the factors within all numbers to 10.
- Work out all the factors of any number to 144.
- Know the term 'square number' and recall all square numbers associated with numbers 1 – 144.

Oral and Mental Activities: Examples:

- Introduce the term square as it relates to square numbers. Also, introduce the symbol (^{2}).
- Use the term 'factor pair' with pupils and get them to rapidly recall a few factor pairs.
- Play a game of rapid recall using numbers between 1 and 144. Show a number and the pupils have to think of a factor pair.
- Similarly, show the factor pair and the pupils have to think of the number.
- Practise x tables for all numbers up to 12; practise them out of order; and, practise inverses.
- Introduce the term 'commutative' and explain it.

Pencil and Paper Activities Examples:

Create a set of cards.
Some will have factor pairs and others will have answers.
Play a game where you match the factor pairs to the numbers.



The following numbers are the square of which number.

25 36 49 9 4 100 64 81

Find the factor pair for the following numbers:

45 72 66 90 85 28 36 44

How many of the above numbers have more than one factor pair?

How many 7s in 49?
How many 6s in 30?
How many 9s in 81?
How many 12s in 36?

How many 12s in 84?
How many 4s in 48?
How many 8s in 32?
How many 11s in 77?

Autumn 2: Week 2: Mastering this Objective – Deeper Understanding

Multiplication & Division: Recognise and use factor pairs and commutativity in mental calculations.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Explain the term 'factor pair'. ➢ Know all the factors within all numbers to 10. ➢ Work out all the factors of any number to 144. ➢ Know the term 'square number' and recall all square numbers associated with numbers 1 – 144.	Explain why it does not matter in which order the factors are when it comes to multiplication. For example: 6 x 7 or 7 X 6 are both 42 However, explain why it does matter when it comes to division. 42 ÷ 7 = 6 is not the same as 7 ÷ 42. Explain this to your friend.	Explain how many ways you could complete the calculations below. □ X □ = 72 □ X □ = 45
	A football team has the option of wearing 5 different tops, 4 different shorts and 3 sets of socks. One shirt is all white, one pair of shorts is white and one pair of socks is also white. • How many possible combinations of kit can they choose for any match? • If they had to wear the white shorts how many combinations can they now wear? • If they are not allowed to wear white shirts; white shorts or white socks, how many combinations are they able to choose from?	Use the inverse to check if the following calculations are correct: 23 x 6 = 138 117 ÷ 9 = 14 34 x 8 = 272 567 ÷ 9 = 63

Autumn 2: Week 2: Working at greater depth

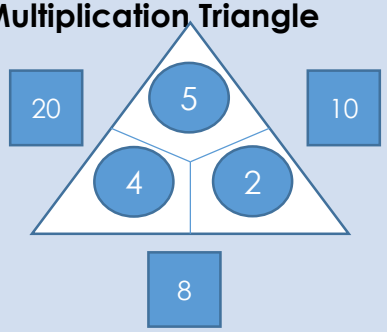
Multiplication & Division: Recognise and use factor pairs and commutativity in mental calculations.

Teaching Sequence

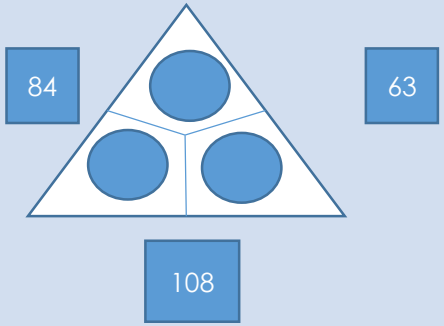
- Explain the term 'factor pair'.
- Know all the factors within all numbers to 10.
- Work out all the factors of any number to 144.
- Know the term 'square number' and recall all square numbers associated with numbers 1 – 144.

Activities for pupils working at greater depth:

Multiplication Triangle



Look at the example above.
With the information provided complete the triangle below,



Create your own multiplication or division triangle for your friend to complete.

You have 2 dice. 1 is numbered 1 to 6 and the second is numbered -1 to -6.

When throwing 2 dice the numbers when multiplied made -12. What were the two possible numbers you could have?

When throwing 2 dice the numbers when multiplied made -15. How many pairs of numbers could there have been? What are they?

Place a <; >; or a = to ensure these statements are correct.

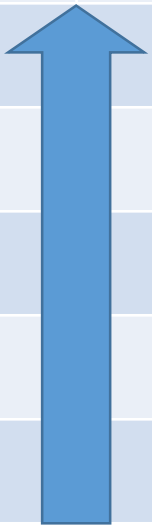
7 x 30		30 x 7
7 x 30		70 x 3
150 x 4		40 x 15

Explain your reasoning

Autumn 2: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Recognise and use factor pairs and commutativity in mental calculations.	Me	My Teacher
Do you Know the term 'square number' and know all the square numbers associated with numbers 1 to 144 ?		
Can you work out all the factors within any number up to 144?		
Do you know all the factors within all numbers to 10 for numbers associated with x6; x7; x8; x9; x11 and x12?		
Do you know all the factors within all numbers to 10 for numbers associated with x2; x3; x4; x5 and x10?		
Do you know the term 'prime factor' and what it means?		



Year 4: Autumn 2

Week 3: Multiplication & Division

Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

Autumn 2: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 2: Week 3
Objective: Multiplication & Division	Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

25 x 6	75 x 7		26 x 9	56 x 7	
137 x 8	429 x 9		257 x 8	290 x 6	
320 x 10	167 x 11		269 x 10	365 x 11	

Autumn 2: Week 3: Practice and Consolidation

Multiplication & Division: Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x. ➢ Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x. ➢ Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.	• Remind pupils about multiplying by 10 and show what happens when you multiply by 100. • Create a quick fire answer system to multiplying by 100. • Show a card with a single or two-digit number on and get pupils to multiply number by 100 and to respond as quickly as possible. • Set out, using the columnar system, a multiplication of a 2-digit number by x2; x3; x4; x5; x6; x7; x8; or x9 • Move on to demonstrate the multiplication of a 3-digit number by a single digit.	Multiply the following numbers by 10: 67 23 156 89 256 12 489 236 452 Multiply the following numbers by 100: 12 231 476 76 239 100 123 360 147 89 Ensure that the following are completed using the columnar method of multiplication. 23 x 9 123 x 7 237 x 6 167 x9 356 x 7 401 x 9 602 x 8 154 x 7 157 x 10 126 x 11 125 x 12 327 x 11 **Card Game** Make up 25 cards with 2 and 3-digit numbers on them. Show your friend one at a time and see how quickly s/he can multiply by 10 or multiply by 100. Time him or her for one minute and see how many they get right. Then swap places.

Autumn 2: Week 3: Mastering this Objective – Deeper Understanding

Multiplication & Division: Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

Teaching Sequence

- Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x.
- Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.
- Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.

If pupils have mastered this objective they will be able to complete these activities independently:

Complete these by using the columnar method of multiplication:

562 x 8	765 x 9	892 x 7
483 x 6	284 x 8	501 x 9

Find the missing digit:

6 ☐ x 7 = 483

58 ☐ x 8 = 4,648

2 ☐ 9 x 9 = 2,151

6 ☐ 4 x 5 = 3270

How close can you get?

☐☐☐ X 7

Using the digits 3, 4 and 6 in the calculation above, how close can you get to 4500?

What is the largest product you can make?

What is the smallest product you can make?

Put the cards into the correct place in the table.

5 x 7	8x 3	10 x 2	9 x 6
11 x 5	7 x 7	5 x 7	8 x 4

Less than 40	Between 40 and 50	More than 50

Autumn 2: Week 3: Working at greater depth

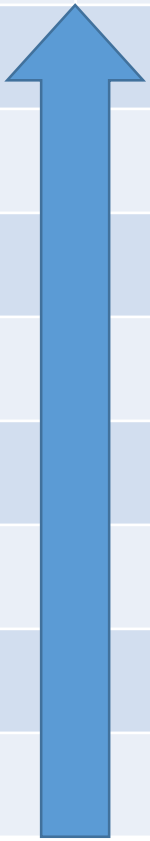
Multiplication & Division: Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x. ➢ Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x. ➢ Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.	**Electric Bill** The electric bill for a house was £875 per year. However, after putting in energy saving bulbs the bill was reduced to £58 per month. • Work out how much the electricity bill now is. • Find out how much money they saved on the electric after switching to energy saving bulbs.	**Sum and the Product** The sum of two numbers is 32 and their product is 192. What are the two numbers? The sum of two numbers is 23 and their product is 112. What are the two numbers?
	Football Stickers Aleem has 8 times more football stickers than Jo. Together they have 81. How many stickers does each one have? Explain how you reasoned this out. Now try this one: Harry has 4 times more marbles than Jill. Together they have 55 marbles. How many has each got?	**Monthly payments** A mother decided to pay £75 each month towards all her Christmas presents. At the end of the year she was told that she had saved £60 too much. How much did all her Christmas presents cost? How much could she have paid each month so that she had the right amount?

Autumn 2: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.	Me	My Teacher
Can you multiply a 3-digit number by x10; x11 and x12 using formal layout?		
Can you multiply a 3-digit number by all single digit numbers using formal layout?		
Can you multiply a 2-digit number by x10; x11 and x12 using formal layout?		
Can you multiply a 2-digit number by all single digit numbers using formal layout?		
Can you multiply a multiple of 100 by x10; x11 and x12?		
Can you multiply a multiple of 100 by all single digit numbers?		
Can you multiply a 2-digit number by 100?		
Can you multiply a 2-digit number by 10?		



Year 4: Autumn 2

Week 4: Measures: Perimeter

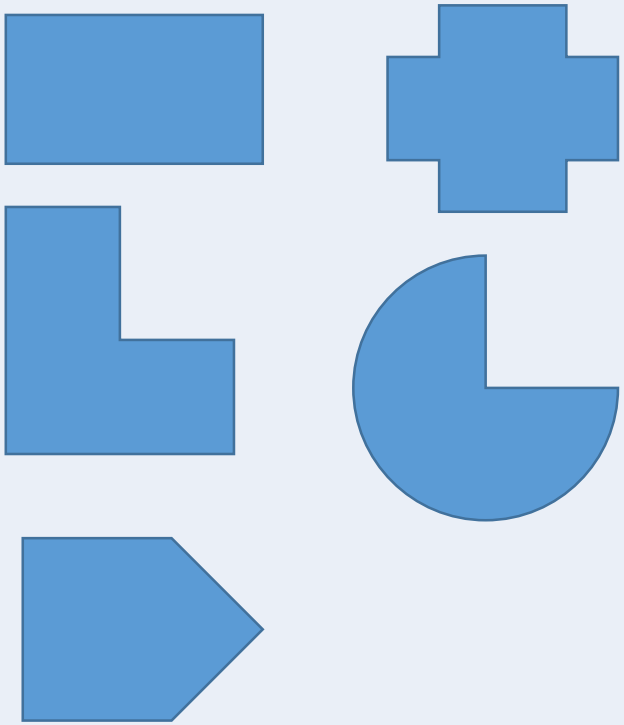
Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.

Autumn 2: Week 4: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 2: Week 4
Objective: Measures	**Perimeter:** Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.

Draw a line around the perimeter of these shapes:



What is the perimeter of these shapes?

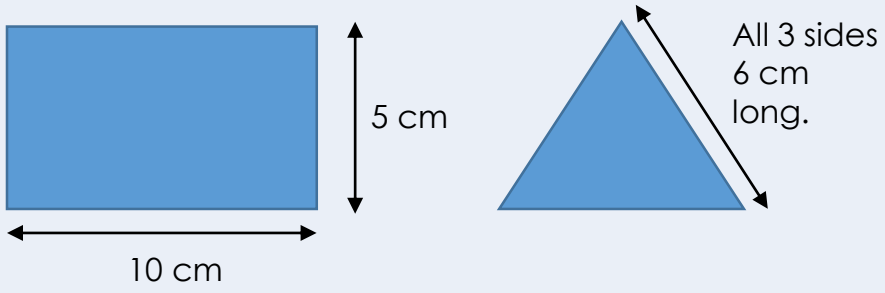
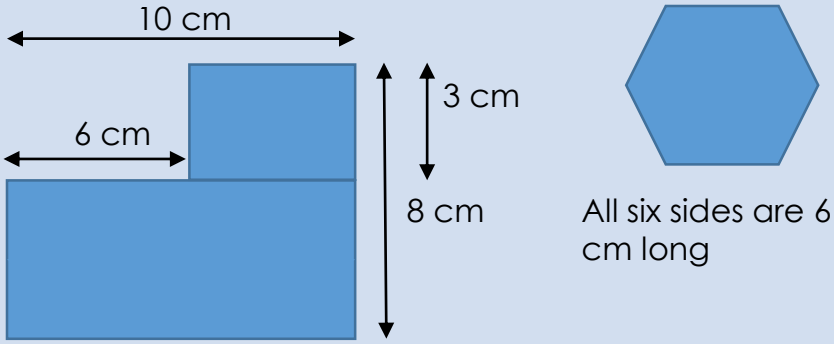
10 x 5 cm rectangle

10 x 5 cm rectangle

12 x 3 cm rectangle

Autumn 2: Week 4: Practice and Consolidation

Measures: Perimeter: Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Know the formula for calculating perimeter of a rectangle (2 x length plus 2 x breadth) ➢ Know that perimeter of irregular shape can be calculated by adding length of each individual side together	• Go outside onto the school playground or field and show pupils what the perimeter is. • Allow pupils the opportunity to estimate what the perimeter is before they actually measure. • Show pupils regular shapes and again emphasise what the perimeter is. • Explain how you could build in a formula for rectangles and squares. • Pupils need to measure accurately to enable them to find the perimeter of given shapes.	Describe what a perimeter is to your friend and check that you both agree that the description is accurate. Find the perimeter of the following shapes:  

Autumn 2: Week 4: Mastering this Objective – Deeper Understanding

Measures: Perimeter: Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.

Teaching Sequence

- Know the formula for calculating perimeter of a rectangle (2 x length plus 2 x breadth)
- Know that perimeter of irregular shape can be calculated by adding length of each individual side together

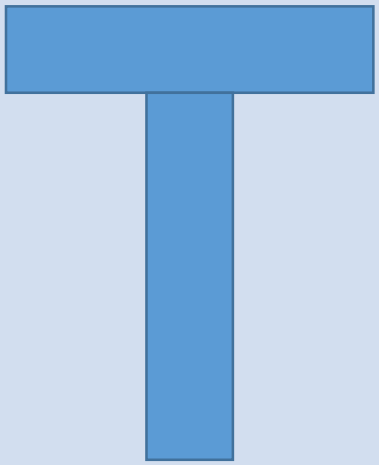
If pupils have mastered this objective they will be able to complete these activities independently:

Different possibilities

The perimeter of a rectangular field is 225 metres.
What could the length and breadth of the field be?
Think of at least three possibilities.

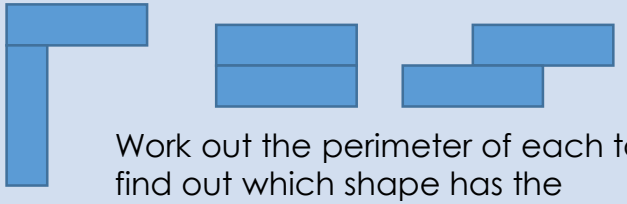
What about if the perimeter was 175 metres?

If the perimeter of a 4 x 6 cm brick is 20 cm does the perimeter double if you put another brick on top of the first; and does it triple when you add another brick on top of that one?
Explain your reasoning.



This T shape is made up of 2 rectangles of the same size. The rectangles measure 10 cm long and 2 cm wide. Firstly, draw around the perimeter of the T shape.

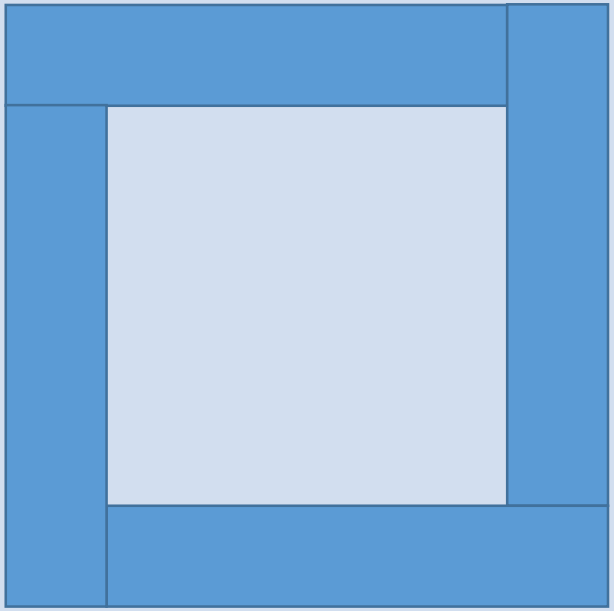
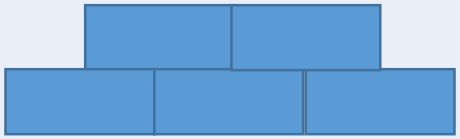
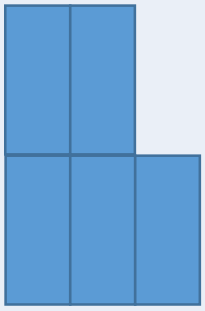
What does the perimeter measure?
If the same two rectangles were organised into the shapes below would the perimeter be the same?



Work out the perimeter of each to find out which shape has the greatest perimeter.

Autumn 2: Week 4: Working at greater depth

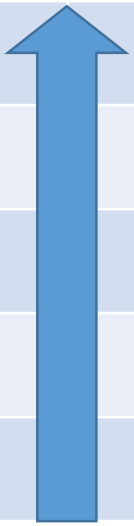
Measures: Perimeter: Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Know the formula for calculating perimeter of a rectangle (2 x length plus 2 x breadth) ➢ Know that perimeter of irregular shape can be calculated by adding length of each individual side together	The width of a rectangle is 3 metres less than the length. The perimeter is between 20 and 30 metres. What could the dimensions of the rectangle be? Explain your reasoning.	The shape below is made up of four rectangles. The length is four times as long as the width. The length of each rectangle is 1.6 metres. What is the perimeter of the square on the inside?  Create similar shapes and provide enough information for your friends to find the perimeter of part of the shape.
	Put five bricks together in such a way so as to maximise the perimeter of the shape you have created. Each brick measures 30 cm x 10 cm Two examples have been done for you.   Work out the perimeter of each shape you have created.	

Autumn 2: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Measures: Perimeter: Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.	Me	My Teacher
Can you use your knowledge of perimeters to work out problems related to different shapes?		
Can you work out the perimeter of two rectangles placed side by side to create an irregular shape?		
Can you use a formula for working out the perimeter of a rectangle when given the dimensions?		
Can you identify the perimeter of a given shape and mark it carefully?		
Can you describe the term 'perimeter'?		



Year 4: Autumn 2

Week 5: Statistics

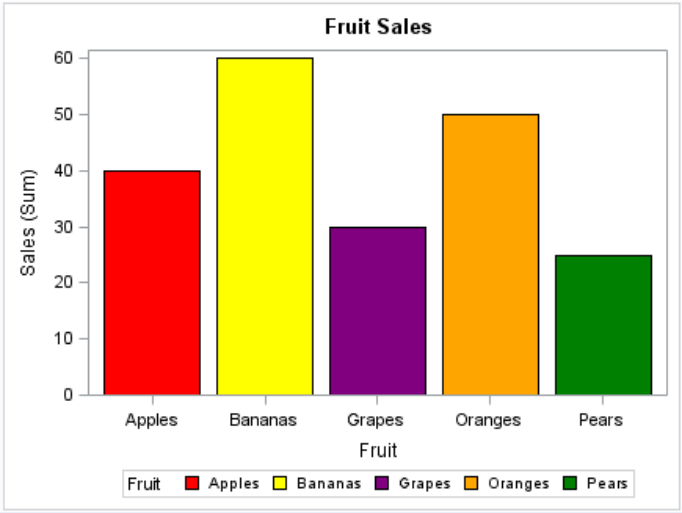
Interpret and present discrete and continuous data using appropriate graphical methods, including:

- **bar charts**
- **time graphs**

Autumn 2: Week 5: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

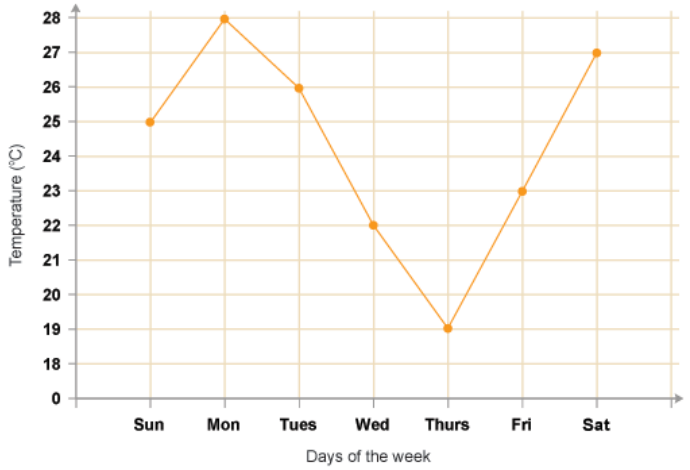
Name	Autumn 2: Week 5
Objective: Statistics	Interpret and present discrete and continuous data using appropriate graphical methods, including: - bar charts - time graphs



This bar chart tells you how many people bought the fruit shown during one day.
How many people bought bananas?

How many people bought apples?

How many more people bought bananas rather than grapes?



This time graph shows the temperature during a week in the summer.

Why do we know that this was a week in the summer and not winter?

What is the difference between the hottest and coolest day?

Autumn 2: Week 5: Practice and Consolidation

Statistics: Interpret and present discrete and continuous data using appropriate graphical methods, including:
- bar charts
- time graphs

Teaching Sequence

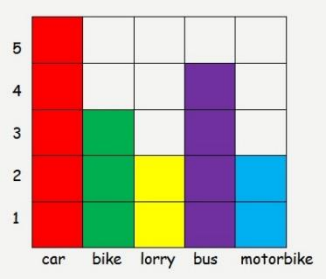
- 'Tell the story' of a bar chart with no scales on the axes
- 'Tell the story' of a bar chart with scales on the axes
- 'Tell the story' of a time graph with no scales on the axes
- 'Tell the story' of a time graph with scales on the axes
- Construct a bar chart with correct labelling of both axes
- Plot information on a time graph

Oral and Mental Activities: Examples:

- Use information collected from the pupils to create a bar chart where there are no scales on the axes.
- Physically create the bar chart with the pupils reminding them of key issues associated with the axes.
- Move on to create another bar chart with the same information but this time introducing scales on the axes.
- Emphasise that a bar chart should tell a story.
- Pupils should aim to create their own bar chart using information they have collected on their own
- Consider a time graph.
- Read and interpret a time graph before moving on to create their own time graph using information provided for them.
- Tell the story of the time graph.

Pencil and Paper Activities Examples:

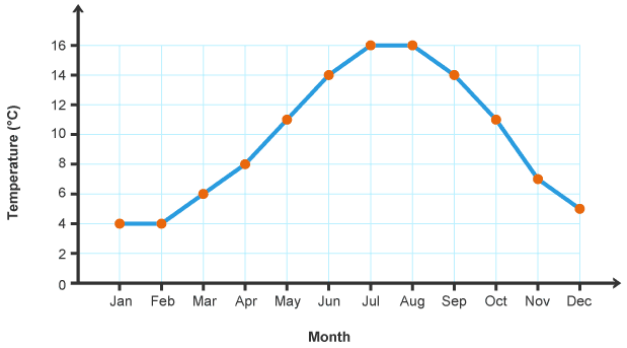
Remind pupils of simple bar charts, such as the one below about favourite transport



Make up questions related to the bar chart

Collect information about pupils in the class. It can be related to something that is their favourite or their height, weight, shoe size, etc.

Create a bar chart with no scale on the axes and one with a scale on the axes.



Think of two other questions you could ask your friend.

Look at the time graph above.
It shows the average temperature in the UK during the year.

In which two months is the temperature at its highest?
In which two months is the average temperature 14°C?

Autumn 2: Week 5: Mastering this Objective – Deeper Understanding

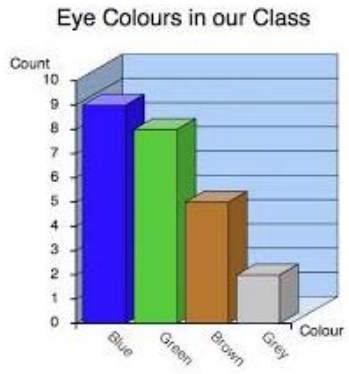
Statistics: Interpret and present discrete and continuous data using appropriate graphical methods, including:

- bar charts
- time graphs

Teaching Sequence

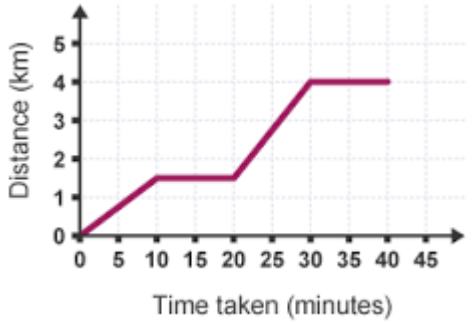
- 'Tell the story' of a bar chart with no scales on the axes
- 'Tell the story' of a bar chart with scales on the axes
- 'Tell the story' of a time graph with no scales on the axes
- 'Tell the story' of a time graph with scales on the axes
- Construct a bar chart with correct labelling of both axes
- Plot information on a time graph

If pupils have mastered this objective they will be able to complete these activities independently:



Give 3 pieces of information you have learnt about this bar chart.

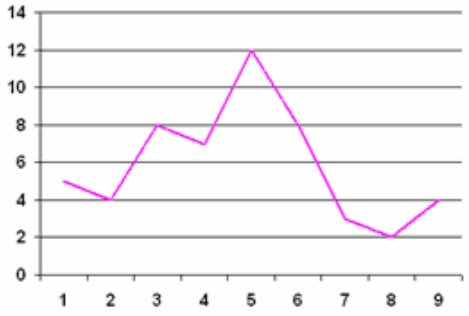
Create your own bar chart based on either eye or hair colour in relation to your class.



Use the time graph to ask some other questions related to the walk.

This time graph records the distance Harry walked over a 35 minute period.
Why do you think the distance walked is the same after 30 as well as 40 minutes?

Create a bar chart about the amount of weekly pocket money you and your friends have.
Decide how best to present the information, including the use of appropriate scales.
After creating the bar chart, what information have you learnt about you and your friends' pocket money?
Now create a bar chart about an interesting topic you want to know more about.



Look at the graph to the left.
Work out what this graph could be and provide a plausible explanation to go with it.

Don't forget there is no right or wrong answer to this problem.

Autumn 2: Week 5: Working at greater depth

Statistics: Interpret and present discrete and continuous data using appropriate graphical methods, including:

- bar charts
- time graphs

Teaching Sequence

- 'Tell the story' of a bar chart with no scales on the axes
- 'Tell the story' of a bar chart with scales on the axes
- 'Tell the story' of a time graph with no scales on the axes
- 'Tell the story' of a time graph with scales on the axes
- Construct a bar chart with correct labelling of both axes
- Plot information on a time graph

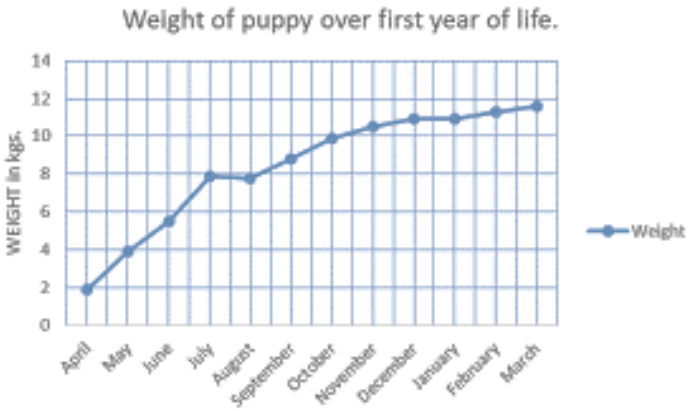
Activities for pupils working at greater depth:

Time (minutes)	Temperature (°C)
0	16
1	23
2	32
3	43
4	54
5	60
6	68
7	75
8	80
9	86
10	91

Look at the table. Make up a story that fits the table.

Present the same information in the form of a time graph.

Create your own time graph which records the number of words you will have written in 10 minutes.
Record the number of words written after each minute. You may need a friend to help you.
After creating your time graph is there anything you have learnt about your stamina for writing?



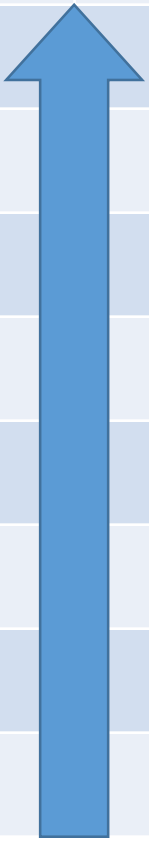
Look at the time graph above.
Using the graph to tell a story, think of five pieces of information you have learnt about this puppy by studying the graph.

Think of three questions you could ask your friends about the graph.

Autumn 2: Week 5: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Statistics: Interpret and present discrete and continuous data using appropriate graphical methods, including: - bar charts - time graphs	Me	My Teacher
Can you collect information and present it in the form of a time graph?		
Can you collect information and present it in the form of a bar chart?		
Can you read and interpret a time graph which has scales on the axes?		
Can you 'tell a story' when reading a time graph?		
Can you read and interpret a time graph which has no scales on the axes?		
Can you read a bar chart which has scales on the axes?		
Can you 'tell a story' when reading a bar chart?		
Can you read and interpret a bar chart which has no scales on the axes?		



Year 4: Autumn 2

Week 6: Consolidate and Assess

- Start this week by revising the learning covered in the Autumn term so as to ensure pupils are fluent and secure with their basic skills.
- Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn term.
- Analyse the results and use information to help focus the intervention and pre-teaching sessions, as needed, for the following term.

Year 4: Autumn 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s
- Count on/back in multiples of 6 and 9 from 0
- Recall the 2, 3, 4, 5, 6, 7, 8, 9 and 10 times tables and the derived division facts
- Count on/back in 25s, 50s, 100s from 0 to 5000 and in 1000s from 0 to 10,000 and beyond
- Find 10/100/1000 more or less than a given number beyond 1000
- Read and write all numbers to at least 10,000 in both numerals and words
- Order a set of numbers (4 and/or 5) to 10,000 and beyond in increasing and decreasing value
- Compare numbers up to 10,000 and beyond using =, <, > symbols
- Round numbers up to 10,000 to the nearest 10, 100 or 1000
- Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places
- Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers
- Count on/back in ½s , ¼s , $^1/_3$s , $^1/_{10}$s and other unit fractions including on a number line
- Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000)

- Although practise and consolidation should be on-going through each half term, during Week 6 there should be greater opportunity taken to check pupils' learning and understanding.
- Summative and Formative assessment procedures should help teachers gain a clear picture as to which pupils are at different stages, including mastery and greater depth.

YEAR 4 : SPRING 1: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
3 Place Value Roman Numerals	**1 Fractions**	**2 Fractions**	**2 Geometry Position and Direction**	**3 Measures Area**	**4 Multiplication & Division**
Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.	Recognise and show, using diagrams, families of common equivalent fractions.	Add and subtract fractions with the same denominator.	Describe positions on a 2D grid as coordinates in the first quadrant	Find the area of rectilinear shapes by counting squares.	Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.
➢ Read Roman numerals from 1 to 10 ➢ Read Roman numerals to 50 ➢ Read Roman numerals to 100 ➢ Write Roman numerals from 1 to 10 ➢ Write Roman numerals to 50 ➢ Write Roman numerals to 100	➢ Know all equivalent fractions of 1/2 up to and including the denominator 12 ➢ Know all equivalent fractions of 1/4 up to and including the denominator 12 ➢ Know all equivalent fractions of ¾ up to and including the denominator 12 ➢ Know all equivalent fractions of 1/3 up to and including the denominator 12 ➢ Know all equivalent fractions of 2/3 up to and including the denominator 12	➢ Add two fractions with the same denominator that add up to more than one whole. ➢ Subtract one fraction from another with the same denominator crossing one whole.	➢ Read coordinates using both axes ➢ Plot points using both axes ➢ Answer questions involving coordinates ➢ Create shapes by plotting points in first quadrant	➢ Count squares to identify the area of a shape. ➢ Draw shapes of a given size, e.g. 20 squares. ➢ Introduce the term square centimetre/c m^2 ➢ Use the formula for calculating the area of a rectilinear shape (l x b)	➢ Divide a multiple of 10 by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.

Year 4: Spring 1

Week 1:

Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.

Spring 1: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 1
Objective: Place Value	Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.

Write these Roman Numerals in TU			Write these TU numbers as Roman Numerals		
LX			36		
XXX111			70		
LXX11			59		
1X			88		

Spring 1: Week 1: Practice and Consolidation

Place Value: Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.

Teaching Sequence	Oral and Mental Activities: Examples	Pencil and Paper Activities Examples:
➢ Read Roman numerals from 1 to 10 ➢ Read Roman numerals to 50 ➢ Read Roman numerals to 100 ➢ Write Roman numerals from 1 to 10 ➢ Write Roman numerals to 50 ➢ Write Roman numerals to 100	• Although the construct is specifically about Roman Numbers it would be healthy to have a look at different systems including Ancient Egyptian and Arabic. • Pupils will need to remember the key letters of V; X; L and C as in 5; 10; 50 and 100. • They will also need to be taught how the one or ten number preceding the letters will be in front of the new letter, eg, 1V; 1X; XL and XC.	Make a chart showing the following Roman Numerals: 1 to 10 (1 to X) All 10 numbers between 10 and 100 (X to C) All 5 numbers from 5 to 100 (V to C) Take a set of 25 cards with a set of assorted Roman Numerals between 1 and 100 on them. Have a second set of 25 cards with the corresponding TU numbers on them. Play a game of snap with doubles so as to help remember the equivalent Roman Numerals. Write down the Roman Numeral equivalent to these numbers: 6 16 26 36 46 56 66 76 4 14 24 34 44 54 64 74 Write down the TU number equivalent to these Roman Numerals: V11 XX11 LXX LXX111 LV C

Spring 1: Week 1: Mastering this Objective – Deeper Understanding

Place Value: Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.

Teaching Sequence

- Read Roman numerals from 1 to 10
- Read Roman numerals to 50
- Read Roman numerals to 100
- Write Roman numerals from 1 to 10
- Write Roman numerals to 50
- Write Roman numerals to 100

If pupils have mastered this objective they will be able to complete these activities independently:

Complete the following tables:

Roman	TU
XX11	
	23
LX	
	9
LV11	
	77
C	

Roman	TU
	16
XX1V	
	46
XXV11	
	88
LXX11	

Put these Roman Numerals in order with the lowest value first.

1 XXX111 LX XX1V XXXV11

2 V111 1X 111 XX XX11

3 LXXX11 LXX111 LXX1V LXX

4 XXV111 XXV1 XXX111 XL

Write the answers in Roman Numerals and in TU:

- What is X11 more than XX11?
- What XX less than L?
- What is XV11 more than LX?
- What is twice XX11?

Show the Roman Numeral that comes next in these sequences:

111; 1V; V; V1; _____; _____

XX11; XX1V; XXV1; _____; _____

LX; LXV; LXX; LXXV; _____; _____

Spring 1: Week 1: Working at greater depth

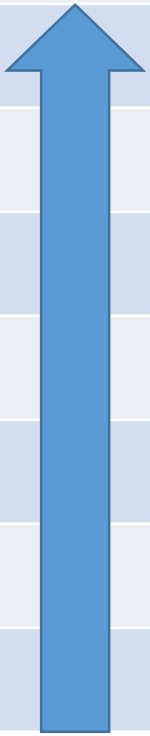
Place Value: Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Read Roman numerals from 1 to 10 ➢ Read Roman numerals to 50 ➢ Read Roman numerals to 100 ➢ Write Roman numerals from 1 to 10 ➢ Write Roman numerals to 50 ➢ Write Roman numerals to 100	Add and subtract the following Roman Numerals and give answers as both Roman and TU numbers. XXV + XX11 LX – XX1V LX + XXV1 C – LXX11 XXV11 + XXXV111 LXX – V111	The sum of two Roman Numbers is LXXV. One of the two Roman Numbers is 10 greater than the other. Write out the two numbers in Roman numerals. The product of two Roman numbers is XX1V. One of the two numbers is11 less than V. What are the two numbers?
	Look at the following Roman Numerals: X X V L 1 1 1 X X Make the largest number you can using as many of these Roman Numerals as you can. Now make the smallest number you can using at least 5 of the symbols shown.	Create a new numeral system. You will need to have symbols for the following: 1 5 10 50 100 500 Explain your system to your friends and make sure it stands up to the scrutiny of your friends. When are you satisfied it works set a few problems for your friends.

Spring 1: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value: Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.	Me	My Teacher
Can you create your own number system based on what you know about our system and the Roman system?		
Can you quickly find the equivalent TU value for all Roman Numerals between 1 and 100?		
Can you write any Roman Numeral between 1 and 100?		
Can you immediately say what the Roman Numeral is for 50 and 100?		
Do you know the Roman Numeral equivalent for all ten numbers between 10 and 100?		
Can you quickly find the equivalent TU value for all Roman Numerals between 1 and 10?		
Do you know and recognise all Roman Numerals with values of 1 to 10 (1 to X)?		



Year 4: Spring 1

Week 2: Fractions

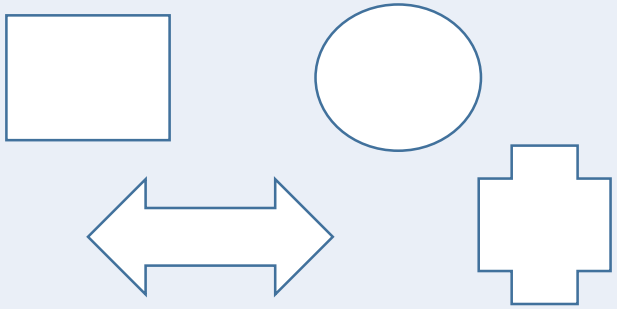
Recognise and show, using diagrams, families of common equivalent fractions

Spring 1: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 2
Objective: Fractions	Recognise and show, using diagrams, families of common equivalent fractions

Colour ¼ of these shapes:



Three of the six parts of the bar below is coloured in.

The fraction could be written as 3/6th . Is there another way of showing the fraction that's coloured in?

Continue the patterns:

¼…….½……..  ……. 1

⅛ …….2/8th ……  ……4/8th

Think of ½, write the equivalent fractions with the denominators shown below.

$\frac{1}{2}$  4 6 8 10

Spring 1: Week 2: Practice and Consolidation

Fractions: Recognise and show, using diagrams, families of common equivalent fractions

Teaching Sequence

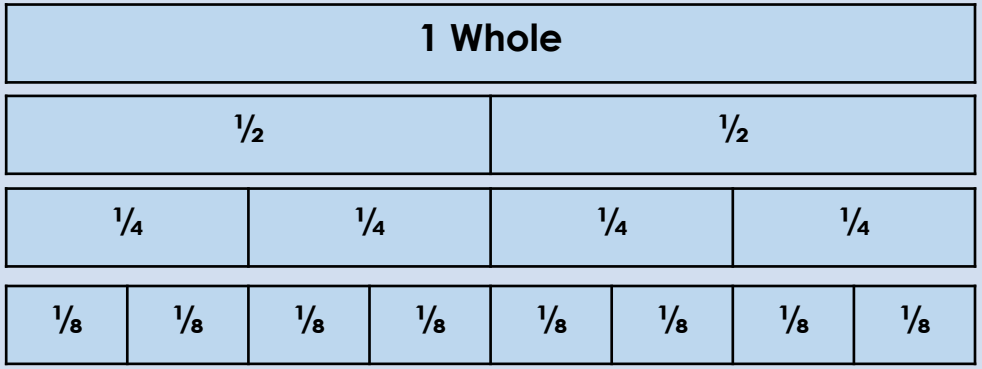
- Know all equivalent fractions of 1/2 up to and including the denominator 12
- Know all equivalent fractions of 1/4 up to and including the denominator 12
- Know all equivalent fractions of ¾ up to and including the denominator 12
- Know all equivalent fractions of 1/3 up to and including the denominator 12
- Know all equivalent fractions of 2/3 up to and including the denominator 12

Oral and Mental Activities: Examples:

- Use metre sticks that have been divided into 2; 4; and 8 and show how ½ on one is the same as 2/4 and 4/8 on the other two.
- Now do the same with divisions of 3; 6; 9; and 12.
- Take pupils through the number of ways that ½ could be shown, and the ¼ and then ⅛.
- Take pupils through the idea that if the denominator is twice the numerator then the fraction is equivalent to ½. If the denominator is four times the numerator then the fraction is equivalent of a ¼, etc.

Pencil and Paper Activities Examples:

Look at the following fraction bars:



This shows that 1 whole is equivalent to 2 x ½; 4 x ¼; or 8 x ⅛
So if you took ½ it could be written as 2/4 or 4/8.
Create the same bar for the 10th group (showing ½; 1/5th and 1/10th; and then the 12th group (showing ½; 1/6th and 1/12th)

Complete the following family equivalents:

$\frac{1}{2} = \frac{2}{\square} = \frac{4}{\square} = \frac{8}{\square}$

$\frac{1}{3} = \frac{2}{\square} = \frac{3}{\square} = \frac{4}{\square}$

Now you have the hang of it do the same for ¼ family and then the ¾ family.

Spring 1: Week 2: Mastering this Objective – Deeper Understanding

Fractions: Recognise and show, using diagrams, families of common equivalent fractions

Teaching Sequence

- Know all equivalent fractions of 1/2 up to and including the denominator 12
- Know all equivalent fractions of 1/4 up to and including the denominator 12
- Know all equivalent fractions of ¾ up to and including the denominator 12
- Know all equivalent fractions of 1/3 up to and including the denominator 12
- Know all equivalent fractions of 2/3 up to and including the denominator 12
- Know all equivalent fractions of 1/8 up to and including the denominator 24
- Know all equivalent fractions of 1/5 up to and including the denominator 20

If pupils have mastered this objective they will be able to complete these activities independently:

The picture below represents ⅜th of the full rectangle. Draw the full rectangle.
Do it in 2 different ways:

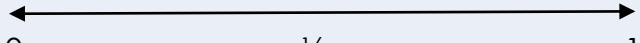
The picture below represents 2/9th of a square. Draw the full square

Shade in 1/3 of this bar:

Shade in ¾ of this bar:

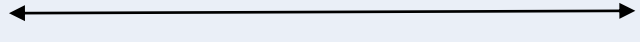
Shade in ⅜ of this bar:

Look at the number line below:



Place ¼; ⅜ and 1/10th on the line.

Now look at the following number line:



Place ⅛; ⅞ and 1/3 on the number line.

There were 6 oranges in a bowl. Two of the were eaten leaving 4 left.
What fraction was eaten?
Say what fraction was eaten with the number 1 being the numerator.

10 people were in the swimming pool.
4 got out and left 6 swimming.
What fraction of the 10 people stayed in to swim?
Express the fraction, using your knowledge of equivalence, so that the numerator is as small as it can be.

Spring 1: Week 2: Working at greater depth

Fractions: Recognise and show, using diagrams, families of common equivalent fractions

Teaching Sequence

- Know all equivalent fractions of 1/2 up to and including the denominator 12
- Know all equivalent fractions of 1/4 up to and including the denominator 12
- Know all equivalent fractions of ¾ up to and including the denominator 12
- Know all equivalent fractions of 1/3 up to and including the denominator 12
- Know all equivalent fractions of 2/3 up to and including the denominator 12
- Know all equivalent fractions of 1/8 up to and including the denominator 24
- Know all equivalent fractions of 1/5 up to and including the denominator 20

Activities for pupils working at greater depth:

Patterns

$1/12^{th} + 11/12^{th} = 1$
$2/12^{th} + 10/12^{th} = 1$
$3/12^{th} + 9/12^{th} = 1$
Continue this pattern.

Continue these other patterns whose first line is given to you:
$1/9^{th} + 8/9^{th} = 1$

$1/7^{th} + 6/7^{th} = 1$

$1/11^{th} + 10/11^{th} = 1$

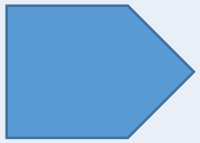
Odd one out

Which is the odd one out in each of these lines?

3/4	9/12	4/6
9/12	10/15	2/3
½	10/20	11/12
2/6	3/8	1/3

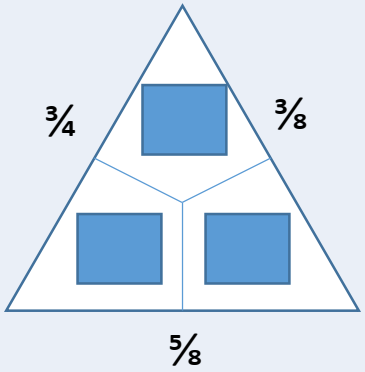
Why?

This picture represents $1/5^{th}$ of a shape. Draw the whole shape. Do so in two different ways.



Now create $1/3^{rd}$ of a shape for your friend to complete.

Complete this addition triangle by putting numbers in the square boxes.



Spring 1: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils books so that they can keep their own checks.

Fractions: Recognise and show, using diagrams, families of common equivalent fractions	Me	My Teacher
Do you know all the equivalent fractions of 1/5 up to and including the denominator 20?		
Do you know all the equivalent fractions of ⅛ up to and including the denominator 24?		
Do you know all the equivalent fractions of ⅔ up to and including the denominator 12?		
Do you know all the equivalent fractions of ⅓ up to and including the denominator 12?		
Do you know all the equivalent fractions of ¾ up to and including the denominator 12?		
Do you know all the equivalent fractions of ¼ up to and including the denominator 12?		
Do you know all the equivalent fractions of ½ up to and including the denominator 12?		

Year 4: Spring 1

Week 3: Fractions

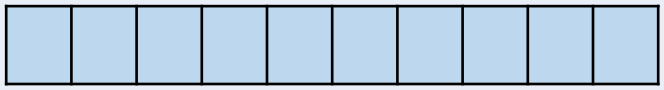
Add and subtract fractions with the same denominator.

Spring 1: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 3
Objective: Fractions:	Add and subtract fractions with the same denominator.

Shade 1/10 of the bar:



Shade 1/6th of the bar:

Shade 2/3rd of the bar:

Use two different colours to show the addition of 1/10th and 3/10th on this bar

$\frac{2}{5} + \frac{3}{5} =$ ☐

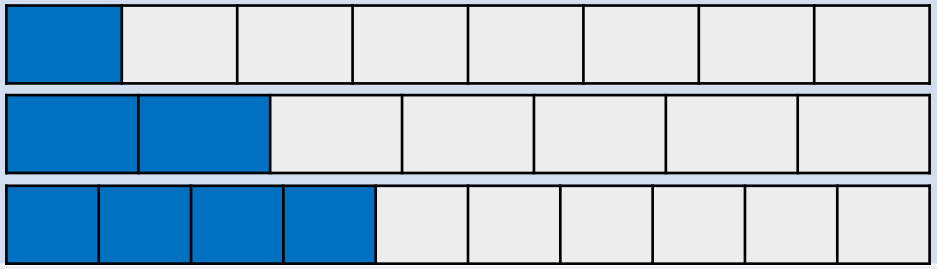
$\frac{7}{9} - \frac{5}{9} =$ ☐

$\frac{3}{10} + \frac{4}{10} =$ ☐

$\frac{9}{10} + \frac{3}{10} =$ ☐

Spring 1: Week 3: Practice and Consolidation

Fractions: Add and subtract fractions with the same denominator.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Add two fractions with the same denominator that add up to more than one whole. ➢ Subtract one fraction from another with the same denominator crossing one whole.	• Remind pupils of the terms numerator and denominator. • Express denominator as 'part of' and remind them that one tenth is one part of 10 equal pieces • Put a set of cards, with fractional values but with same denominator in order. • Make up one whole by adding two fractional vales together with the same denominator, eg, 4/5 + 1/5 • Using fractions with the same denominator get pupils to add two fractional values that come to more than 1 whole.	What fractional value is shaded?  Add these 2 fractions together: $\frac{3}{7} + \frac{4}{7} = \square$ $\frac{5}{8} + \frac{7}{8} = \square$ $\frac{3}{10} + \frac{7}{10} = \square$ Subtract these fractions: $\frac{8}{9} - \frac{2}{9} = \square$ $\frac{5}{6} - \frac{1}{6} = \square$ $\frac{5}{8} - \frac{3}{8} = \square$ If 2/9th of an amount is 20, what is the whole? If 3/5th is 60, what is the whole? If 4/5th is 40, what is the whole? If 1/3rd is 30, what is the whole?

Spring 1: Week 3: Mastering this Objective – Deeper Understanding

Fractions: Add and subtract fractions with the same denominator.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Add two fractions with the same denominator that add up to more than one whole. ➢ Subtract one fraction from another with the same denominator crossing one whole.	**Adding fractions with the same denominator** When adding two fractional amounts with the same denominator together the answer is 1⅞. Give two different examples of what the fractions could have been? If the answer was 2⅜ what could the two fractions have been? Make up another similar problem to give to your friends.	**Here is the answer, what was the question?** You have two fractions with the same denominator. When you subtracted one from the other the answer was 1/10. Give two examples of what the two fractions could have been. If the answer was 1/6, give another two examples of what the fractions could have been.
	Finding answers to equivalent fractions Find 4/6 of 24 and then find 2/3 of 24. What do you notice? Now find 2/10 of 50 and then find 1/5 of 50 Can you explain what you've found? Write any other similar statements.	Complete the table

1/10th	1/20th	1/50th	Make 1 whole
1/10	2/20	5/50	9/10
3/10			
6/10			
7/10			
9/10			

Spring 1: Week 3: Working at greater depth

Fractions: Add and subtract fractions with the same denominator.

Teaching Sequence

- Add two fractions with the same denominator that add up to more than one whole.
- Subtract one fraction from another with the same denominator crossing one whole.

Activities for pupils working at greater depth:

Charity Run

Jayne and Maria decided to run a special race for charity.
The course was 20 Km long.
As part of their training Jayne ran another race which was 2/5th of the charity course and Maria ran in a race which was 4/5th of the charity course.
How far did the two girls run in their training event?

Pocket Money

Dina and Harry both have the same amount of pocket money.
Dina spends 3/5th of hers on musical items and Harry spends 1/5th of his pocket money on sweets.
They have £12 left between them.
Work out how much pocket money each had to start with and how much did each spend on musical items and sweets respectively.

When mixing paint to make purple the paint manufacturer used ¾ as much red as blue, complete the table showing how much red was used with the blue:

Blue	
1 litre	
2 litres	
3 litres	
4 litres	
5 litres	
6 litres	

When making pancakes the baker uses half as much egg mixture as milk. Create another table to show how much egg mixture is used against 1 to 6 litres of milk.

Building a house

A builder mixes cement by putting in 2/7th cement to 5/7th sand.

He mixes 70 litres of the mixture before adding water.
Cement costs £5 a litre and sand costs £2 a litre.
How much does the 70 litres mixture cost?

If the builder needs 210 litres of the mixture to build a house, how much would that cost?

Spring 1: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Fractions: Add and subtract fractions with the same denominator.	Me	My Teacher
Can you answer additions and subtractions of fractional values of the same denominator when presented as word problems?		
Can you add two fractional values of the same denominator where the answer is greater than 1?		
Can you subtract two fractions with the same denominator?		
Can you add two fractions of the same denominator where the answer is less than 1?		
Can you work out what to add to a given fraction of the same denominator to make up 1?		
Do you appreciate that 1/10th is one part of ten and 1/8th is one part of eight, etc.?		

Year 4: Spring 1

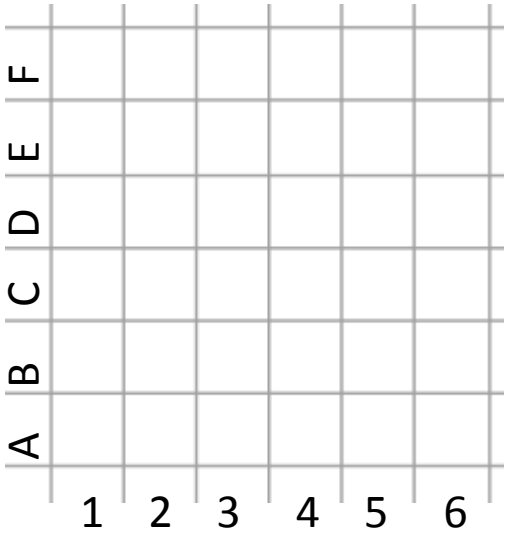
Week 4: Geometry: Position and Direction

Describe positions on a 2D grid as coordinates in the first quadrant.

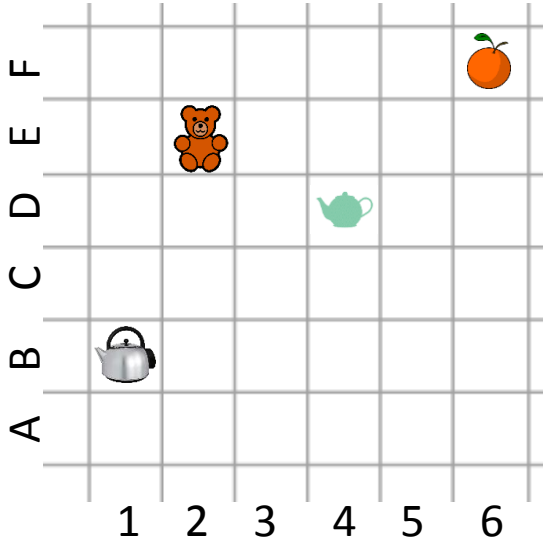
Spring 1: Week 4: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 4
Objective: Geometry	**Position & Direction:** Describe positions on a 2D grid as coordinates in the first quadrant



Put a dot on 2B
Put another dot on 4F
Now join them together
Change colour pen and put two dots on 3C and 5E and join them.



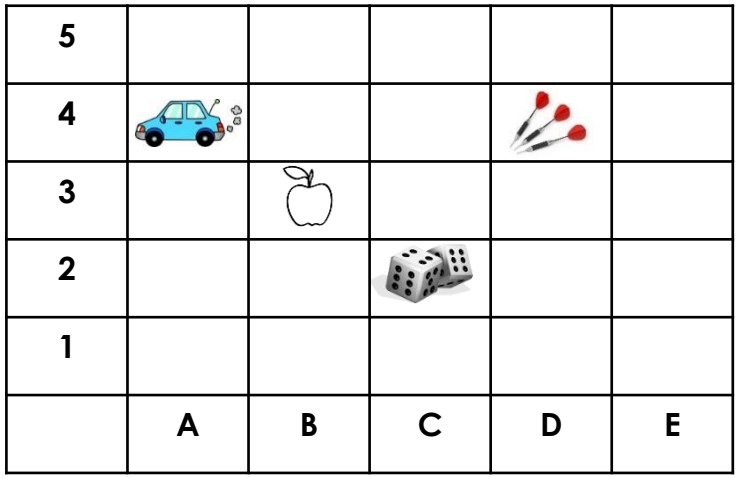
Describe the position of:

- The teddy
- The teapot
- The kettle
- The orange

Spring 1: Week 4: Practice and Consolidation

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant

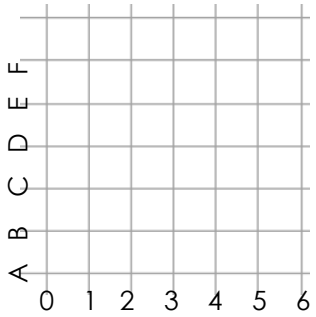
Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Read coordinates using both axes ➢ Plot points using both axes ➢ Answer questions involving coordinates ➢ Create shapes by plotting points in first quadrant	• Start by looking at a chess or draughts board and talk about the positions of each square. • Give names to movements made , eg, up 2 and across left 2, etc. • Look at common children's games such as battleships and others which require pupils to know about co-ordinates. • Let pupils accustom themselves with these games before moving on to look more formally at 2D grids in the first quarter.	



Describe the position of:
- The car
- The apple
- The dice
- The darts

Add at least two more and say what their position is.

Take some squared paper and mark the coordinates as shown below:



Place a triangle on the grid and make a note of the coordinates.
Place a square on the grid and note coordinates
Place a T shape on the grid and note coordinates
Place other capital letters on the grid.

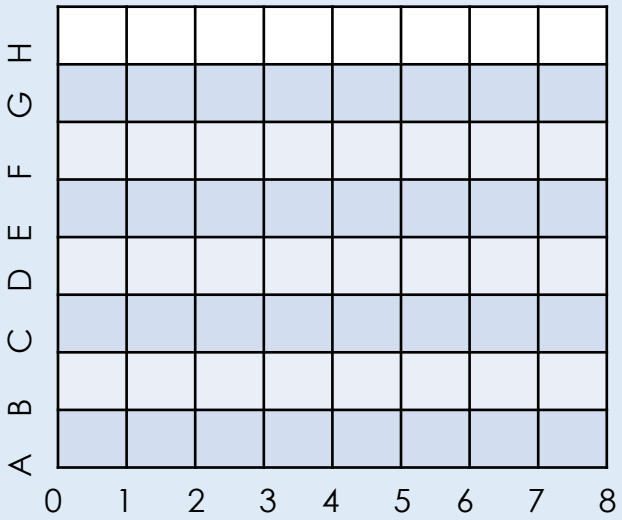
Spring 1: Week 4: Mastering this Objective – Deeper Understanding

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant

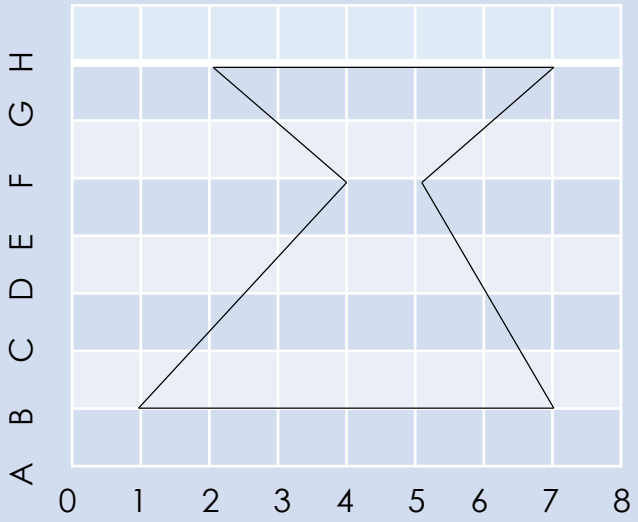
Teaching Sequence

- Read coordinates using both axes
- Plot points using both axes
- Answer questions involving coordinates
- Create shapes by plotting points in first quadrant

If pupils have mastered this objective they will be able to complete these activities independently:



Look at the grid above;
Place a dot on 3B and then make a line to 7D.
Change colour and make a line that joins 5B to 8H
Change colour again and make a line that joins 1B to 4F.
Use a similar grid to create your own shape and record carefully the points you are moving from and moving to.



Starting with 1B record all the points that have been joined to make this shape.

Secretly, create your own shape and give the points you have plotted to a friend to see if they come up with the same shape as you have.

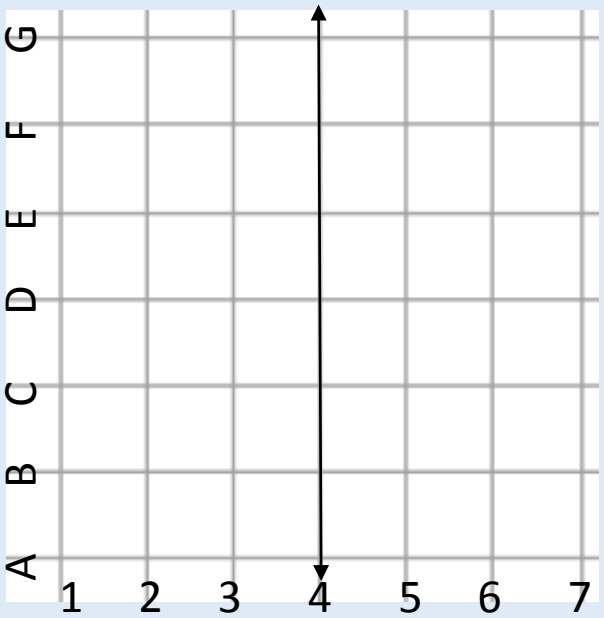
Check the outcomes very carefully.

Spring 1: Week 4: Working at greater depth

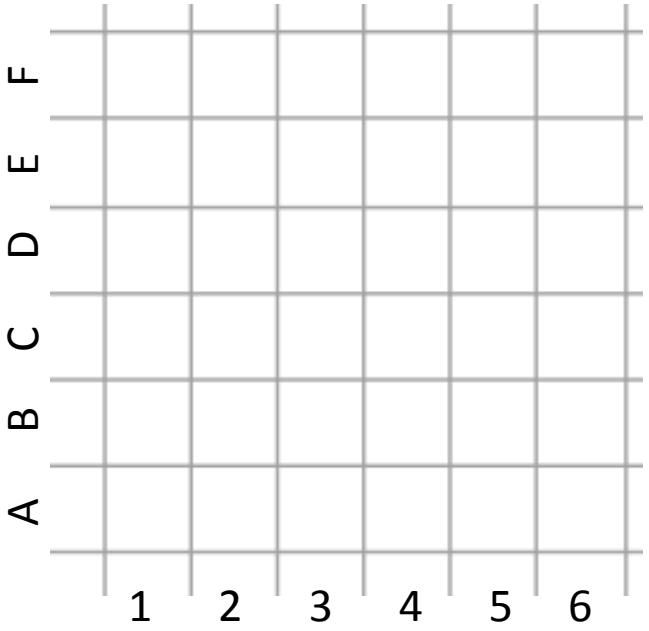
Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant

Teaching Sequence	Activities for pupils working at greater depth:

- Read coordinates using both axes
- Plot points using both axes
- Answer questions involving coordinates
- Create shapes by plotting points in first quadrant



Take a grid and put a line down the centre.
Create a shape on the left hand side and note the coordinates.
Now create the same shape that is symmetrical on the right hand side and note the coordinates.
Create additional shapes for your friend to complete.

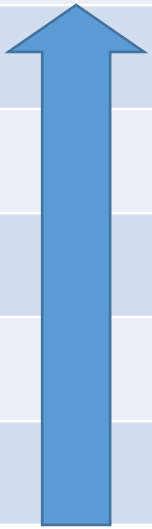


Take a grid and mark as shown above.
Create a game that has movement around the grid.
The movement is organised by naming the coordinates.
Your aim is to create the most interesting game.

Spring 1: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant	Me	My Teacher
Can you invent a game using coordinates on a point or a square and make movements accordingly?		
Can you use symmetry to help plot a shape on a grid?		
Can you plot a shape on a grid and provide the coordinates?		
Can you identify a given point on a grid according to the coordinates given?		
Can you identify a given square on a grid according to the coordinates given?		



Year 4: Spring 1

Week 5: Measures: Area

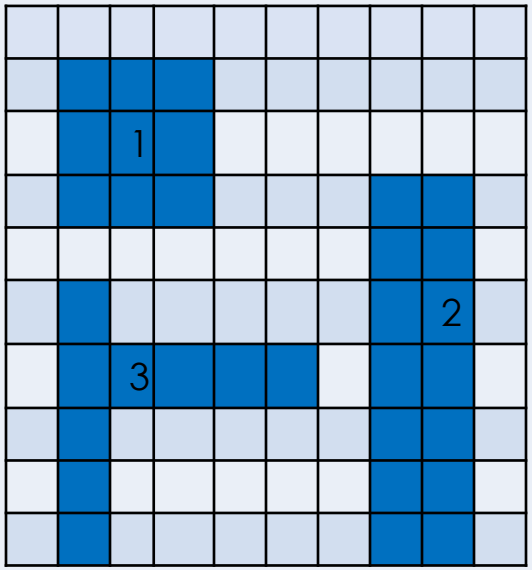
Find the area of rectilinear shapes by counting squares.

Spring 1: Week 5: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 5
Objective: Measures	**Area:** Find the area of rectilinear shapes by counting squares.

What is the area of the shaded areas below (cm squared)?



1 _____ 2 _____

3 _____

What is the area of the following rectangles?

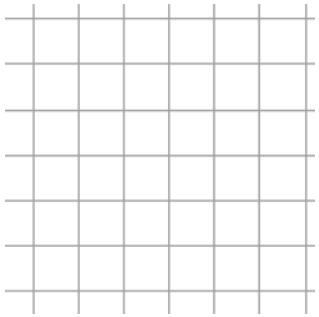
10 x 6 cms

12 x 3 cms

8 x 6 cms

Spring 1: Week 5: Practice and Consolidation

Measures: Area: Find the area of rectilinear shapes by counting squares.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Count squares to identify the area of a shape. ➢ Draw shapes of a given size, e.g. 20 squares. ➢ Introduce the term square centimetre/cm² ➢ Use the formula for calculating the area of a rectilinear shape (l x b)	• Use squared paper with pupils to explain that the area is measured in squares. • Introduce the term cm² and explain it in relation to the squares on the paper. • Let pupils draw different shapes on squared paper and record the area using cm² • Introduce the formula for calculating the area of a rectangle as 'length x breadth'.	 Using a cm square grid as shown, draw a shape using only full squares. When complete count the number of squares covered and record the area in terms of cm squared or cm² Using the formula 'length x breadth' work out the area of the following shapes: 10 x 4cms 6 x 4cms 15 x 2 cms. 15 x 6 cms. If the area of a rectangle is 30 cm², give 2 examples of the dimensions of the rectangle. If the area of a rectangle is 45 cm², give 2 examples of the dimensions of the rectangle. If the area of a rectangle is 100 cm², give 2 examples of the dimensions of the rectangle.

Spring 1: Week 5: Mastering this Objective – Deeper Understanding

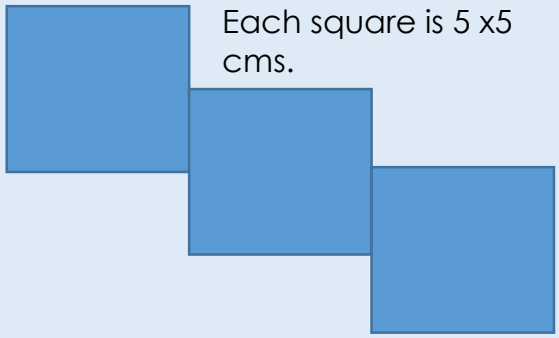
Measures: Area: Find the area of rectilinear shapes by counting squares.

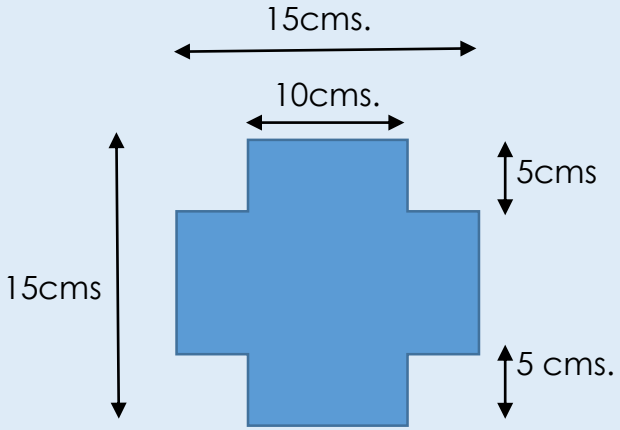
Teaching Sequence

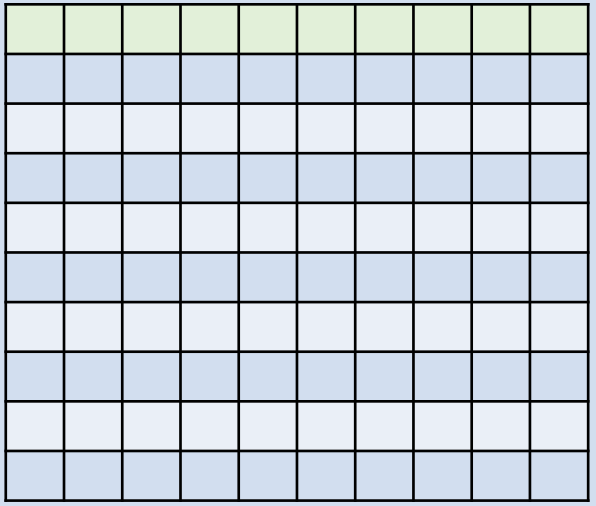
- Count squares to identify the area of a shape.
- Draw shapes of a given size, e.g. 20 squares.
- Introduce the term square centimetre/cm^2
- Use the formula for calculating the area of a rectilinear shape (l x b)

If pupils have mastered this objective they will be able to complete these activities independently:

Find the area of the two shapes below.







Cut out a piece of 10 x 10 squared paper. Make up as many different shapes as you can which have the same area.

- Start with an area of 10 cms.^{2} (one is done for you)
- Then with an area of 6cms^2
- Then with an area of 8cms^2

What is the area of a field 25Km by 10Km?
What is the area of a netball court 30Km by 20Km?
What is the area of a playground 20Km by 10Km?

Spring 1: Week 5: Working at greater depth

Measures: Area: Find the area of rectilinear shapes by counting squares.

Teaching Sequence

- Count squares to identify the area of a shape.
- Draw shapes of a given size, e.g. 20 squares.
- Introduce the term square centimetre/cm^2
- Use the formula for calculating the area of a rectilinear shape (l x b)

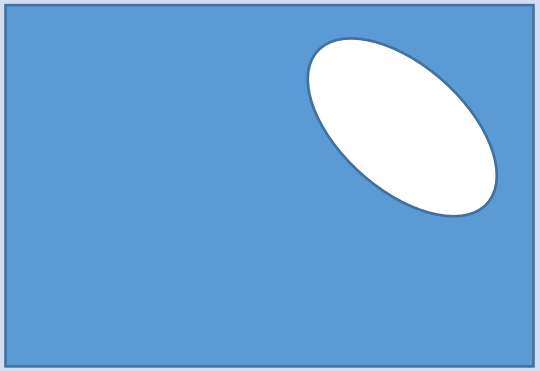
Activities for pupils working at greater depth:

Take a rectangle that has whole centimetres for its length and breadth. Measure the rectangle and say what its perimeter is and then say what its area is.

Fill in the table below:

Dimensions	Perimeter	Area
10 x 5 cm		
6 x 3 cm		
15 x 5 cm		
20 x 5 cm		
20 x 10 cm		

Below is a diagram of a garden area which includes a pond.
All but the pond is grassed and the area of the pond is 12cm^2.
If the perimeter of the garden is 90 metres.
What could the area of grassed area be?



The width of a rectangle is 3 metres less than the length.
The area is between 50 and 80 metres.
What could the dimensions of the rectangle be?
Provide three different alternatives.

Is it true that if you double the area of a rectangle you also double the perimeter? Prove this one way or the other.

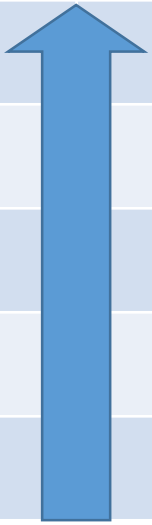
A swimming pool has a walkway around its perimeter.

The walkway is exactly 2m wide all around.
The pool has an area of 250metres^2.
What could the area of the walkway be?

Spring 1: Week 5: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Measures: Area: Find the area of rectilinear shapes by counting squares.	Me	My Teacher
Can you begin to work out the area of regular shapes that are set alongside each other?		
Do you appreciate the relationship between area and perimeter?		
Do you know the formula for measuring the area of a square and the area of a rectangle?		
Do you know that the symbol to show a squared centimetre or metre is ^{2} ?		
Do you know that area is measured in squared centimetres or metres?		



Year 4: Spring 1

Week 6: Multiplication & Division

Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.

Spring 1: Week 6: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 6
Objective: Multiplication & Division	Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.

Use the formal method to calculate these:

65 ÷ 5			147 ÷ 7		
81 ÷ 9			272 ÷ 8		
110 ÷ 11			207 ÷ 9		
96 ÷ 8			246 ÷ 6		

Spring 1: Week 6: Practice and Consolidation

Multiplication & Division: Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Divide a multiple of 10 by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.	• Remind pupils about dividing a 10s number by 10 and show what happens when you divide a 100s number by 100. • Create a quick fire answer system to dividing by 10. • Show a card with a single or two-digit number on and get pupils to divide numbers by 10 and to respond as quickly as possible. • Set out, using the columnar system, a division of a 2-digit number by x2; x3; x4; x5; x6; x7; x8; or x9 no remainder • Move on to demonstrate the division of a 3-digit number by a single digit (no remainder).	Divide the following numbers by 10: 60 120 150 80 250 110 480 230 450 Divide the following numbers by 100: 1200 200 4700 700 400 100 1200 3600 700 Ensure that the following are completed using the columnar method of division. 27 ÷ 9 105 ÷ 7 96 ÷ 6 189 ÷ 9 217 ÷ 7 369 ÷ 9 232 ÷ 8 434 ÷ 7 150 ÷ 10 121 ÷ 11 252 ÷ 12 341 ÷ 11 **Card Game** Make up 25 cards with 2 and 3-digit numbers on them. Show your friend one at a time and see how quickly s/he can divide by 10 or divide by 100. Time him or her for one minute and see how many they get right. Then swap places.

Spring 1: Week 6: Mastering this Objective – Deeper Understanding

Multiplication & Division: Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.

Teaching Sequence

- Divide a multiple of 10 by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.
- Divide a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.
- Divide a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.

If pupils have mastered this objective they will be able to complete these activities independently:

Complete these by using the columnar method of multiplication:

7 √560÷ 8√768÷ 9√891÷

6√486÷ 7√287÷ 9√504÷

Find the missing digit:

6 ☐ 0 ÷ 9 = 70

4 ☐ 8 ÷ 8 = 56

3 ☐ 1 ÷ 7 = 43

5 ☐ 0 ÷ 8 = 65

How close can you get?

☐ ☐ ☐ ÷ 9

Using the digits 5, 4 and 9 in the calculation; divide by 9 so that you do not get a remainder?

Which other 3 digits could you use?

Only using the digits once, what is the largest number you can get?

Put the cards into the correct place in the table.

108÷6	175÷7	405÷9
104÷8	255÷5	427÷7

Less than 10	Between 10 and 20	More than 20

Spring 1: Week 6: Working at greater depth

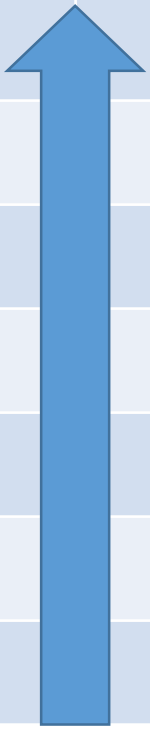
Multiplication & Division: Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Divide a multiple of 10 by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. ➢ Divide a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.	**Electric Bill** The electric bill for a house was £73 per month. However, after putting in energy saving bulbs the bill was reduced to £696 per month. • Work out how much the electricity bill was originally. • Find out how much money they saved on the electric after switching to energy saving bulbs.	**Sum and the Product** The sum of two numbers is 38 and their product is 217. What are the two numbers? The sum of two numbers is 32 and their product is 192. What are the two numbers?
	Shopkins Aleem has 7 times more shopkins than Jo. Together they have 104. How many shopkins does each one have? Explain how you reasoned this out. Now try this one: Harry has 9 times more marbles than Jill. Together they have 110 marbles. How many has each got?	**Monthly payments** Mrs. Johns pays £900 a year for her car. She pays this monthly, paying the same amount each month. At the end of the year she was told that she had paid £120 too much. How much did pay per month in the first place? How much did she need to pay each month?

Spring 1: Week 6: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.	Me	My Teacher
Can you divide a 3-digit number by x10; x11 and x12 using formal layout?		
Can you divide a 3-digit number by all single digit numbers using formal layout?		
Can you divide a 2-digit number by x10; x11 and x12 using formal layout?		
Can you divide a 2-digit number by all single digit numbers using formal layout?		
Can you divide a multiple of 100 by all single digit numbers (no remainder)?		
Can you divide a hundreds number by 100?		
Can you divide a tens number by 10?		



YEAR 4 : SPRING 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
5 Multiplication & Division	**4 Place Value**	**3 Addition & Subtraction**	**3 Geometry 2D Shape**	**6 Multiplication & Division - Decimals**	**Consolidate and Assess**
Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.	Find 1000 more or less than a given number.	**Consolidate** Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	-Identify lines of symmetry in 2D shapes presented in different orientations. - Complete a simple symmetric figure with respect to a specific line of symmetry	Find the effect of multiplying a number with up to 2 decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	Start this week by revising the learning covered in the Autumn and Spring terms so as to ensure pupils are fluent and secure with their basic skills. Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn and Spring terms. Analyse the results and use information to help focus the intervention or pre-teaching sessions, as needed, for the following term.
➢ Use all table facts up to 12x12 in calculations involving multiplication and division. ➢ Know what happens when multiplying by 0 or 1. ➢ Know what happens when dividing by 1. ➢ Know what happens when three numbers are multiplied together.	➢ Find 100 more than any 3 digit number ➢ Find 100 less than any 3 digit number ➢ Find 100 more than any 4 digit number ➢ Find 100 less than any 4 digit number ➢ Find 1000 more than any 4 digit number ➢ Find 1000 less than any 4 digit number ➢ Find 1000 more than any 2 digit number ➢ Find 1000 more than any 3 digit number	➢ Add numbers with 4-digits without exchanging ➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10 ➢ Subtract a number from a 4-digit number which requires no exchanging ➢ Subtract a number from a 4-digit number where exchanging is required	➢ Define and show understanding of symmetry ➢ Show lines of symmetry in an equilateral or isosceles triangle (in different orientations) ➢ Show lines of symmetry in a quadrilateral (in different orientations) ➢ Show lines of symmetry in circle ➢ Create simple symmetrical figures and show lines of symmetry ➢ Recognise lines of symmetry in given shapes	➢ Multiply any number with up to 2 decimal places by 10 and express the answer using tenths. ➢ Multiply any number with up to 2 decimal places by 100 and express the answer using tenths and hundredths.	

Year 4: Spring 2

Week 1: Multiplication & Division

Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.

Spring 2: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 2: Week 1
Objective: Multiplication & Division	Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.

Calculate these rapidly:			Calculate these carefully:		
8 x 9			5 x 0		
42 ÷ 6			11 ÷ 1		
11 x 5			4 x 3 x 2		
64 ÷ 8			8 x 0		
9 x 4			17 ÷ 1		
88 ÷ 8			5 x 7 x 4		
12 x 6			12 x 9		
63 ÷ 7			2 x 5 x 3		

Spring 2: Week 1: Practice and Consolidation

Multiplication & Division: Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Use all table facts up to 12x12 in calculations involving multiplication and division. ➢ Know what happens when multiplying by 0 or 1. ➢ Know what happens when dividing by 1. ➢ Know what happens when three numbers are multiplied together.	• Pupils should be encouraged to know all their times tables to x12. • They should practise regularly and be able to respond instantaneously to questions related to times tables; they should do so when asked out of order and they should know inverse questions also. • Explain what happens when something is multiplied by x0 and by x1. • Use rapid recall cards to help pupils improve speed.	Use cards which show all times tables from x2 through to x12. Include x0. Pupils should be given a certain amount of time, say one minute, to respond to as many cards as they can and then they should check how well their partner can do. Which of these calculations are true and which are false? 21 ÷ 3 = 7 — 25 ÷ 4 = 5 — 63 ÷ 7 = 9 — 72 ÷ 8 = 8 24 ÷ 8 = 3 — 70 ÷ 7 = 10 — 84 ÷ 8 = 11 — 29 ÷ 3 = 9 45 ÷ 9 = 5 — 76 ÷ 9 = 8 — 63 ÷ 9 = 7 — 45 ÷ 5 = 9 Place the calculations in the correct box: 5 x 3 x 2 — 7 x 1 x 5 — 10 ÷ 2 — 72 ÷ 3 4 x 8 — 6 x 7 x 2 — 88 ÷ 8 — 28 ÷ 7 12 x 6 — 10 x 7 — 99 ÷ 11 — 90 ÷ 5

Answer is 10 or less	Answer is between 10 and 20	Answer is more than 20

Spring 2: Week 1: Mastering this Objective – Deeper Understanding

Multiplication & Division: Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.

Teaching Sequence

- Use all table facts up to 12x12 in calculations involving multiplication and division.
- Know what happens when multiplying by 0 or 1.
- Know what happens when dividing by 1.
- Know what happens when three numbers are multiplied together.

If pupils have mastered this objective they will be able to complete these activities independently:

Complete the table:

Total	Number of groups	Amount in each group
72		9
64	8	
42		6
33	11	
54		9

Calculating in different ways

Method 1	Method 2	Method 3
9 x 6 =	9 x 6 =	9 x 6 =
=9 x 5 + 9	☐ X ☐	9 x 7 – 9
= 54	= 54	=54

Now show the three methods when multiplying: 8 x 6; 5 x 6; 8 x 3

Complete the following tables:

Rule ÷ 6	
36	
66	
54	
48	
42	

Rule x 8	
7	
11	
4	
9	
8	

Now make some of your own with different rules

Josh needs 3 oranges to make a drink. How many does he need to make 12 drinks?

Helen needs 4 lemons to make 3 drinks. How many does she need to make 15 drinks?

Spring 2: Week 1: Working at greater depth

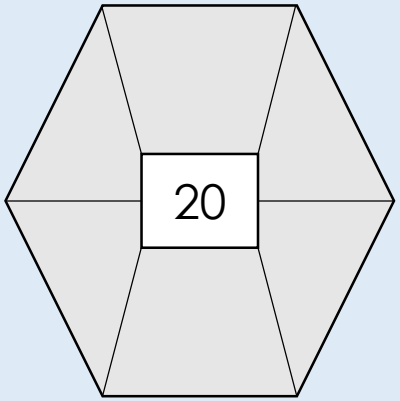
Multiplication & Division: Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.

Teaching Sequence

- Use all table facts up to 12x12 in calculations involving multiplication and division.
- Know what happens when multiplying by 0 or 1.
- Know what happens when dividing by 1.
- Know what happens when three numbers are multiplied together.

Activities for pupils working at greater depth:

Look at the hexagon below.
The target number is in the square in the middle. Make up six multiplication and/ or division facts that will be equal to the target number. Then change the target number.



Look at the matrix below

6	4
2	5

Use the numbers to create 4 multiplications:
6 x 4; 2 x 5; 6 x 2; 4 x 5
Now add the answers together:
(24 + 10 + 12 + 20) = 66
Place any four numbers into the 2 x 2 matrix so when added together as shown above the answer is as close to 100 as you can make it.
Now try one where the answer is as close to 120.

Strawberries arrive in the supermarket in large crates.
Each crate contains 20 strawberries.
If the supermarket takes delivery of 900 strawberries, how many crates were there?

John has six times as many Star Wars figures than Michael. Altogether they have 49 figures. How many does each have?

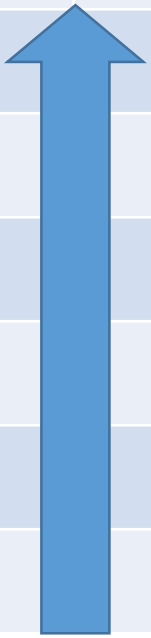
Using the digits 2, 4 and 5, what is the largest number you can make?
What is the smallest?

Now try the digits 6, 7 and 8.

Spring 2: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.	Me	My Teacher
Do you what happens when 3 numbers are multiplied together?		
Do you know what happens when you divide by 1?		
Do you know what happens when you multiply by x0?		
Do you know what happens when you multiply by x1?		
Can you use all multiplication facts up to 12 x 12 to calculate division problems?		
Can you use all multiplication facts up to 12 x 12 to calculate multiplication problems?		



Year 4: Spring 2

Week 2:

Find 1000 more or less than a given number.

Spring 2: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 2: Week 2
Objective: Place Value	Find 1000 more or less than a given number.

What is 100 more than:			What is 100 less than:		
267			328		
128			612		
1195			904		
What is 1000 more than:			**What is 1000 less than:**		
2591			5296		
3456			6149		
6712			2019		
981			3194		

Spring 2: Week 2: Practice and Consolidation

Place Value: Find 1000 more or less than a given number.

Teaching Sequence

- Find 100 more than any 3 digit number
- Find 100 less than any 3 digit number
- Find 100 more than any 4 digit number
- Find 100 less than any 4 digit number
- Find 1000 more than any 4 digit number
- Find 1000 less than any 4 digit number
- Find 1000 more than any 2 digit number
- Find 1000 more than any 3 digit number

Oral and Mental Activity Examples:

- Help pupils to have rapid recall when adding or subtracting 100 to a given 3-digit number.
- Then move on to add or subtract 100 from a 4-digit number.
- Create a system of rapid recall and chanting to help pupils with their mental agility.
- Move on then to add or subtract 1000 rapidly from a 4-digit number.
- Ensure pupils are confident with adding and subtracting from a 4-digit number before adding 1000 to 2 and 3 digit numbers.

Pencil and Paper Activities Examples:

Complete the table below:

100 less than		100 more than
	379	
	150	
	274	
	891	
	220	

Now complete the following table:

1000 less than		1000 more than
	2359	
	4190	
	6274	
	8191	
	2720	

What is 1000 more and 1000 less than 2691?
What is 1000 more and 1000 less than 7895?
What is 1000 more than 67; 541; 98; and 398?

Spring 2: Week 2: Mastering this Objective – Deeper Understanding

Place Value: Find 1000 more or less than a given number.

Teaching Sequence

- Find 100 more than any 3 digit number
- Find 100 less than any 3 digit number
- Find 100 more than any 4 digit number
- Find 100 less than any 4 digit number
- Find 1000 more than any 4 digit number
- Find 1000 less than any 4 digit number
- Find 1000 more than any 2 digit number
- Find 1000 more than any 3 digit number

If pupils have mastered this objective they will be able to complete these activities independently:

Add 1000 to these numbers and then take away 1000 from each of the numbers.
You will have 12 numbers in total (the original; +1000 and -1000). Put them in order with the smallest first.

2854; 3290; 6927; 4826

What comes next in this series?
6706+ 1000= 7706
7706 + 1000 = 8706
8706 + 1000 = 9706

Using the four digits below, make as many numbers as you can.

6	5	3	9

Now from each number find 1000 more and 1000 less than the original number.

5035, 5053, 5350, 5530, 5503
If you wrote these numbers in order, starting with the largest, which number would be third?
Explain how you ordered the numbers.

Look at the numbers below.
Find 10 more; 100 more and 1000 more than each number.
Then find 10 less; 100 less and 1000 less than each number.

3289
4579
6240
5127
8420

Continue the sequences below:

2498 …..3498…….4498…….

7621…….6621……5621…….

8235……7235…….7135……6135…….6035….

Spring 2: Week 2: Working at greater depth

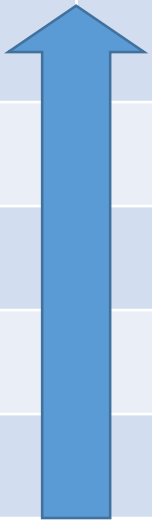
Place Value: Find 1000 more or less than a given number.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Find 100 more than any 3 digit number ➢ Find 100 less than any 3 digit number ➢ Find 100 more than any 4 digit number ➢ Find 100 less than any 4 digit number ➢ Find 1000 more than any 4 digit number ➢ Find 1000 less than any 4 digit number ➢ Find 1000 more than any 2 digit number ➢ Find 1000 more than any 3 digit number	Create four-digit numbers where the digit sum is six and the tens digit is one. e.g. 2211, 4110, 3210 What is the largest/smallest number you can make? Add 1000 to the smallest and the largest number. Now create a 4-digit number where the digit sum is 8 and the tens digit is 2. What are the smallest and largest numbers you can make?	 Using the number cards above, make up two 4-digit numbers that are more than 1000 apart. Now, make up two 4-digit numbers that are less than 1000 apart. Challenge yourself to find as many pairs that are more than 1000 and as many pairs that are less than 1000 apart.
	Create sets of 5 cards: You need sets where you have an original number (4 digits); a number that is 1000 greater; a number that is 1000 smaller; a number that is 100 greater and a number that is 100 smaller than the original number. You should have 12 sets of 5 cards (60 in total) The idea of the game is to play snap by collecting as many pairs as you can. You have to explain the relationship between the pair before you win it.	5 children were given a maths problem where the answer was 4870. Harry wrote 3858 as his answer; Harry wrote 4735; Jen wrote 6187; Ahmed wrote 5925 and Harriet wrote 4648. Who was closest to the answer and who was furthest away?

Spring 2: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value: Find 1000 more or less than a given number.	Me	My Teacher
Can you find a number that is 1000 more than a given 3-digit number?		
Can you find a number that is 1000 less than a given 4-digit number?		
Can you find a number that is 1000 more than a given 4-digit number?		
Can you find a number that is 100 less than a given 3-digit number?		
Can you find a number that is 100 more than a given 3-digit number?		



Year 4: Spring 2

Week 3: Addition & Subtraction

Consolidate
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Spring 2: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 2: Week 3
Objective: Addition & Subtraction	**Consolidate**: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

357 + 122	671 + 114	675 − 241	986 − 444
236 + 246	429 + 176	612 − 409	531 − 327

Spring 2: Week 3: Practice and Consolidation

Addition & Subtraction: Consolidate: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Add numbers with 4-digits without exchanging ➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10 ➢ Subtract a number from a 4-digit number which requires no exchanging ➢ Subtract a number from a 4-digit number where exchanging is required	• Pupils should be reminded of the learning they have already done in relation to addition and subtraction. • Give a great deal of attention to the methodology of columnar addition and subtraction. • Ensure pupils know the value of each of the digits in a 4-digit number. • Take care to explain the exchanging for both addition and subtraction. • Recognise as quickly as possible those who are struggling with this crucial element of their mathematics.	What is the value of the bold digit in the following numbers: 3**4**87 **2**301 35**9**2 25**1**9 **2**651 31**6**7 Partition 4-digit numbers as below: 2345 (2000 +300+ 40+5) 1376 2891 5501 2346 + 1231 = 2515 + 3321 = 2598 + 1201 = 3167 + 1212 = 2376 + 1625 = 3416 + 2156 = 1527 + 2317 = 3169 + 1236 = 3813 − 1501 = 2517 − 1306 = 2614 − 1212 = 1457 − 931 = 2415 − 1347 = 3162 − 1234 = 4812 − 2201 = 3213 − 1104 =

Spring 2: Week 3: Mastering this Objective – Deeper Understanding

Addition & Subtraction: Consolidate: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Teaching Sequence

- Add numbers with 4-digits without exchanging
- Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10
- Subtract a number from a 4-digit number which requires no exchanging
- Subtract a number from a 4-digit number where exchanging is required

If pupils have mastered this objective they will be able to complete these activities independently:

Look at the bar model below. Use formal methods to check out the additions and subtractions:

3527	
1381	2146

1381 + 2146 = 3527
2146 + 1381 = 3527
3527 – 1381 = 2146
3527 – 2146 = 1381

Use formal methods to check these.

Find the missing numbers by using formal methods of addition and subtraction:

1382 + ☐ = 5245

2324 + ☐ = 6278

6718 - ☐ = 1425

6128 - ☐ = 2178

Use formal methods to solve the problem:

David went to a football match and estimated that there were 4367 supporters in the ground.
When the official announcement was made there were 5912 supporters.
What was the difference between David's estimate and the actual total?
When full, the ground holds 6712. How many empty seats were there?

Which of these number sentences have the answer that is between 550 and 600?

1174 – 611

3330 – 2779

9326 – 8777

Now, write similar problems for your friends to solve.

Spring 2: Week 3: Working at greater depth

Addition & Subtraction: Consolidate: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Teaching Sequence

- Add numbers with 4-digits without exchanging
- Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10
- Subtract a number from a 4-digit number which requires no exchanging
- Subtract a number from a 4-digit number where exchanging is required

Activities for pupils working at greater depth:

Identify the missing numbers in these bar models and then show your workings using formal methods of addition and subtraction.

3281	
1562	

4713	
1892	

Now create your own bar models for your friends to solve.

Look at the matrix below:

6	1	5	3
4	2	7	5
5	1	3	5
4	0	2	1

Eight 4-digit numbers can be made by looking at each row and then each column, eg, 6153; 4275; 5135; 4021; 6454; 1210; 5732; 3551.
Which two numbers added together is closest to 9000?

Throw 2 dice twice. Arrange the 4 numbers that you get so that it is as close to 3000 as possible (either above or below).
Work out, using formal methods, how close you are to 3000.

Fill in the empty boxes to make this calculation correct.

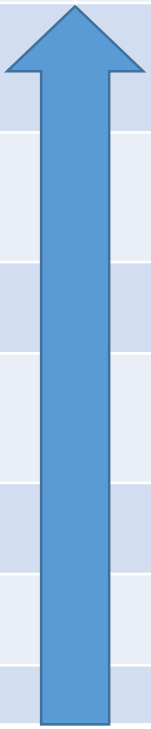
8		6	
1	4		3
9	8	2	9

+

Spring 2: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Addition & Subtraction: Consolidate: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	Me	My Teacher
Can you subtract a 4-digit number from another using columnar subtraction which requires exchange between the units, tens, hundreds or thousands (or any two of these)?		
Can you subtract a 4-digit number from another using columnar subtraction which requires no exchange between the units, tens, hundreds or thousands?		
Can you add 3 numbers with 4-digits using columnar addition where the units, tens or hundreds make more than 10?		
Can you add 2 numbers with 4-digits together using columnar addition, where the units, tens or hundreds when added make more than 10?		
Can you add 2 numbers with 4-digits together using columnar addition without exchange between units and tens?		
Can you partition a 4-digit number so that each digit's true value is seen?		
Do you know the value of each digit in a 4-digit number?		



Year 4: Spring 2

Week 4: Geometry: 2D Shapes

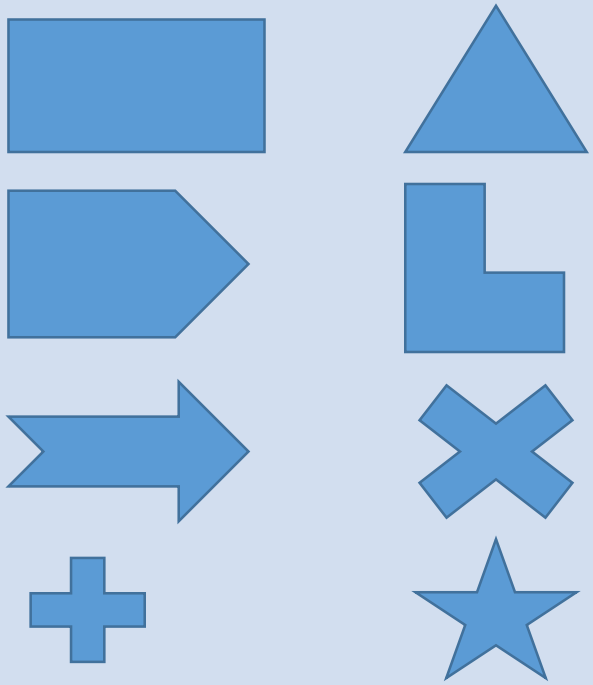
-Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

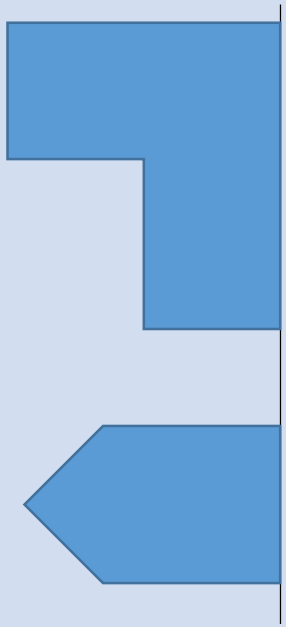
Spring 2: Week 4: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 2: Week 4
Objective: Geometry	**2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations. - Complete a simple symmetric figure with respect to a specific line of symmetry

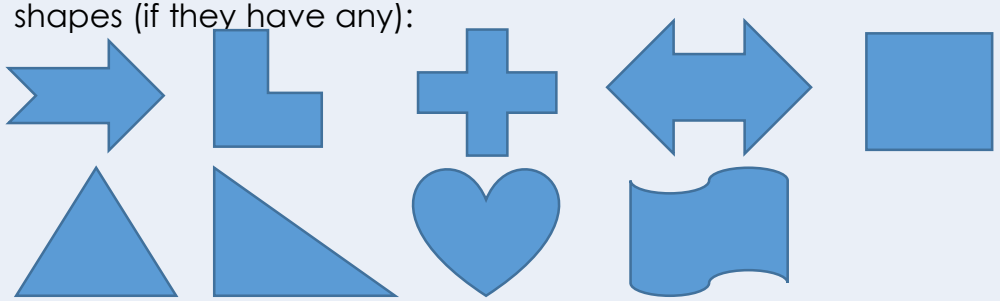
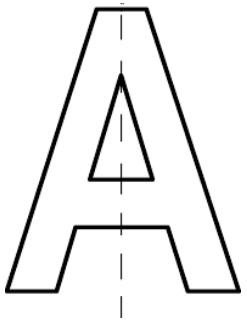
Show the lines of symmetry in the shapes shown below:	Complete the figures by looking at the line being the line of symmetry





Spring 2: Week 4: Practice and Consolidation

Geometry: 2D Shape: -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Define and show understanding of symmetry ➢ Show lines of symmetry in an equilateral or isosceles triangle (in different orientations) ➢ Show lines of symmetry in a quadrilateral (in different orientations) ➢ Show lines of symmetry in circle ➢ Create simple symmetrical figures and show lines of symmetry ➢ Recognise lines of symmetry in given shapes	• Focus on the term 'symmetry' and talk about its origin. • Let pupils fold paper and then hold the folded line and cut at the 'open' end and then open to see their symmetrical shape. • Do a similar activity using paints to create a symmetrical effect. • Show some of the regular shapes we know and get pupils to look at where their lines of symmetry are.	Use folded paper to create symmetrical effect. Do so by folding once and then by folding twice. Now use paint to create a more creative example. Mark clearly all the lines of symmetry associated with these shapes (if they have any):  Given half a shape – complete the other side.  The example here is of the letter 'A'. Fold a paper in half and draw on one side of the paper and get your partner to reflect the shape on the other side creating a symmetrical shape. Then, swap over.

Spring 2: Week 4: Mastering this Objective – Deeper Understanding

Geometry: 2D Shape: -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

Teaching Sequence

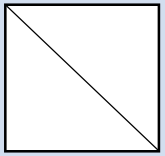
- Define and show understanding of symmetry
- Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)
- Show lines of symmetry in a quadrilateral (in different orientations)
- Show lines of symmetry in circle
- Create simple symmetrical figures and show lines of symmetry
- Recognise lines of symmetry in given shapes

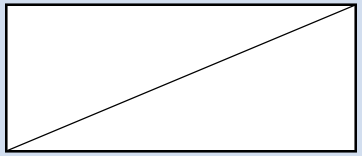
If pupils have mastered this objective they will be able to complete these activities independently:

Symmetry in Nature

Find as many examples of symmetrical patterns in nature that you can see or can find out about.

Are these both lines of symmetry?





If not, why not?

Explain your reasoning.

Symmetrical Shapes

Draw a 2D shape that has no more than one line of symmetry.

Draw a 2D shape that has 2 lines of symmetry.

Draw a 2D shape that has more than 2 lines of symmetry.

Human Face

Many human faces are almost perfectly symmetrical. Take a photograph of yourself, print it out and fold in half.

Glue the half in to your maths book and draw as accurately as you can the other half.

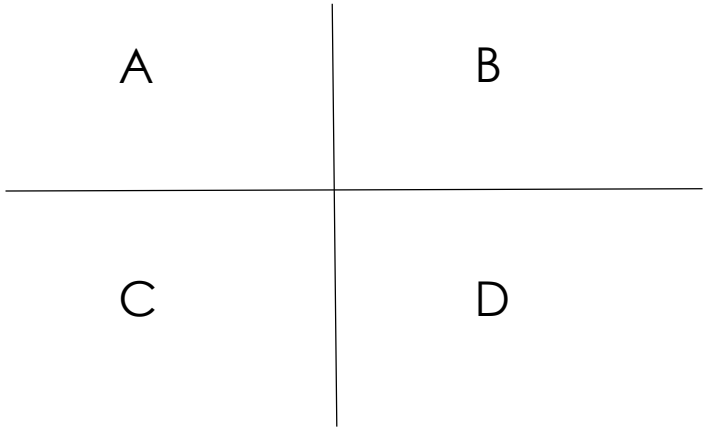
Spring 2: Week 4: Working at greater depth

Geometry: 2D Shape: -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

Teaching Sequence

- Define and show understanding of symmetry
- Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)
- Show lines of symmetry in a quadrilateral (in different orientations)
- Show lines of symmetry in circle
- Create simple symmetrical figures and show lines of symmetry
- Recognise lines of symmetry in given shapes

Activities for pupils working at greater depth:

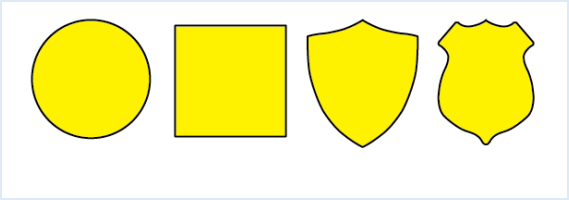


Create a shape in Segment A. Start with a line which starts from the top of the vertical line in segment A and ends at the horizontal line between A and C.

Reflect into segment B creating a symmetry. Then reflect A into C, creating another symmetry.
Finally, reflect from B to D.

Make your design as interesting as you can.

Create a school logo.
It must have at least one line of symmetry.
It must also relate to the school in some way.
You could start with one of these shapes.



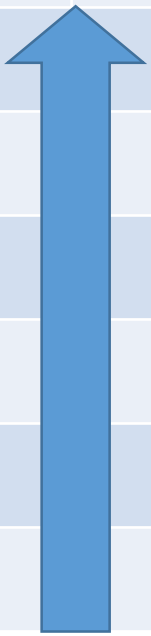
Symmetry in Nature
Make up a reference book showing all symmetrical patterns in nature.

Use photographs you have taken or pictures you have downloaded from the Internet.
You should group your examples, using subheadings like animals, insects, leaves, etc.

Spring 2: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry: 2D Shape: -Identify lines of symmetry in 2D shapes presented in different orientations. - Complete a simple symmetric figure with respect to a specific line of symmetry	Me	My Teacher
Can you create simple symmetrical figures and show lines of symmetry?		
Do you understand about lines of symmetry within a circle?		
Can you show lines of symmetry in a square and rectangle in different orientations?		
Can you show lines of symmetry in a square and rectangle?		
Can you show lines of symmetry in an equilateral or isosceles triangle?		
Can you explain what the term symmetry is?		



Year 4: Spring 2

Week 5: Multiplication & Division

Decimals: Find the effect of multiplying a number with up to two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Spring 2: Week 5: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 2: Week 5
Objective: Multiplication & Division	**Decimals:** Find the effect of multiplying a number with up to two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Look at the number 4.16
Place the numbers into the table below:

ones		tenths	hundredths

Now do the same with 2.26

ones		tenths	hundredths

Continue the sequence:

0.6; 0.7; 0.8; ____

Multiply the following numbers by 10:

2.3 x 10 = ____

4.6 x 10 = ____

2.19 x 10 = ____

Multiply the following numbers by 100:

12.33 x 100 = ____

67.23 x 100 = ____

Spring 2: Week 5: Practice and Consolidation

Multiplication & Division: Decimals: Find the effect of multiplying a number with up to two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Multiply any number with up to 2 decimal places by 10 and express the answer using tenths. ➢ Multiply any number with up to 2 decimal places by 100 and express the answer using tenths and hundredths.	• Work with pupils on a matrix which specifies ones; tenths and hundreds. • Physically show pupils what happens when you multiply a decimal number by 10. • Explain how moving the decimal place to the right is one way of checking accuracy. • Go to do that with other numbers with one decimal place so that they recognise 0.2 x 10 is 2. • Now take 2 decimal place numbers and multiply by 10 so pupils are confident about the use of the tenths and hundredths columns. • 134 x 100 = 134. Help pupils understand how this is recorded. • Then multiply other decimal numbers by 100, etc.	Place the following decimal numbers with up to 2 decimal places into the matrix below: 2.75; 5.01; 9.25; 6.69; 7.72; 8.84; 9.98; 9.93 **ones** | **tenths** | **hundredths** | | | |
		What is the value of the bold digit in the following numbers?: **6**.45; 3.**9**1; 5.25; 6.4**7**; 7.**8**2; 8.3**9**; 9.**3**8; 2.**7**3
		Multiply the following numbers by 10: 3.56 4.25; 6.15 9.27 23.76 12.34 16.28 16.27 0.13 1.35 7.43 9.41
		Multiply the following numbers by 100: 13.26 12.89 23.67 12.36 6.23 6.59 8.27 7.52 12.88 10.02 21.43 1.54

Spring 2: Week 5: Mastering this Objective – Deeper Understanding

Multiplication & Division: Decimals: Find the effect of multiplying a number with up two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence

- Multiply any number with up to 2 decimal places by 10 and express the answer using tenths.
- Multiply any number with up to 2 decimal places by 100 and express the answer using tenths and hundredths.

If pupils have mastered this objective they will be able to complete these activities independently:

Working Backwards

Write down a number with one decimal place which, when multiplied by 10, gives an answer between 30 and 40.

Write down a number with one decimal place which, when multiplied by 10, gives an answer between 90 and 100.

Write down a number with one decimal place which, when multiplied by 100, gives an answer between 120 and 130.

Which is the correct sign?

10. 2 ÷ or x 10 = 1.02
23.9 ÷ or x 10 = 239
112.4 ÷ or x 10 = 11.24
34.23 ÷ or x 10 = 342.3
541.6 ÷ or x 10 = 5416
32.48 ÷ or x 10 = 324.8

Now make 3 for your friend to complete.

Complete the following table:

X 10	Number	÷10
	244.8	
	54.23	
	1.76	
	3.92	
	41.98	

Money, Measures and Distance

£23.89 x 10
3.45Km x 10
6.26Kg x 10
£1.45 x 10
7.23Km x 10
8.26Kg x 10
£256 x 10

£2.89 x 100
3.45Km x 100
6.26Kg x 100
£1.45 x 100
7.23Km x 100
8.26Kg ÷x 100
£256 x 100

Spring 2: Week 5: Working at greater depth

Multiplication & Division: Decimals: Find the effect of multiplying a number with up to two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence

- Multiply any number with up to 2 decimal places by 10 and express the answer using tenths.
- Multiply any number with up to 2 decimal places by 100 and express the answer using tenths and hundredths.

Activities for pupils working at greater depth:

Working Backwards

I multiply a number by 10 and the answer is 0.3. What number did I start with?

I multiply a number by 100 and the answer is 0.3. What was the number in the first place?

I multiply a number by 10 and the answer is 6.2. What number did I start with?

I multiply a number by 100 and the answer is 6.2. What number did I start with?

Continue the patterns:

20 x 10 = 200
2 x 10 = 20
0.2 x 10 =
0.02 x 10 =

3.45 x 100 = 345
34.5 x 100 =

5.26 x 10 = 52.6
0.526 x 10 = 5.26
0.0526 x 10 =
0.00526 x 10

52.9 x 100 = 5290
5.29 x 100 =

Complete the following table:

x100	x10	No.	÷10	÷100
		75		
		97.1		
		343.8		
		25.78		
		92.57		

Bonuses

100 workers received a bonus of £74.50 each.
How much was the bonus worth before it was divided by 100?
How much would each worker have got if the bonus was divided by 10 people?

10 friends equally share £48,992 after a lottery win.
How much did each get?

Spring 2: Week 5: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Decimals: Find the effect of multiplying a number with up to two decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	Me	My Teacher
Can you answer word problems related to multiplying by 10 and 100 when there are decimals involved?		
Can you multiply a monetary value by 10 or 100?		
Can you multiply a number with two decimal places by 100?		
Can you multiply a number with one decimal place by 100?		
Can you multiply a number with two decimal places by 10?		
Can you multiply a number with one decimal place by 10?		
Can you continue a sequence in tenths and in hundredths?		
Can you recognise the value of each digit in a number that has a tens, ones, tenths and hundredths?		

Year 4: Spring 2

Week 6: Consolidate and Assess

- Start this week by revising the learning covered in the Autumn and Spring terms so as to ensure pupils are fluent and secure with their basic skills.
- Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn and Spring terms.
- Analyse the results and use information to help focus the pre-teaching sessions, as needed, for the following term.

Year 4: Spring 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back in steps of 2s, 3s, 4s, 5s, 8s, 10s, 6s, 7s, and 9s
- Recall the 2, 3, 4, 5, 6, 7, 8, 9 and 10 times tables and the derived division facts
- Count on/back in multiples of 7 from 0
- Count on/back in 25s, 50s, and 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond
- Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places
- Find 10/100/1000 more or less than a given number beyond 5000
- Read and write all numbers to at least 10,000 in both numerals and words
- Order a set of numbers (4 and/or 5) to 50,000 and beyond in increasing and decreasing value
- Compare numbers up to 50,000 and beyond using =, <, > symbols
- Round numbers up to and beyond 10,000 to the nearest 10, 100 or 1000
- Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers
- Count on/back in ½s , ¼s , $^1/_3$s , $^1/_{10}$s and other unit fractions including on a number line
- Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 630+370 = 1000)

- Although practise and consolidation should be on-going through each half term, during Week 6 there should be greater opportunity taken to check pupils' learning and understanding.
- Summative and Formative assessment procedures should help teachers gain a clear picture as to which pupils are at different stages, including mastery and greater depth.

YEAR 4 : SUMMER 1: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
5 Place Value	**3 Fractions**	**4 Fractions**	**4 Measures Length/ Mass/ Capacity/Time**	**4 Geometry Position & Direction**	**5 Fractions**
Compare and order numbers beyond 1000	Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.	Convert between different units of measure (e.g. km to m; hr to min)	-Describe positions on a 2D grid as coordinates in the first quadrant - Describe movements between positions as translations of a given unit to the left/right and up/down - Plot specified points and draw sides to complete given polygon	-Recognise and write decimals equivalents of any number of tenths or hundredths - Recognise and write decimal equivalents to ¼, ½ and ¾.
➢ Know which number in a set of 4 digit numbers is the greatest ➢ Know which number in a set of 4 digit numbers is the smallest ➢ Order a set of 4 digit numbers from smallest to largest ➢ Order a set of 4 digit numbers from largest to smallest	➢ Divide any 2 digit number by 10 and express the answer using tenths. ➢ Divide any 2 digit number by 100 and express the answer using tenths and hundredths.	➢ Count up in hundredths starting at zero ➢ Count back in hundredths to zero ➢ Count up in hundredths starting at any 'hundredth number' ➢ Count back in hundredths starting at any 'hundredth number' ➢ Know that hundredths arise from dividing an object, quantity or number into 100 equal parts ➢ Place factions (hundredths) in order – ascending and descending.	➢ Revise relationships between measures: 1000m = 1km; 100cm = 1m; 10mm = 1cm ➢ Revise relationships between measures: 1000g = 1kg ➢ Revise relationships between measures: 60 min = 1 hour; 60 secs = 1 min; 12 months = 1 year ➢ Solve problems involving conversion between units of measure ➢ Express a distance of more than 1km in m ➢ Express a distance of more than 1cm in mm ➢ Express a mass of more than 1kg in g ➢ Express a volume of more than 1l in ml ➢ Express the passing of time of more than 1 hour in minutes ➢ Express the passing of time of more than 1 minute in seconds.	➢ Read coordinates using both axes ➢ Plot points using both axes ➢ Answer questions involving coordinates ➢ Create shapes by plotting points in first quadrant ➢ Explain a change in a given position by the movement made along the axes of the quadrant ➢ Use numbered axes to plot points to form a polygon ➢ Describe the properties of the polygon	➢ Know that 1/10 = 0.1 [for each tenth value] ➢ Know that 1/100 = 0.01 [for each hundredth value] ➢ Know that 0.25 = ¼ ➢ Know that 0.5 = ½ ➢ Know that 0.75 = ¾

Year 4: Summer 1

Week 1: Place Value

Compare and order numbers beyond 1000

Summer 1: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 1: Week 1
Objective: Place Value	Compare and order numbers beyond 1000

What is the value of the number in bold?			Put these numbers in order (smallest first)	
236**7**			2391; 3729; 1045; 3602	
2**1**90				
8**3**01			8201; 5025; 6925; 1492	
1830				
5**4**01			2314; 2301; 2391; 2377	
11**7**6				
9**9**20			5151; 4141; 3131; 2121	
402**6**				

Summer 1: Week 1: Practice and Consolidation

Place Value: Compare and order numbers beyond 1000

Teaching Sequence

- Know which number in a set of 4 digit numbers is the greatest
- Know which number in a set of 4 digit numbers is the smallest
- Order a set of 4 digit numbers from smallest to largest
- Order a set of 4 digit numbers from largest to smallest

Oral and Mental Activities: Examples:

- This is picking up from other place value learning.
- The main issue is to emphasise the value of each digit in a 4-digit number.
- Use cards with different digits bolded and get pupils to say what the value of the bolded digit is.
- Pass the cards around a group and each has to say what the thousand value is; then the hundred value; etc.
- Four pupils are given a set of four cards. They have to stand in order going from the smallest to the largest.
- Pupils could also chant starting at 100 and going up in 100s beyond a 1000.

Pencil and Paper Activities Examples:

What is the value of the bolded digit in the following numbers:

5**2**94	**2**910	9205	1**6**27
49**3**1	6**5**01	**8**912	**5**012
6**1**03	3**2**90	1**6**20	**3**106

What are the following partitioned numbers in standard form (the first is done for you)?

2000 + 300 + 20 + 9 = 2329
8000 + 200 + 0 + 8 =
1000 + 0 + 0 + 3 =
4000 + 500 + 30 + 7 =
2000 + 600 + 30 + 2 =
7000 + 400 + 40 +1 =

Put the following numbers into the correct place on the table below:

2591 2301 9036 8914 9201 7812 8201 1003

Thousands	Hundreds	Tens	Ones

Put the following numbers in order (smallest first)

2591 2301 9036 8914 9201 7812 8201 1003

Summer 1: Week 1: Mastering this Objective – Deeper Understanding

Place Value: Compare and order numbers beyond 1000

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Know which number in a set of 4 digit numbers is the greatest ➢ Know which number in a set of 4 digit numbers is the smallest ➢ Order a set of 4 digit numbers from smallest to largest ➢ Order a set of 4 digit numbers from largest to smallest	**Creating 4-digit numbers** Create a number where the thousands value is 2 more than the hundreds and the tens is 5 more than the ones. Make up 4 different numbers. Create a number where the thousands value is the largest digit, the hundreds is the smallest value and the tens and ones are the same.	6000 = ☐ hundreds 5000 = ☐ tens 2000 = ☐ hundreds 550 = ☐ tens 1500 = ☐ tens
	Write these as digits: Four thousand, three hundred and sixteen. Six thousand, four hundred and twelve. Nine thousand, two hundred and eighteen. Six thousand and twenty six.	Make up 6 four-digit numbers and place them in order according to their value (smallest first). Make up 4-digit numbers whose sum is 9, eg, 3312. What is the largest number you can make? What is the smallest and second smallest number you can make? Now make up other 4-digit numbers whose sum is 12 and find the largest; second largest; smallest and second smallest numbers possible.
	What is 100 more than 4289? What is 10 more than 2319? What is 1000 more than 4012? What is 100 more than 3901? What is 100 more than 2901? What is 10 more than 2391? What is 200 more than 2812?	

Summer 1: Week 1: Working at greater depth

Place Value: Compare and order numbers beyond 1000

Teaching Sequence

- Know which number in a set of 4 digit numbers is the greatest
- Know which number in a set of 4 digit numbers is the smallest
- Order a set of 4 digit numbers from smallest to largest
- Order a set of 4 digit numbers from largest to smallest

Activities for pupils working at greater depth:

Matrix Order

6	8	1	2
8	2	5	4
3	5	1	7
7	2	6	4

Create 8, four-digit numbers by using the rows and columns above, eg, 6812, 8254, etc.
Then place the 8 numbers in order according to value – smallest first.
Now make another 4 x 4 matrix for your friend to complete.

Make up a 4 digit number from the cards above and then make up another which is more than 1000 bigger or smaller than your original.
Choose another 4 and this time make the difference more than 100 but less than 500.

Card Game

Take 40 cards and write a 4-digit number on each as shown below:

Create a game with a set of rules that you can write out.
You could, for example, just have sets of cards face down in front of four players and then each picks one up in turn and whoever has the largest or smallest value is the winner.
Now create your own game.

Difference and sum

The difference between two 4-digit numbers is 1587 and their sum is 4845.

What could the numbers be?

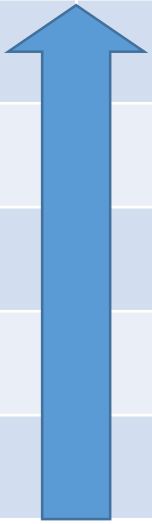
The difference between another set of two 4-digit numbers is 1313 and their sum is 7121.

What could the numbers be?

Summer 1: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value: Compare and order numbers beyond 1000	Me	My Teacher
Can you order a set of 4-digit numbers from largest to smallest?		
Can you order a set of 4-digit numbers from smallest to largest?		
Can you work out which of two 4-digit numbers is the greater and smaller?		
Can you partition any number up to 9,999 showing the value of each digit?		
Do you know and use terms: ones, tens, hundreds and thousands correctly?		



Year 4: Summer 1

Week 2: Fractions

Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Summer 1: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 1: Week 2
Objective: Multiplication & Division	**Decimals:** Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Look at the number 1.36
Place the digits into the table below:

ones		tenths	hundredths
	●		

Now do the same with 4.56

ones		tenths	hundredths
	●		

Continue the sequence:

0.1; 0.2; 0.3; ☐

Divide the following numbers by 10:

23 ÷ 10 = ☐

46 ÷ 10 = ☐

9 ÷ 10 = ☐

Divide the following numbers by 100:

23 ÷ 100 = ☐

9 ÷ 100 = ☐

Summer 1: Week 2: Practice and Consolidation

Multiplication & Division: Decimals: Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Divide any 2 digit number by 10 and express the answer using tenths. ➢ Divide any 2 digit number by 100 and express the answer using tenths and hundredths.	• Following on from Spring 2 Week 5, work with pupils on a matrix which specifies ones; tenths and hundreds. • Physically show pupils what happens when you divide 1 by 10. • Explain how that is recorded as 0.1 using the matrix to show pupils exactly what has happened • Do this with other one-digit numbers so that they recognise 2 ÷ 10 is 0.2. • Now take 0.1 and divide that by 10 and make pupils confident about the use of the hundredths column. • 1 ÷ 100 = 0.001. Help pupils understand how this is recorded. • Then divide 2 by 100, etc.	Place the following decimal numbers with up to 2 decimal places into the matrix below: 2.45; 3.01; 5.25; 6.29; 7.12; 8.34; 9.28; 2.93 **ones** | **tenths** | **hundredths** What is the value of the bold digit in the following numbers?: **3**.45; 3.**8**1; 5.25; 6.4**9**; 7.**9**2; 8.3**4**; 9.**4**8; 2.**1**3 Divide the following numbers by 10: 3.56 4.25; 6.15 9.27 23.76 12.34 16.28 16.27 Divide the following numbers by 100: 13.26 12.89 23.67 12.36 6.23 6.59 8.27 7.52

Summer 1: Week 2: Mastering this Objective – Deeper Understanding

Multiplication & Division: Decimals: Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence

- Divide any 2 digit number by 10 and express the answer using tenths.
- Divide any 2 digit number by 100 and express the answer using tenths and hundredths.

If pupils have mastered this objective they will be able to complete these activities independently:

Working Backwards

Write down a number with one decimal place which, when divided by 10, gives an answer between 30 and 40.

Write down a number with one decimal place which, when divided by 10, gives an answer between 90 and 100.

Write down a number with one decimal place which, when divided by 10, gives an answer between 120 and 130.

Which is the correct sign?

10. 2 ÷ or x 10 = 1.02
23.9 ÷ or x 10 = 239
112.4 ÷ or x 10 = 11.24
34.23 ÷ or x 10 = 342.3
541.6 ÷ or x 10 = 5416
32.48 ÷ or x 10 = 324.8

Now make 3 for your friend to complete.

Complete the following table:

X 10	Number	÷10
	234.8	
	54.23	
	1.46	
	2.92	
	61.28	

Money, Measures and Distance

Work out these questions:

£23.89 ÷ 10 =
3.45Km ÷ 10 =
6.26Kg ÷ 10 =
£1.45 ÷ 10 =
7.23Km ÷ 10 =
8.26Kg ÷ 10 =
£256 ÷ 10 =

£2.89 ÷ 100 =
3.45Km ÷ 100 =
6.26Kg ÷ 100 =
£1.45 ÷ 100 =
7.23Km ÷ 100 =
8.26Kg ÷ 100 =
£256 ÷ 100 =

Summer 1: Week 2: Working at greater depth

Multiplication & Division: Decimals: Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

Teaching Sequence

- Divide any 2 digit number by 10 and express the answer using tenths.
- Divide any 2 digit number by 100 and express the answer using tenths and hundredths.

Activities for pupils working at greater depth:

Working Backwards

I divide a number by 10 and the answer is 0.3. What number did I start with?

I divide a number by 100 and the answer is 0.3. What was the number in the first place?

I divide a number by 10 and the answer is 6.2. What number did I start with?

I divide a number by 100 and the answer is 6.2. What number did I start with?

Continue the patterns:

200 ÷ 10 = 20
20 ÷ 10 = 2
2 ÷ 10 =
0.2 ÷ 10 ▭
▭

345 ÷ 100 = 3.45
34.5 ÷ 100 =
▭

520 ÷ 10 = 52
52 ÷ 10 = 5.2
5.2 ÷ 10 =
0.52 ÷ 10 = ▭
▭

520 ÷ 100 = 5.2
5.2 ÷ 100 =
▭

Complete the following table:

x100	x10	No.	÷10	÷100
		45		
		67.1		
		123.8		
		25.98		
		12.57		

Bonuses

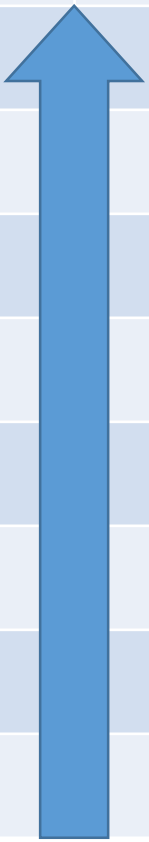
100 workers received a bonus of £34.50 each.
How much was the bonus worth before it was divided by 100?
How much would each worker have got if the bonus was divided by 10 people?

10 friends equally share £8,892 after a lottery win.
How much did each get?

Summer 1: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Multiplication & Division: Decimals: Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	Me	My Teacher
Can you answer word problems related to dividing by 10 and 100 when there are decimals involved?		
Can you divide a monetary value by 10 or 100?		
Can you divide a number with two decimal places by 100?		
Can you divide a number with one decimal place by 100?		
Can you divide a number with two decimal places by 10?		
Can you divide a number with one decimal place by 10?		
Can you continue a sequence in tenths and in hundredths?		
Can you recognise the value of each digit in a number that has a tens, ones, tenths and hundredths?		



Year 4: Summer 1

Week 3: Fractions

Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.

Summer 1: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 1: Week 3
Objective: Fractions	Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.

Continue the sequences:		Find one hundredth of:	
0.3; 0.5; 0.7; 0.9;		£15.50	
1.7; 1.5; 1.3; 1.1;		236Kg	
2.13; 2.15; 2.17;		£75	
6.89; 6.84; 6.79; 6.74;		450Km	
12.67; 12.57; 12.47;		£880	
66.91; 66.95; 66.99;		56.9L	
56.97; 55.87; 54.77;		471Kg	

Summer 1: Week 3: Practice and Consolidation

Fractions: Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Count up in hundredths starting at zero ➢ Count back in hundredths to zero ➢ Count up in hundredths starting at any 'hundredth number' ➢ Count back in hundredths starting at any 'hundredth number' ➢ Know that hundredths arise from dividing an object, quantity or number into 100 equal parts ➢ Place factions (hundredths) in order – ascending and descending.	• Explain that hundredths are created by dividing by 100. • Show the hundredth value in decimal and fractional form • Remind pupils of the relationship between tenths and hundredths. • Pupils need to know that 10 hundredths is equivalent to one tenth. • Use a metre stick to first show one tenth and then go on to explain the value of one hundredth.	Match the decimal value to the fraction: 0.02 0.03 0.07 0.09 0.06 $\frac{7}{100}$ $\frac{2}{100}$ $\frac{9}{100}$ $\frac{6}{100}$ $\frac{3}{100}$ Continue these sequences: 0.03 0.05 0.07 ☐ ☐ 0.01 0.05 0.09 ☐ ☐ Now do the same with these: $\frac{3}{100}$ $\frac{5}{100}$ $\frac{7}{100}$ ☐ ☐ Fill in the missing numbers

0.01		0.03		0.05	0.06		0.08
	2/100	3/100				7/100	

Summer 1: Week 3: Mastering this Objective – Deeper Understanding

Fractions: Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.

Teaching Sequence

- Count up in hundredths starting at zero
- Count back in hundredths to zero
- Count up in hundredths starting at any 'hundredth number'
- Count back in hundredths starting at any 'hundredth number'
- Know that hundredths arise from dividing an object, quantity or number into 100 equal parts
- Place factions (hundredths) in order – ascending and descending.

If pupils have mastered this objective they will be able to complete these activities independently:

- One hundredth of a crowd of 2800 were under five years of age. How many people were five or over?
- Three hundredths of 1500 sheep had a lamb in January. How many sheep did not have a lamb in January?
- Nine hundredths of the 3200 competitors were from North Korea. How many competitors came from North Korea?

Think of another way to write these hundredths fractions:

$\frac{10}{100}$ $\frac{20}{100}$ $\frac{30}{100}$ $\frac{40}{100}$ $\frac{50}{100}$

Find $1/100^{th}$ of the following:

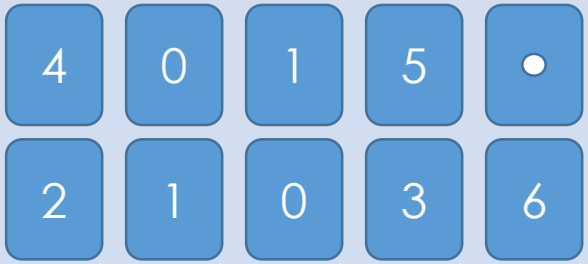
100 150 250 £3 50

450 750 £55 1500metres

Put the correct symbol < or > in each box

3.03	☐	3.33
0.37	☐	0.32
0.28	☐	2.08
4.01	☐	4.12
6.16	☐	6.06

Look at these 8 cards:



Using as many or as few as you need, how many numbers with two decimal places can you make up that are between 5.01 and 6.06.

Summer 1: Week 3: Working at greater depth

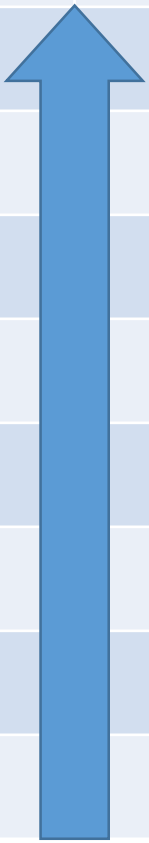
Fractions: Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Count up in hundredths starting at zero ➢ Count back in hundredths to zero ➢ Count up in hundredths starting at any 'hundredth number' ➢ Count back in hundredths starting at any 'hundredth number' ➢ Know that hundredths arise from dividing an object, quantity or number into 100 equal parts ➢ Place factions (hundredths) in order – ascending and descending.	**What do you notice?** 1/10 of 100 = 10 1/100 of 100 = 1 2/10 of 100 = 20 2/100 of 100 = 2 How can you use this to work out: 6/10 of 200 6/100 of 200?	**What needs to be added?** What needs to be added to 3.53 to give 3.58? What needs to be added to 3.16 to give 3.21? What needs to be added to 3.11 to give 3.2?
	Write a decimal fraction that is less than 0.1 but more than 0.01. Now write its fractional equivalent. Write a decimal fraction that is less than 0.3 but more than 0.21. Now write its fractional equivalent. Write a decimal fraction that is less than 0.5 but more than 0.39. Now write its fractional equivalent. Think of 5 more similar questions to ask your friend.	A special cake weighs 4Kg. There are several ingredients used. Half of the cake is made from flour. Three tenths of the cake is made of milk. Three hundredths of the cake is made from a special spice. How much flour was there? How much milk was there? How much special spice was there? Now make up similar problems involving mixtures.

Summer 1: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Fractions: Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100.	Me	My Teacher
Can you place hundredths (fractions) in ascending and descending order?		
Can you count up in hundredths starting from zero?		
Can you count back in hundredths to zero?		
Can you count up in hundredths starting from any 'hundredth number'?		
Can you count up or back in hundredths starting from any hundredth number?		
Do you know that hundredths comes from dividing a number or quantity by 100?		
Do you know that 0.01 is 1/100?		
Do you know that 1/10 is 0.1?		



Year 4: Summer 1

Week 4: Measures: Length/ Mass/ Capacity/ Time

Convert between different units of measure (e.g. km to m; hr to min)

Summer 1: Week 4: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 1: Week 4
Objective: Measures	**Length/ Mass/ Capacity/ Time:** Convert between different units of measure (e.g. km to m; hr to min)

How many seconds are there in each minute?			How many seconds are there in 2 and a half minutes?		
How many cm are there in one metre?					
How many grams are there in 1Kg?			How many metres did Frank run if he ran to his next village which is 2.5Km away?		
How many ml are there in 1 litre?					
How many minutes are there in 1 day?			How many minutes are there during lunch time which lasts for 1 hour and 15 minutes?		
How many metres are there in 1 metre?					
How many mm are there in 1 cm.?			How many grams are there in 3 Kg?		

Summer 1: Week 4: Practice and Consolidation

Measures: Length/ Mass/ Capacity/ Time: Convert between different units of measure (e.g. km to m; hr to min)

Teaching Sequence

- Revise relationships between measures: 1000m = 1km; 100cm = 1m; 10mm = 1cm
- Revise relationships between measures: 1000g = 1kg
- Revise relationships between measures: 60 min = 1 hour; 60 secs = 1 min; 12 months = 1 year
- Solve problems involving conversion between units of measure
- Express a distance of more than 1km in m
- Express a distance of more than 1cm in mm
- Express a mass of more than 1kg in g
- Express a volume of more than 1l in ml
- Express the passing of time of more than 1 hour in minutes
- Express the passing of time of more than 1 minute in seconds.

Oral and Mental Activities: Examples:

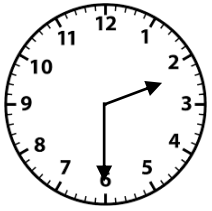
- This is mostly a reminder unit, however there will be opportunities to extend pupils' thinking.
- Remind pupils of the relationships between metres and Km; between grams and Kg; between ml and L; and between seconds, minutes and hours.
- Help pupils to express an amount of more than a Km; Kg or Litres in metres; grams and millilitres respectively.
- Then move on to time and express minutes in seconds and express hours in minutes.

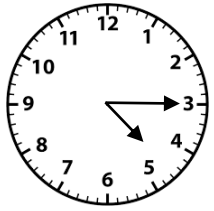
Pencil and Paper Activities Examples:

Fill in the missing numbers:

Kg	grams		Km	metres		Litres	ml
3.2				1750		9	
	2000		4.1				3200
4.4				3200		5.1	
	2100		6.5				6500
6.1			5.8			7.7	

How many mm are there in 5cm?
How many mm are there in 8.5cm?
How many cm are there in 8.2 metres?





How many minutes have passed between these two times?

How many seconds are there in 3 minutes and 15 seconds?

It takes 3 minutes to walk to the bus stop and the bus journey lasts 5 minutes and 30 seconds.
How many seconds has passed since I started to walk to the bus stop?

Summer 1: Week 4: Mastering this Objective – Deeper Understanding

Measures: Length/ Mass/ Capacity/ Time: Convert between different units of measure (e.g. km to m; hr to min)

Teaching Sequence

- Revise relationships between measures: 1000m = 1km; 100cm = 1m; 10mm = 1cm
- Revise relationships between measures: 1000g = 1kg
- Revise relationships between measures: 60 min = 1 hour; 60 secs = 1 min; 12 months = 1 year
- Solve problems involving conversion between units of measure
- Express a distance of more than 1km in m
- Express a distance of more than 1cm in mm
- Express a mass of more than 1kg in g
- Express a volume of more than 1l in ml
- Express the passing of time of more than 1 hour in minutes
- Express the passing of time of more than 1 minute in seconds.

If pupils have mastered this objective they will be able to complete these activities independently:

Training Routine

Hannah is a 800 metres runner. During a typical week she will have run 5 races of 800 metres and she will have trained by running 5 Km per day for 3 days and 10Km per day for 2 days.
How many Km will Hannah have run in the week?

Climbing Stairs

When Jamila has climbed 8 stairs he is 2 metres off the ground.
Each step measures the same.
How high is each step?
How many steps will he need to climb before he is 5 metres off the ground?

Toy Box

Joseph puts all his wooden bricks into his toy box.
Each brick weighs the same.
The toy box weighs 2.5Kg when it is empty.
After he has placed 10 bricks in the toy box, the box weighs 7.5Kg.
How much does each brick weigh?

Hannah's Training Runs

Below is a table to show how fast Hannah has run 800 metres during her training.

Day	Time
Sunday	2 min 23 secs
Monday	2 min 35 secs
Tuesday	2 min 55 secs
Wednesday	3 min 01 secs
Thursday	2 min 34 secs
Friday	2min 21 secs
Saturday	2 min 11 secs

Which day did she run the fastest?
How many seconds did she take to run the 800 metres on Friday?
What is the difference, in seconds, between her time during her fastest run and her slowest run?
Give a reason as to why Hannah had a very slow run on Wednesday.

Summer 1: Week 4: Working at greater depth

Measures: Length/ Mass/ Capacity/ Time: Convert between different units of measure (e.g. km to m; hr to min)

Teaching Sequence

- Revise relationships between measures: 1000m = 1km; 100cm = 1m; 10mm = 1cm
- Revise relationships between measures: 1000g = 1kg
- Revise relationships between measures: 60 min = 1 hour; 60 secs = 1 min; 12 months = 1 year
- Solve problems involving conversion between units of measure
- Express a distance of more than 1km in m
- Express a distance of more than 1cm in mm
- Express a mass of more than 1kg in g
- Express a volume of more than 1l in ml
- Express the passing of time of more than 1 hour in minutes
- Express the passing of time of more than 1 minute in seconds.

Activities for pupils working at greater depth:

Fill in the missing boxes so that the amounts are in order from smallest to greatest:

50cms	1.2 metres		100 metres	

Along the coast there are 3 lighthouses.
The first light shines on for 3 seconds and then off for 3 seconds.
The second light shines on for 4 seconds and then off for 4 seconds.
The third shines on for 5 seconds and then off for 5 seconds.
They have all just come on at the same time. When will be the next time all three lights will be off together?

David and Claire run for a total of 60Km per week.
David runs three times as much as Claire.
How far does each one run?
On average, David runs 1Km in 4 minutes and, on average, Claire runs 1Km in 5 minutes. What is the difference in the amount of time each spends on the road each week?

Add amounts of weight to the empty spaces so that all horizontal and vertical lines add up the same amount.

1.4Km		
	400m	1Km
____ m		1½Km

Now create a table like this for:

- Mass, and
- Time

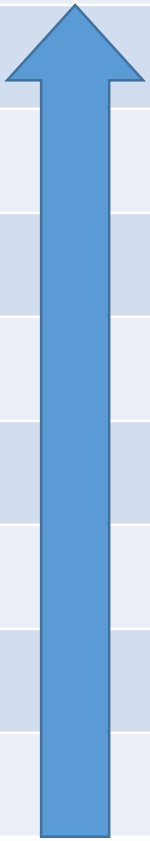
and let your friends solve it.

Henry says that there are 5000 minutes between midday on Good Friday and midday on Easter Monday.
Is he right?
If not, how far out is he?

Summer 1: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Measures: Length/ Mass/ Capacity/ Time: Convert between different units of measure (e.g. km to m; hr to min)	Me	My Teacher
Can you express the passing of time of more than 1 minute in seconds?		
Can you express the passing of time of more than 1 hour in minutes?		
Can you express an amount of more than 1l in ml?		
Can you express a weight of more than 1Kg in grams?		
Can you express a distance of more than 1 cm in mm?		
Can you express a distance of more than 1Km in metres?		
Do you remember that: 60 min = 1 hour; 60sec = 1 min; 12 month = 1 year?		
Do you remember that: 1000m = 1Km; 100cm = 1m; 10mm = 1cm; 1000g = 1kg?		



Year 4: Summer 1

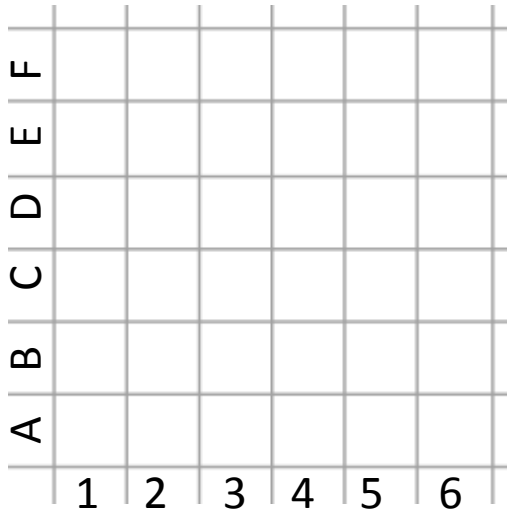
Week 5: Geometry: Position & Direction

-Describe positions on a 2D grid as coordinates in the first quadrant
- Describe movements between positions as translations of a given unit to the left/right and up/down
- Plot specified points and draw sides to complete given polygon

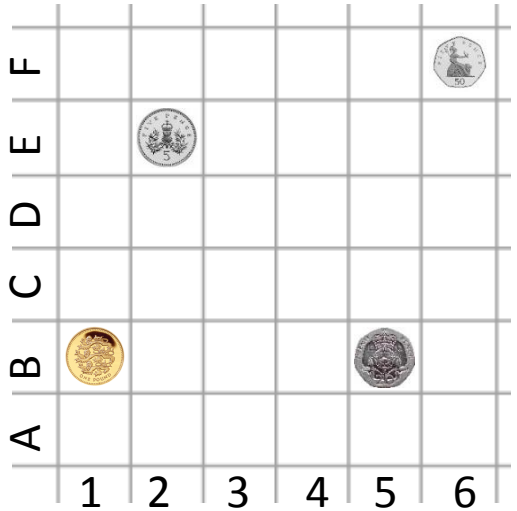
Summer 1: Week 5: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 1: Week 5
Objective: Geometry	**Position & Direction:** Describe positions on a 2D grid as coordinates in the first quadrant - Describe movements between positions as translations of a given unit to the left/right and up/down - Plot specified points and draw sides to complete given polygon



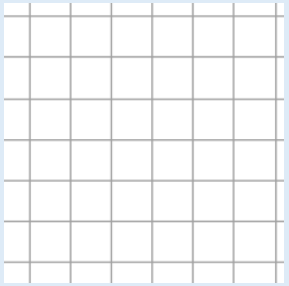
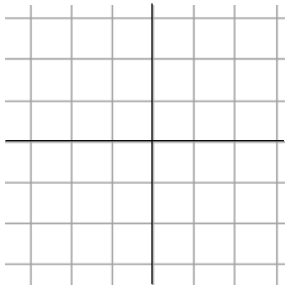
Join the following positions: 1B; 3E and 5B. What shape have you formed?
Join 1C to 4C; Join 4C to 4F; Join 4F to 1F and then join 1F to 1C. What shape have you formed?



Describe the position of:
5p coin;
20p coin
50p coin
£1 coin

Summer 1: Week 5: Practice and Consolidation

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant; Describe movements between positions as translations of a given unit to the left/right and up/down; Plot specified points and draw sides to complete given polygon

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Read coordinates using both axes ➢ Plot points using both axes ➢ Answer questions involving coordinates ➢ Create shapes by plotting points in first quadrant ➢ Explain a change in a given position by the movement made along the axes of the quadrant ➢ Use numbered axes to plot points to form a polygon ➢ Describe the properties of the polygon	• Remind pupils of a chess or draughts board and get them to work in pairs and move a chess or draught piece a given amount. • Look again at common children's games such as battleships and others which require pupils to know about co-ordinates. • Introduce the terms: reflect; rotate and translate in relation to changing positions of the shapes.	 Use 2 pieces of squared paper as shown. On the first create a horizontal (using numbers) and vertical (using letters) axes where the full square is identified. On the second, the horizontal and vertical axes are marked on the lines so that a point can be identified. Now identify squares or points and let your partner find them.  Divide the grid as shown so that you have 4 quadrants. Identify each point by number and letter. Create a regular 2D shape in the first quadrant and reflect it to the quadrant to the right and then to the quadrant immediately below. Plot the points carefully. Provide your partner with a set of points to reflect your initial shape. Identify points on the 4 quadrants by numbering the horizontal axes using negative numbers to the left of the centre and positive numbers to the right. Similarly negative numbers below the vertical axes and positive numbers above.

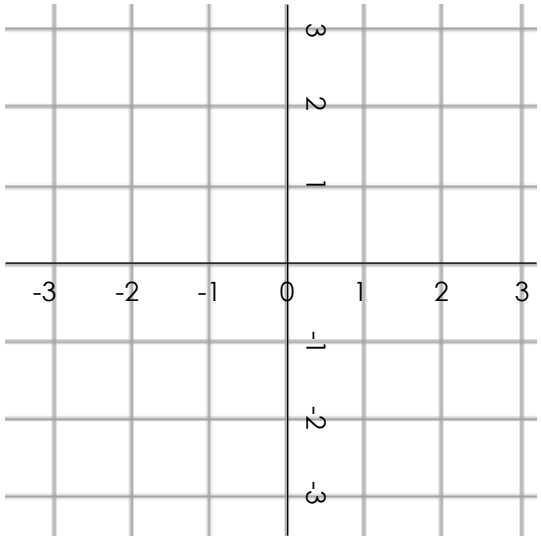
Summer 1: Week 5: Mastering this Objective – Deeper Understanding

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant; Describe movements between positions as translations of a given unit to the left/right and up/down; Plot specified points and draw sides to complete given polygon

Teaching Sequence

- Read coordinates using both axes
- Plot points using both axes
- Answer questions involving coordinates
- Create shapes by plotting points in first quadrant
- Explain a change in a given position by the movement made along the axes of the quadrant
- Use numbered axes to plot points to form a polygon
- Describe the properties of the polygon

If pupils have mastered this objective they will be able to complete these activities independently:



Mark your grid as shown with numbers on both axes going from -10 to 10.
Plot out a polygon (start with a hexagon) in the first quadrant (top left hand side).
Make a note of the coordinates.
Now reflect the shape into the second quadrant (top right).

Using the grid marked as shown, reflect the polygon so that it appears in all four quadrants.
Make sure that the distance from the axes is the same in all four quadrants.

Now use another grid to create another shape or polygon and practise reflecting as with the first polygon.

Plot a set of coordinates to create a shape without drawing the shape.
Let your partner use the coordinates to make a shape and then go on to reflect the shape into all 4 quadrants.

Now create a shape in the first quadrant and rotate the shape, by moving the shape through a 90° turn.
Plot the rotated shape in the second quadrant.
Continue rotating the shape through into the third and fourth quadrants.

Summer 1: Week 5: Working at greater depth

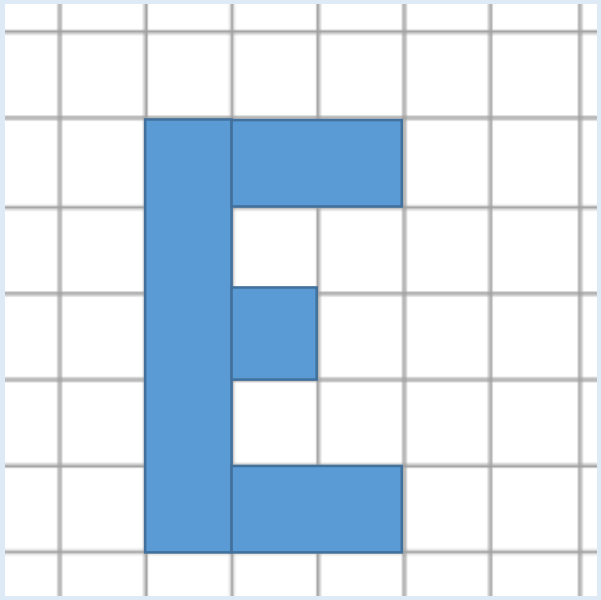
Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant; Describe movements between positions as translations of a given unit to the left/right and up/down; Plot specified points and draw sides to complete given polygon

Teaching Sequence

- Read coordinates using both axes
- Plot points using both axes
- Answer questions involving coordinates
- Create shapes by plotting points in first quadrant
- Explain a change in a given position by the movement made along the axes of the quadrant
- Use numbered axes to plot points to form a polygon
- Describe the properties of the polygon

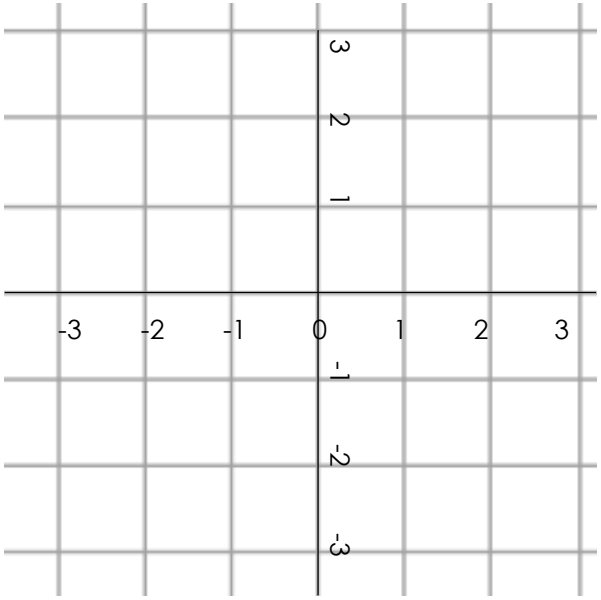
Activities for pupils working at greater depth:

Using a grid with the 4 quadrants shown and marked. Plot the letters E, F, H, I, L or T as shown below.



Now rotate the letters through a 90° into the next quadrant. Make a note of the coordinates in each of the quadrants. Provide coordinates for your partner to try to plot and rotate letters.

Game time:

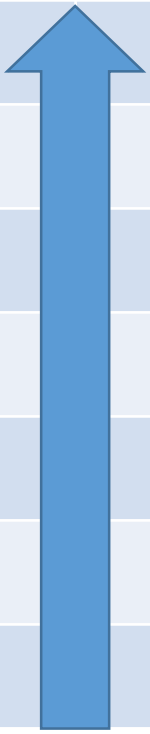


Take a grid and mark as shown above. Create a game that has movement around the grid in all four quadrants.
The movement is organised by naming the coordinates.
Your aim is to create the most interesting game.

Summer 1: Week 5: Assessment (Linked to Spring 1 Week 4)

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry: Position & Direction: Describe positions on a 2D grid as coordinates in the first quadrant; Describe movements between positions as translations of a given unit to the left/right and up/down; Plot specified points and draw sides to complete given polygon	Me	My Teacher
Can you, on a grid with 4 quadrants, translate a shape from one quadrant to the next?		
Can you, on a grid with 4 quadrants, rotate a shape from one quadrant to the next?		
Can you, on a grid with 4 quadrants, reflect a shape from one quadrant to the next?		
Can you create a grid that has 4 quadrants and plot their coordinates?		
Can you plot a shape on a grid and provide the coordinates?		
Can you identify a given point on a grid according to the coordinates given?		
Can you identify a given square on a grid according to the coordinates given?		



Year 4: Summer 1

Week 6: Fractions

-Recognise and write decimal equivalents of any number of tenths or hundredths

- Recognise and write decimal equivalents to ¼, ½ and ¾.

Summer 1: Week 6: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 1: Week 6
Objective: Fractions	Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to ¼, ½ and ¾.

Complete the table below:

Fractional Value	Decimal Value	
4/10th		
1/4		
	0.8	
	0.7	
3/10th		
9/10th		
	0.01	

Finding values:

Find 0.1 of 10		
Find ¼ of £20		
Find 0.3 of 10		
Find ¾ of £20		
Find 0.01 of 2000		
Find 0.6 of 100		
Find 0.3 of 100		
Find 1/10th of 400		

Summer 1: Week 6: Practice and Consolidation

Fractions: -Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to ¼, ½ and ¾.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Know that 1/10 = 0.1 [for each tenth value] ➢ Know that 1/100 = 0.01 [for each hundredth value] ➢ Know that 0.25 = ¼ ➢ Know that 0.5 = ½ ➢ Know that 0.75 = ¾	• Use 2 metre sticks and show how to divide each up into 10 equal pieces. • On the first show the value of each piece by fraction, ie, 1/10th • On the second show the value of each piece by decimal fraction 0.1 • Show other equivalents, such as, 0.3 = 3/10th etc. • Know that 0.5 is not just 5/10th but also ½ and that ¼ lies between 0.2 and 0.3 and is equivalent to 0.25. • Similarly, ¾ is 0.75.	Complete the tables below:

	0.2		0.4		0.6		0.8		1.0
1/10		3/10		5/10		7/10		9/10	

	0.02		0.04		0.06		0.08		1.0
1/100		3/100		5/100		7/100		9/100	

What is 1/10th of £30?
What is 1/100th of 3000?
What is 3/10th of £30?

What is 0.1 of 25Kg?
What is 0.01 of 4500?
What is 0.5 of £780?

Match the following:

0.1	½
0.5	7/10th
0.75	4/10th
0.4	¼
0.25	9/10th
0.7	¾
0.9	1/10th

Which is the greater?
- 0.5 of £100 or ¾ of £80
- 0.25 of £10 or 1/10th of £5
- 0.6 of 100Kg or ¼ of 200Kg
- 0.75 of 400 or 7/10th of 400
- 0.01 of 1000 or 1/10th of 3000
- 0.05 of 1000 or ½ of 80

Summer 1: Week 6: Mastering this Objective – Deeper Understanding

Fractions: -Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to ¼, ½ and ¾.

Teaching Sequence

- Know that 1/10 = 0.1 [for each tenth value]
- Know that 1/100 = 0.01 [for each hundredth value]
- Know that 0.25 = ¼
- Know that 0.5 = ½
- Know that 0.75 = ¾

If pupils have mastered this objective they will be able to complete these activities independently:

Match decimals and fractions

Match these decimals to its fraction equivalent:

0.1	0.25	0.5	0.7	0.75	0.3
$\frac{7}{10}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{10}$	$\frac{1}{10}$

What comes next?

83/100, 82/100, 81/100, ….., ….., …..

0.02, 0.04, 0.06, 0.08, 0.10, ……, …….

31/100, 41/100, 51/100, ….., …..,

1.4, 1.6, 1.8, 2.0, ……, ……

6/10, 7/10, 8/10, 9/10, 1, ……. , …….

- Give an example of a fraction that is more than a half but less than a whole.
- Give an example of a fraction or decimal that is more than a quarter but less than a 0.4.
- Give an example of a fraction or decimal that is more than ¾ but less than a 0.9.
- Give an example of a fraction or decimal that is more than 1/10th but less than a 0.3.
- Give an example of a fraction or decimal that is more than ¼ but less than a 0.4.

Put the correct symbol < or > in each box:

0.001		2/10th
0.75		7/10th
0.3		3/100th
0.002		2/10th
0.8		8/100th

Summer 1: Week 6: Working at greater depth

Fractions: -Recognise and write decimals equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to ¼, ½ and ¾.

Teaching Sequence

- Know that 1/10 = 0.1 [for each tenth value]
- Know that 1/100 = 0.01 [for each hundredth value]
- Know that 0.25 = ¼
- Know that 0.5 = ½
- Know that 0.75 = ¾

Activities for pupils working at greater depth:

Look at the following cards:

Make up a number that is between 3 and 4.

Now create another set of cards, one with a decimal point and the other three with numbers.
Ask your friends to solve similar problems to the one you started with.

Put these numbers in the correct order, starting with the smallest.

¼	0.75	5/10th
¾	0.6	0.004
3/10th	0.35	0.003
0.004	3/100th	3/10th
0.6	½	4/10th

Dividing by 10 or 100

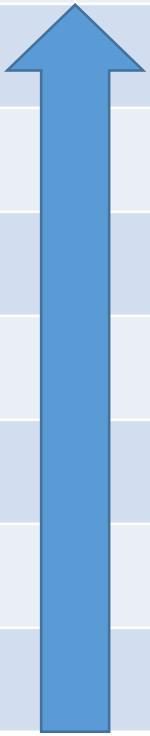
- I divide a number by 100 and the answer is 0.4. What number did I start with?
- I divide a number by 100 and the answer is ¾. What number did I start with?
- I divide a number by 10 and the answer is 0.01. What number did I start with?
- I divide a number by 10 and the answer is 7/10th . What number did I start with?
- I divide a number by 10 and the answer is 3.15. What number did I start with?

Two different numbers added together make 0.1. Give three examples of what the numbers could have been.
Two different numbers subtracted from each other make 0.4. Give three examples of what the numbers could have been.
Two different numbers added together make 0.04. Give three examples of what the numbers could have been.
Two different numbers subtracted from each other make 0.04. Give three examples of what the numbers could have been.

Summer 1: Week 6: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Fractions: -Recognise and write decimal equivalents of any number of tenths or hundredths - Recognise and write decimal equivalents to ¼, ½ and ¾.	Me	My Teacher
Do you know that 3/100 is 0.03?		
Do you know that 0.01 is 1/100?		
Do you know that 6/10 is 0.6?		
Do you know that 1/10 is 0.1?		
Do you know that ¾ is 0.75?		
Do you know that ¼ is 0.25?		
Do you know that ½ is 0.5?		



YEAR 4 : SUMMER 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
6 Place Value	**2 Statistics**	**4 Addition & Subtraction**	**6 Fractions Decimals**	**5 Geometry**	**Consolidate and Assess**
Round any number to the nearest 10, 100 or 1000	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Round decimals with one decimal place to the nearest whole number. Compare numbers with the same number of decimal places up to two decimal places.	Identify acute and obtuse angles and compare and order angles up to two right angles by size.	Start this week by revising the learning covered in Year 4 so as to ensure pupils are fluent and secure with their basic skills. Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in Year 4. Analyse the results and use information to help focus the pre-teaching sessions, as needed, for the following term.
➢ Round any number up to 100 to the nearest 10 ➢ Round any number up to 1000 to the nearest 10 ➢ Round any number up to 1000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1000	➢ Compare information in bar charts to answer questions ➢ Solve addition problems using information in bar charts to answer questions ➢ Solve difference problems using information in bar charts to answer questions ➢ Compare information in pictograms to answer questions ➢ Solve addition problems using information in pictograms to answer questions ➢ Solve difference problems using information in pictograms to answer questions ➢ Compare information in tables to answer questions ➢ Solve addition problems using information in tables to answer questions ➢ Solve difference problems using information in tables to answer questions	➢ Solve two-step problems using addition to 1000. ➢ Solve two-step problems with subtraction to 1000. ➢ Solve two-step problems using addition and subtraction to 1000.	➢ Round a number with one decimal place to nearest whole number. ➢ Given 3 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 3 numbers with two decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with two decimal places, place in order (smallest to largest and vice versa).	➢ Know that an angle smaller than a right angle is known as an acute angle ➢ Know that an angle larger than a right angle is known as an obtuse angle ➢ Identify and describe an acute angle ➢ Identify and describe an obtuse angle ➢ Compare and order angles by size	

Year 4: Summer 2

Week 1: Place Value

Round any number to the nearest 10, 100 or 1000

Summer 2: Week 1: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 2: Week 1
Objective: Place Value	Round any number to the nearest 10, 100 or 1000

Round these numbers to the nearest 10, 100 or 1000

67 to the nearest 10			771 to the nearest 100		
72 to the nearest 10			1987 to the nearest 1000		
145 to the nearest 10			8756 to the nearest 1000		
567 to the nearest 10			9385 to the nearest 1000		
234 to the nearest 100			3567 to the nearest 1000		

Summer 2: Week 1: Practice and Consolidation

Place Value: Round any number to the nearest 10, 100 or 1000

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Round any number up to 100 to the nearest 10 ➢ Round any number up to 1000 to the nearest 10 ➢ Round any number up to 1000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1000	• Explain to pupils why it is sometimes very useful to be able to get an approximate value. • Go on to explain that in mathematics a system known as 'rounding' gives a better overall picture rather than just approximating. • Explain how the numbers close to the smaller of two numbers is rounded to that number and the numbers closest to the higher of the two numbers is rounded to the higher number. • Explain the rule about a number exactly half way between two numbers.	Round the following numbers to the nearest 10: 23 45 77 89 73 84 103 119 152 328 529 210 Round to the nearest 100: 340 410 1145 2178 4518 1341 1627 2389 2163 3714 5612 7250 Round to the nearest 1000: 9348 5150 3718 9573 7728 9082 Round the following money amounts to the nearest £1: £13.87 £12.45 £12.78 £28,90 £24.50 £12.96 £45.50 £34.85 £7.89 £19.99

Summer 2: Week 1: Mastering this Objective – Deeper Understanding

Place Value: Round any number to the nearest 10, 100 or 1000

Teaching Sequence	**If pupils have mastered this objective they will be able to complete these activities independently:**	
➢ Round any number up to 100 to the nearest 10 ➢ Round any number up to 1000 to the nearest 10 ➢ Round any number up to 1000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1000	**Rounding Puzzles** A number has the digits 6 and 3 and to the nearest 10 rounds to 60. What is the number? A number has the digits 5 and 3 and to the nearest 10 rounds to 40. What is the number? A number has the digits 2, 7 and 8 and to the nearest 100 rounds to 800. What is the number?	**Rounding to 10 and then to 100** Round 296 to the nearest 10. Round it to the nearest 100. What do you notice? Suggest other numbers like this. Round 797 to the nearest 10. Round it to the nearest 100. What do you notice? Suggest other numbers like this.
	Rounding Problems When rounded to the nearest £1 Tom has £17. What is the most Tom could possibly have? What is the smallest amount he could possibly have? When rounded to the nearest £10 Jayne has £140. What is the most Jayne could possibly have? What is the smallest amount she could possibly have?	**Round the following amounts:** • 156 Kg of meat to the nearest 10Kg • 187 metres to the nearest 10m • 271 cm to the nearest metre • 3972 grams to the nearest Kg • 67p to the nearest 10p • 67p to the nearest £1 • £592 to the nearest £10 • 55 Km to the nearest 10Km • £3.15 to the nearest 10p

Summer 2: Week 1: Working at greater depth

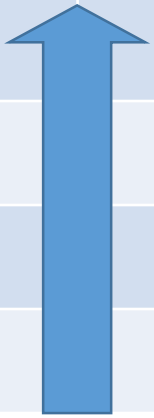
Place Value: Round any number to the nearest 10, 100 or 1000

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Round any number up to 100 to the nearest 10 ➢ Round any number up to 1000 to the nearest 10 ➢ Round any number up to 1000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1000	**Smallest and Largest numbers** A number, rounded to the nearest 10, is 540. What are the smallest and largest possible numbers it could be? A number, rounded to the nearest 10, is 780. What are the smallest and largest possible numbers it could be? A number, rounded to the nearest 100, is 1700. What are the smallest and largest possible numbers it could be?	**Rounding Money** Harris and Jones have rounded their money to the nearest £10. Harris has £80 and Jones has £120. Consider the largest and smallest amounts that each one could actually have. What is the largest possible difference in their money? What is the smallest possible difference in their money?
	Running Rounded Tom and Jemma ran for exactly 10 minutes. When rounded to the nearest 100m Tom had run 2300m and Jemma had run 3100m. What could have been the greatest distance between the two? What could have been the closest distance between the two?	**Butcher Problem** Percy the butcher had a disagreement with his wife about the amount of meat chops they could make. Percy has, rounded to the nearest 10Kg, 700Kg of meat. Each chop weighs 500gms. Percy says he is a 100% certain he will be able to make 1400 chops. Is he right? Work out the maximum and minimum number of chops he could make.

Summer 2: Week 1: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Place Value: Round any number to the nearest 10, 100 or 1000	Me	My Teacher
Can you round any number up to 10,000 to the nearest 1000?		
Can you round any number up to 1000 to the nearest 100?		
Can you round any number up to 1000 to the nearest 10?		
Can you round any number up to 100 to the nearest 10?		



Year 4: Summer 2

Week 2: Statistics

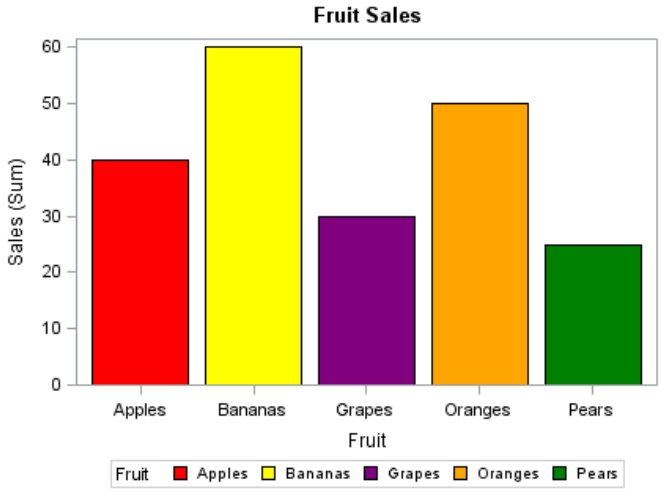
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Summer 2: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

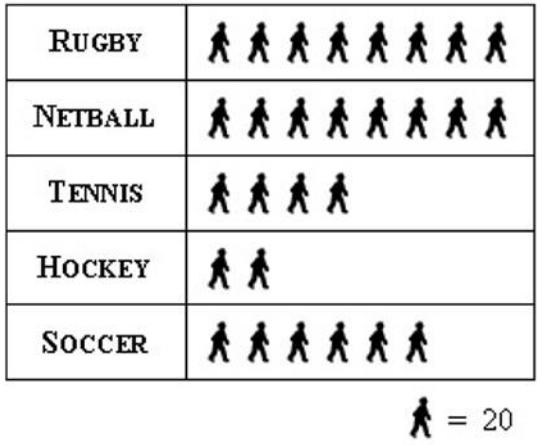
Name	Summer 2: Week 2
Objective: Statistics	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Look at the bar chart below which shows the sales of different fruit on a Sunday.



How many apples were sold?
What is the difference between the most popular fruit and the least popular fruit?

Look at the pictogram below. This shows pupils' favourite sport in a London school.



How many pupils chose hockey?
How many more pupils favour netball over tennis?
How many prefer rugby to soccer?

Summer 2: Week 2: Practice and Consolidation

Statistics: Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

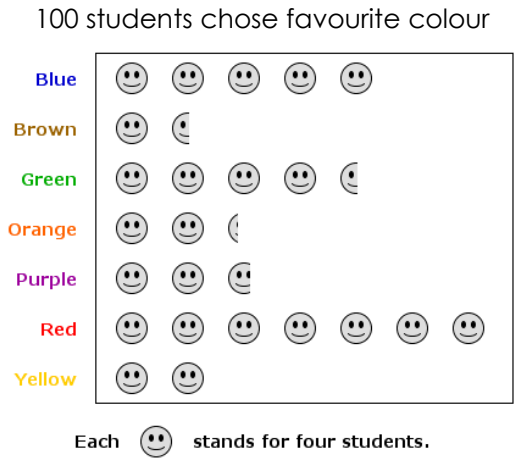
Teaching Sequence

- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

Oral and Mental Activities: Examples:

- Have three charts ready (could be on IWB).
- The three charts are a bar chart; pictogram and table giving the same information.
- Explain to the pupils how they differ and get them to consider which is their favourite and why.
- Help pupils to think of a range of questions they could ask related to the information on the charts.
- Take particular care to talk about the scales along the axes.

Pencil and Paper Activities Examples:



Look at the information on the pictogram.
How many students favoured red over brown?
How many students chose brown, yellow or purple?
How many students chose orange?
Which were the three most favoured colours, in order?
Which were two least popular?

	Males	Females	Total Participants
Baseball	29	0	29
Basketball	14	14	28
Cross Country	16	18	34
Lacrosse	35	19	54
Soccer	29	24	53
Swimming	29	33	62
Tennis	10	10	20
Track and Field	34	23	57
Wrestling	37	0	37
Softball	0	16	16
Volleyball	0	16	16

This table tells you about students' favourite sports at university.
Which sport was favourite?
What is the difference between those that favoured lacrosse and tennis?
Which sports proved to be most popular with males?

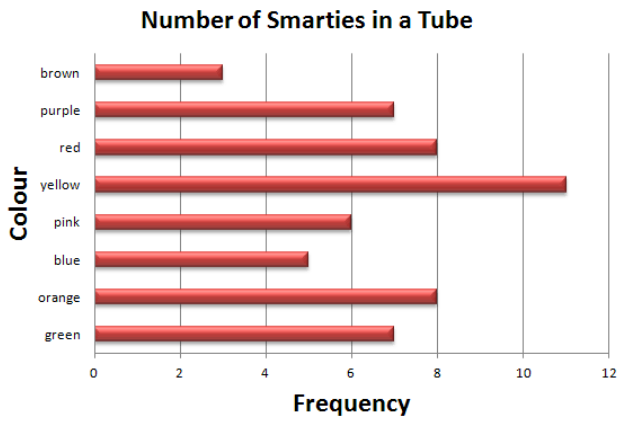
Summer 2: Week 2: Mastering this Objective – Deeper Understanding

Statistics: Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Teaching Sequence

- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

If pupils have mastered this objective they will be able to complete these activities independently:



Smarties in the tube

Which colour is most frequently seen in a Smarties tube?

Is this for all Smarties tubes? How could you find out?

If you put all the yellow, red and orange Smarties together do they make up more than all the rest put together?

Do you think the bar chart would be the same if the subject was 'The favourite Smarties colour of the children in your class'?

Age (years)	Height (cm)
1	75
2	86
3	91
4	99
5	105
6	110
7	117
8	121

Height chart

What is this table telling you?

Between which two years do you grow most?

Between which two years do you grow the least?

How much do you typically grow between the ages of 1 and 7?

Thinking of height, create a table, bar chart or pictogram related to information you collect about people's height.

Present your information in the best possible way and think of a range of questions to ask someone who looks at it.

Summer 2: Week 2: Working at greater depth

Statistics: Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Teaching Sequence

- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

Activities for pupils working at greater depth:

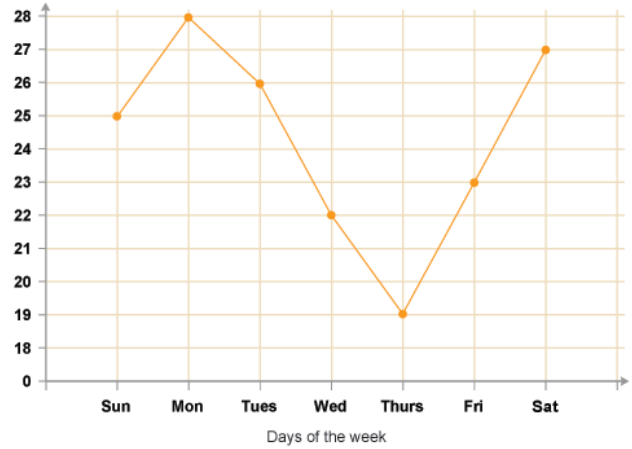
Percentages of mobile phone owners using various mobile phone features

	2006	2008	2010
Make calls	100	100	99
Take photos	66	71	76
Send & receive text messages	73	75	79
Play games	17	42	41
Search the Internet	no data	41	73
Play music	12	18	26
Record video	no data	9	35

Look at the information above about how people have changed their uses of mobile phones.
In 2006 and 2008 all mobile phone owners used the phones to make calls.
In 2006 two-thirds of owners used the phone to take photographs.
Look carefully at the information and list three things that you have learnt.
Why do you think very few people seemed to play games or play music on their mobile phones in 2006?
Why has the percentage using the internet shot upwards in the last few years?

What's it all about?

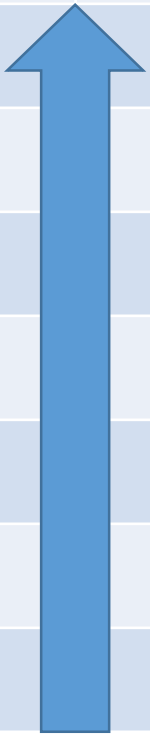
Look at the information contained within the graph below.
What do you think is being measured?
Consider that whatever is being measured is done on a daily basis for one week.
Try and come up with a plausible suggestion as to what this is all about.
There are no right or wrong answers but your explanation needs to fit the graph.



Summer 2: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Statistics: Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Me	My Teacher
Can you solve problems in relation to bar charts, pictograms or tables?		
Can you answer questions related to sum or difference in relation to bar charts, pictograms or tables?		
Can you read a table accurately?		
Can you read a pictogram accurately with scales on the axes?		
Can you read a pictogram accurately with no scales on the axes?		
Can you read a bar chart accurately with scales on the axes?		
Can you read a bar chart accurately with no scales on the axes?		



Year 4: Summer 2

Week 3: Addition & Subtraction

Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Summer 2: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 2: Week 3
Objective: Addition & Subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

During this football season Rovers have scored 129 goals. Billy was the top scorer with 42 goals. How many did all the others score?

Harry bought four items at the supermarket: the Sugar cost £1.95; Butter cost 87p; a Treat cost 15p and a loaf of bread cost 75p. Harry paid with a £5. Did he have enough and if so, how much change did he get?

A group of children put all their merit stickers together. They have 367. Helen has most with 87 and Tom has two fewer than Helen.
If Helen and Tom removed their stickers, how many would be left?

There are 228 children in the school. 132 are in Key Stage 2.
How many children are there that are not in Key Stage 2?

Summer 2: Week 3: Practice and Consolidation

Addition & Subtraction: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Solve two-step problems using addition to 1000. ➢ Solve two-step problems with subtraction to 1000. ➢ Solve two-step problems using addition and subtraction to 1000.	• Help pupils look for key words within the word problems, eg altogether, fewer, etc. • Take them through the process of reading the question and getting them to explain what they think they have to do to a partner. • Pupils' basic skills will need to be good enough once they have understood the problem. • It is important that they can work out if the step they are looking at is an addition, subtraction, or indeed multiplication or division.	In Happytown 6239 people watched the comedy programme; 3128 watched the sport and another 479 watched the news. Did more people watch the comedy than the sport and news altogether? What was the difference? At an international sports event there are 3278 competitors. 347 are from Poland; 267 are from Germany; 129 are from the UK and 501 are from France. All the others come from outside Europe. How many non-European competitors are there? Zac saved £17 in June; £19 in July and £47 in August. He goes to his cousin's for a holiday and spends £29.50. How much money did Zac have left? Three Keys, a pop group, had 6292 letters or emails from fans. The three members of the group decided to answer them by sending an autographed photograph to half the fans; a ticket to a show for a quarter of the fans; and both the ticket and autographed photograph to 600 fans. How many fans did not get anything? The local supermarket sent an order to the ice cream makers. They requested 3 large vanilla; 12 large strawberry and 5 large chocolate. Each of the vanilla costs £13; the strawberry is £2 each more than the vanilla and the chocolate is £4 each more than the vanilla. How much did the order cost?

Summer 2: Week 3: Mastering this Objective – Deeper Understanding

Addition & Subtraction: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Teaching Sequence

- Solve two-step problems using addition to 1000.
- Solve two-step problems with subtraction to 1000.
- Solve two-step problems using addition and subtraction to 1000.

If pupils have mastered this objective they will be able to complete these activities independently:

Andrew has to buy 3 presents for his sisters, Mary, Helen and Faye. He has a total of £50 to spend. Choose 3 presents from the list below and show how much change there will be?

Mary	Helen	Faye
Coat £23	Talking Doll £16.50	Large Teddy Bear £13.50
Jumper £16.50	Toy £19.50 Pushchair	Mini Farm £17
Hair £14 Accessories	Doll's House £23.50	Selection of Games £15
Dress £20.50	Toy £13.50 Computer	Toy tape recorder £21

Select a gift for each sister. Write the gifts in your maths book making sure that the total does not come to more than £50. How much change will there be?

Sum and Difference

If the difference between two numbers is 11 and their sum is 45, what are the two numbers?

A family went on a special African safari holiday. At the resort the family were offered a number of excursions. The costs are set out below:

Excursion	Safari overnight camp	Elephant Lake	Lion Park
Adult	£250	£120	£60
Child	£175	£80	£40
Family ticket	£650	£280	£105

How much will it cost for a family ticket for the overnight safari and for 2 adults to go to the lion park?

Is it cheaper for a family of 2 adults and 2 children:

to go on the overnight safari,

or for 2 adults to go to the elephant lake and for 2 children to go to the lion park?

Summer 2: Week 3: Working at greater depth

Addition & Subtraction: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Teaching Sequence

- Solve two-step problems using addition to 1000.
- Solve two-step problems with subtraction to 1000.
- Solve two-step problems using addition and subtraction to 1000.

Activities for pupils working at greater depth:

Wedding Treat

At a wedding the bride's father throws 5p; 10p; 2p and 1p coins out of the bride's car for children to collect.
John collected 32 coins and Helen collected 27. John discovered that he had £1.35 and Helen had £1.25.
Work out the coins that each one had managed to collect.
There will be more than one answer but the amount and the number of coins have to match for both of them.

7	2
6	9

Put any 4 numbers (0-9) into a 2x2 grid. Then create 4 x 2-digit numbers. In this example the four numbers would be 72; 69; 76 and 29.

Put 4 numbers in your 2x2 grid so that when added together your total is close to 100. Now do the same again but try to get as close to 200 as you can.

Summer Camp

Sweatshirt		Shorts		Shoes	
Extra warm	£30	Designer	£16	Trainers	£23
Cotton	£15	White	£11	Black	£15
Wool	£24	Blue	£13	Sandals	£13
Short sleeves	£22	With a badge	£19	Jelly	£10

Children have to buy outfits for their summer camp. Each child needs a sweat shirt; shorts and shoes. The choices are set out in the table.

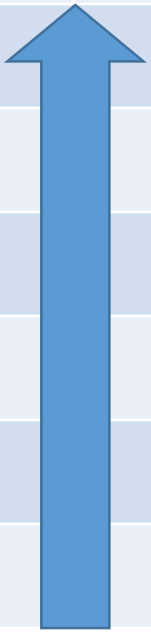
- How much will the cheapest option cost altogether?
- How much will the most expensive option cost altogether?
- You have a budget of £50. Calculate what you can afford and show how much change you will have from £50.

Create a problem for others to solve which includes a table such as this one.

Summer 2: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Addition & Subtraction: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Me	My Teacher
Can you solve a 2-step problem that requires addition and subtraction to 1000?		
Can you solve a 2-step problem that requires subtraction to 1000?		
Can you solve a 2-step problem that requires addition to 1000?		
Can you solve word problems that require one step?		
Do you know which key words to look for to help you know which operation you are likely to need to use?		
Do you consistently read through a word problem carefully before trying to solve it?		



Year 4: Summer 2

Week 4: Fractions: Decimals

-Round decimals with one decimal place to the nearest whole number.
- Compare numbers with the same number of decimal places up to two decimal places.

Summer 2: Week 4: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 2: Week 4
Objective: Fractions	**Decimals: -**Round decimals with one decimal place to the nearest whole number. - Compare numbers with the same number of decimal places up to two decimal places.

Round the following decimal numbers to the nearest whole number			Which is the number with the greater value?		
17.3			3.12 or 3.21		
24.8			4.14 or 4.41		
19.3			3.42 or 3.24		
7.5			6.7 or 6.69		
16.5			5.6 or 5.55		
17.4			8.3 or 8.13		
29.6			10.56 or 10.65		
1.3			6.76 or 6.67		

Summer 2: Week 4: Practice and Consolidation

Fractions: Decimals: -Round decimals with one decimal place to the nearest whole number.
- Compare numbers with the same number of decimal places up to two decimal places.

Teaching Sequence	Oral and Mental Activities: Examples:	Pencil and Paper Activities Examples:
➢ Round a number with one decimal place to nearest whole number. ➢ Given 3 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 3 numbers with two decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with two decimal places, place in order (smallest to largest and vice versa).	• Remind pupils about the strategy involved with rounding. • Remind pupils about the value of decimals and remind them of the terms tenths and hundredths. • Use a set of cards or the IWB to get pupils to respond to either rounding to the nearest whole number or to compare any two numbers with up to decimal points.	Round the following numbers to the nearest whole number. 5.3; 8.5; 9.3; 4.5; 9.1; 10.4; 89.4; 103.5; 90.6; 91.4; 9.5 Use a set of cards which have numbers that have up to 2 decimal places. The cards need to have many with the same whole number so that the focus is on the decimal values. Share the cards between 2 to 4 players. Each player should have a set of cards that are face down. In turn, put your top card in the middle and see which card has a number with the highest value. A number with one decimal place is rounded to the nearest whole number. Given the rounded number; give two examples of what the numbers could have been. **Example:** A number rounded to 25 could have been 24.6 or 25.4 Give two examples for the following numbers: 28; 34; 67; 103; 8; 17; 90; 67; 92; 67; 93; 99; 29 Circle the larger number in these horizontal pairs

23.14	23.67	56.91	56.19
17.23	17.32	77.77	78.78
23.97	23.79	34.81	34.18
102.76	102.77	102.99	102.98

Summer 2: Week 4: Mastering this Objective – Deeper Understanding

Fractions: Decimals: -Round decimals with one decimal place to the nearest whole number.
- Compare numbers with the same number of decimal places up to two decimal places.

Teaching Sequence

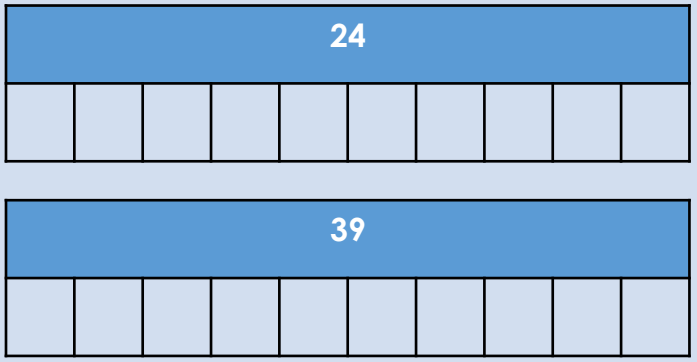
- Round a number with one decimal place to nearest whole number.
- Given 3 numbers with one decimal place, place in order (smallest to largest and vice versa).
- Given 5 numbers with one decimal place, place in order (smallest to largest and vice versa).
- Given 3 numbers with two decimal places, place in order (smallest to largest and vice versa).
- Given 5 numbers with two decimal places, place in order (smallest to largest and vice versa).

If pupils have mastered this objective they will be able to complete these activities independently:

Order the following sets of numbers and then round them to the nearest whole numbers:

23.8	16.3	2.34
17.9	16.4	5.76
24.6	16.5	11.57
27.1	16.6	9.63
72.5	16.7	13.84

Given the rounded number of a one decimal place number write down all the possible numbers they could have been.



Write down a two decimal place number that is larger than the one shown.

Given	Larger	Given	Larger
3.12		6.77	
8.34		9.34	
1.45		12.56	
9.34		102.56	

Make a set of cards that have all the possible 2 decimal place numbers on them between 24 and 24.49.

Create a game which is about knowing which of two numbers is greater.

Play the game with your friends and make adjustments to the rules as needed before you copy out the rules.

Summer 2: Week 4: Working at greater depth

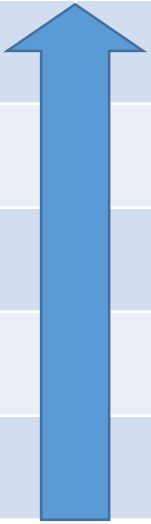
Fractions: Decimals: -Round decimals with one decimal place to the nearest whole number.
- Compare numbers with the same number of decimal places up to two decimal places.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Round a number with one decimal place to nearest whole number. ➢ Given 3 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with one decimal place, place in order (smallest to largest and vice versa). ➢ Given 3 numbers with two decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with two decimal places, place in order (smallest to largest and vice versa).	I am a number with one decimal place. When rounded to the nearest whole number I am 25. My decimal digit is 7. What is my number? I am a number between 20 and 30 with one decimal place. When the digits of my rounded number are added together it makes 9. My decimal digit is 5. What is my number? Create a few more of these problems for your friends to solve.	Make up a set of 5 numbers with the same whole number and one decimal place. Now make up another set of 5 numbers with the same whole number as before but this time with two decimal places. Using the set of 10, get your partner to put them in order and then then you put your partners in order. Make a board with the whole numbers 24 to 29 on. Get pupils to place numbers with one or two decimal places on them in the correct place once they have been rounded.
	We are two numbers with each having 2 decimal places. We are both between 20 and 29. When adding all our 4 digits together both of us add up 12. We have the same ones value. What could our two number be? There may be more than one answer. Create your own problem along these lines for your friends to solve.	Create a board game that involves rounding to the nearest whole number and also decimal numbers up to two decimal places. You may think of ideas such as snakes and ladders or even draughts. If you use a dice it can be numbered as you wish and does not have to 1 to 6. Create the game with your partner and see if it can be played by others following your rules. Don't forget it has to feature decimals.

Summer 2: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Fractions: Decimals: -Round decimals with one decimal place to the nearest whole number. - Compare numbers with the same number of decimal places up to two decimal places.	Me	My Teacher
Can you order a set of numbers with two decimal place giving the smallest number first?		
Can you order a set of numbers with one decimal place giving the smallest number first?		
Can you round a number with two decimal places to the nearest whole number?		
Can you round a number with one decimal place to the nearest whole number?		
Are you confident when dealing with numbers with tenths and hundredth values?		



Year 4: Summer 2

Week 5: Geometry

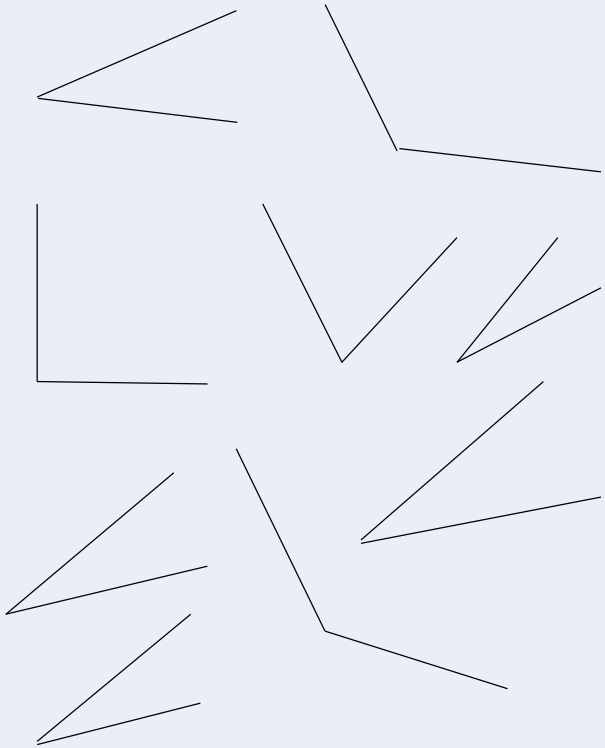
Identify acute and obtuse angles and compare and order angles up to two right angles by size.

Summer 2: Week 5: Pre-Learning Task

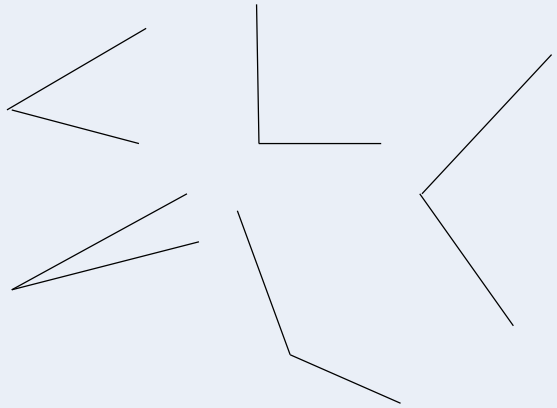
The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Summer 2: Week 5
Objective: Geometry	Identify acute and obtuse angles and compare and order angles up to two right angles by size.

Circle the acute angles below:



Number these angles 1 to 5 according to the size of the angle (smallest first):



How many acute angles are there?
How many obtuse angles are there?
What do we call the L shaped angle?

Summer 2: Week 5: Practice and Consolidation

Geometry: Identify acute and obtuse angles and compare and order angles up to two right angles by size.

Teaching Sequence

- Know that an angle smaller than a right angle is known as an acute angle
- Know that an angle larger than a right angle is known as an obtuse angle
- Identify and describe an acute angle
- Identify and describe an obtuse angle
- Compare and order angles by size

Oral and Mental Activities: Examples:

- Remind pupils of the previous learning related to right angles.
- Look around the classroom; the playground and the wider environment and find right angles; acute angles and obtuse angles.
- Demonstrate making an angle smaller and larger by having two metre sticks and keeping the two ends together and opening to create an angle.
- Remind pupils of the vocabulary associated with angles: acute; obtuse; and right angle.
- Look at the angles within a triangle and note acute and obtuse ones.

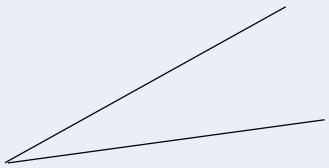
Pencil and Paper Activities Examples:

Find examples of acute; obtuse and right angles in the environment (including the classroom):

Acute	Right Angle	Obtuse

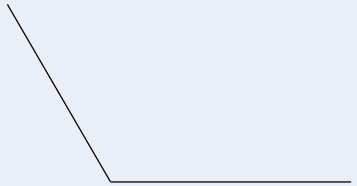
You could include photographs if you wish.

Look at the angle below. Now draw five angles that are greater than the one shown:



Label each angle as acute or obtuse.

Look at the angle below. Now draw five angles that are smaller than the one shown:



Label each angle as acute or obtuse.

Draw five different triangles of different types. Mark any acute angle with A; any obtuse angle with O and a right angle with R. Why is not possible to have more obtuse angles than acute angles in any triangle?

Summer 2: Week 5: Mastering this Objective – Deeper Understanding

Geometry: Identify acute and obtuse angles and compare and order angles up to two right angles by size.

Teaching Sequence

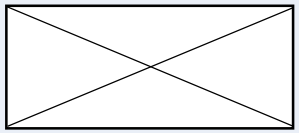
- Know that an angle smaller than a right angle is known as an acute angle
- Know that an angle larger than a right angle is known as an obtuse angle
- Identify and describe an acute angle
- Identify and describe an obtuse angle
- Compare and order angles by size

If pupils have mastered this objective they will be able to complete these activities independently:

Harry said that he had drawn a triangle which had two obtuse angles within it.
Is this true or false?
Explain your reasoning.

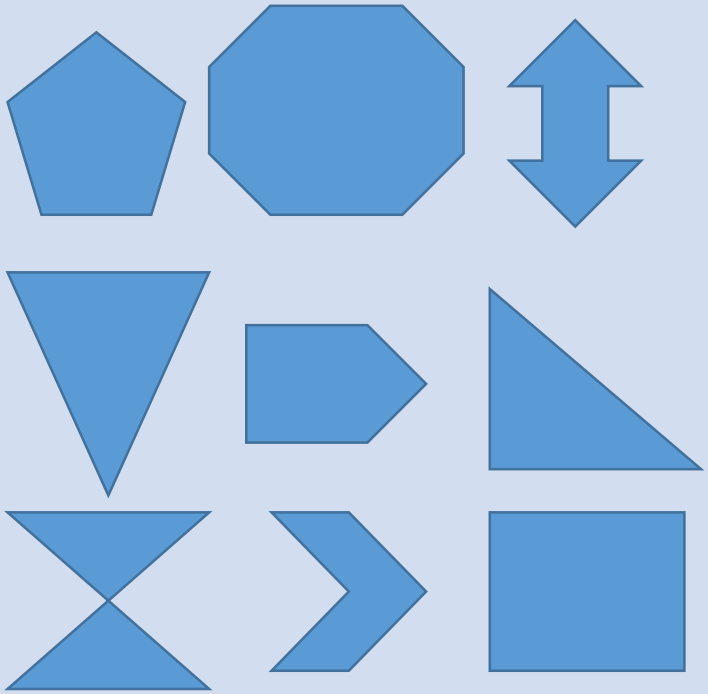
Harry also stated that he had created a triangle that had two right angles.
Is this true or false?
Explain your reasoning.

Rectangles and Squares



If you draw a line across the diagonals of rectangles or squares how many acute angles do you create?

Circle any acute and tick any obtuse angles in the following polygons and shapes:



Go through each shape and polygon again and mark each right angle with 'R'.

Summer 2: Week 5: Working at greater depth

Geometry: Identify acute and obtuse angles and compare and order angles up to two right angles by size.

Teaching Sequence

- Know that an angle smaller than a right angle is known as an acute angle
- Know that an angle larger than a right angle is known as an obtuse angle
- Identify and describe an acute angle
- Identify and describe an obtuse angle
- Compare and order angles by size

Activities for pupils working at greater depth:

Capital Angles

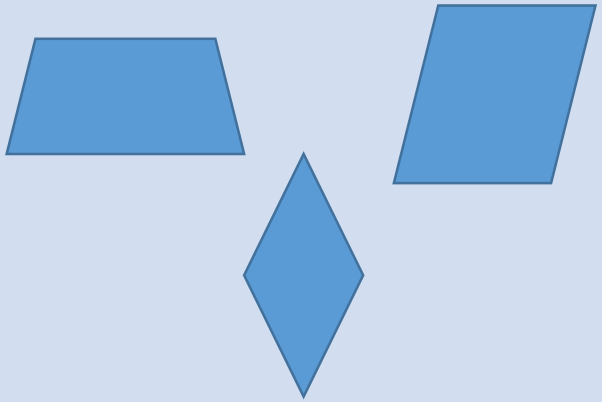
Look at the following capital letters:
Mark each acute angle with 'A' and each obtuse angle with 'O' and each right angle 'R'.

A L M

V W X

Describe Shapes

Look at the three shapes below and describe them according to their sides; angles, etc.

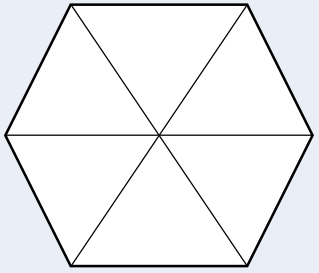


Create Triangles

- Create a triangle that has 2 acute and one obtuse angle.
- Create a triangle that has 3 acute angles.
- Create a triangle that has one right angle and two acute angles.

Why can you not create a triangle with two obtuse angles? Explain.

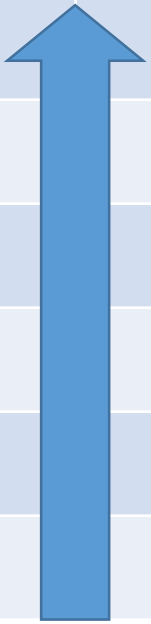
If lines are drawn diagonally across the middle of this hexagon how many acute and obtuse angles can you spot?



Summer 2: Week 5: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry: Identify acute and obtuse angles and compare and order angles up to two right angles by size.	Me	My Teacher
Can you recognise acute, obtuse and right angles in different 2D shapes?		
Can you compare angles and say which is the larger and smaller and order them?		
Do you know what an angle that is less than a right angle is called?		
Do you know what an angle that is less than a right angle called?		
Do you know what an angle that is less than a right angle called?		
Can you describe how to create an angle?		



Year 4: Summer 2

Week 6: Consolidate and Assess

- Start this week by revising the learning covered in Year 4 so as to ensure pupils are fluent and secure with their basic skills.
- Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in Year 4.
- Analyse the results and use information to help focus the intervention sessions, as needed, for the following term.

Year 4: Summer 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back in steps of 11 and 12
- Recall the 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 times tables and the derived division facts
- Multiply and divide numbers mentally using place value and known facts including multiplying by 1 and 0 and dividing by 1
- Multiply together three numbers by using place value and known facts
- Partition 4 and begin to partition 5 digit numbers
- Count on/back in 25s, 50s, and 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond
- Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places
- Find 10/100/1000 more or less than a given number beyond 10,000
- Read and write all numbers to at least 10,000 in both numerals and words
- Order a set of numbers (4 and/or 5) to 100,000 and beyond in increasing and decreasing value
- Compare numbers up to 100,000 and beyond using =, <, > symbols
- Round numbers up to and beyond 100,000 to the nearest 10, 100 or 1000
- Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers
- Count on/back in ½s , ¼s , $^{1}/_{3}$s , $^{1}/_{10}$s and other unit fractions including on a number line
- Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000)

- Although practise and consolidation should be on-going through each half term, during Week 6 there should be greater opportunity taken to check pupils' learning and understanding.
- Summative and Formative assessment procedures should help teachers gain a clear picture as to which pupils are at different stages, including mastery.