FOCUSMATHS

A positive approach to the Maths Curriculum

Year 5

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 5 : AUTUMN 1: Overview and Teaching Steps

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1 Place Value	**2 Place Value Decimals**	**1 Addition & Subtraction**	**1 Geometry Angles**	**1 Measures Perimeter and Area**	**2 Addition & Subtraction**
Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.	Add and subtract numbers mentally with increasingly large numbers.	Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: - Angles at a point on a straight line & ½ a turn (total 180°) - Angles at a point & one whole turn (total 360°) - Other multiples of 90° Draw given angles & measure them in degrees	-Measure and calculate the perimeter of composite rectilinear shapes in cm and m. - Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.	Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).
➢ Count forwards and backwards from any given number in steps of 100 ➢ Count forwards and backwards from a given number in steps of 1,000 ➢ Count forwards and backwards from a given number in steps of 10,000 ➢ Count forwards or backwards from a given number in steps of 100,000 ➢ Count forwards and backwards from a given number in steps of 1,000,000	➢ Count up in thousandths starting at zero ➢ Count back in thousandths to zero ➢ Count up in thousandths starting at any 'thousandths number' ➢ Count back in thousandths starting at any 'thousandths number' ➢ Know that thousandths arise from dividing an object, quantity or number into 1000 equal parts ➢ Place fractions (thousandths) in order – ascending and descending.	Mentally: ➢ Add any two 2-digit numbers ➢ Subtract any 2-digit number from any other greater 2-digit number ➢ Subtract any 2-digit number from any 3-digit number ➢ Add any 2-digit and any 3-digit number ➢ Subtract any 2-digit number from any 4-digit number ➢ Add together two 3-digit numbers ➢ Subtract a 3-digit number from a greater 3-digit number ➢ Add any 1000s number to any 4 or 5-digit number ➢ Subtract any 1000s number from a greater 5-digit number	➢ Know that 90° is equivalent to a quarter turn ➢ Know that 180° is equivalent to a half turn ➢ Know that 270° is equivalent to a three-quarter turn ➢ Know that 360° is equivalent to a full turn ➢ Estimate, compare and measure angles in drawings identifying acute, obtuse and reflex angles ➢ Able to use a protractor to measure angles ➢ Able to use a protractor to draw angles	➢ Calculate perimeter of range of shapes, including composite shapes by dividing into smaller shapes ➢ Know the units of measure for calculating area and how to represent (cm^2/m^2) ➢ Explain how to calculate the area of a shape using a formula ➢ Calculate area using formula ➢ Calculate the area of composite shapes by dividing into smaller shapes ➢ Calculate the area of larger spaces using m^2	➢ Add numbers with up to 5-digits with no exchanging ➢ Add numbers with up to 5-digits with exchanging ➢ Subtract numbers with up to 5-digits with no exchanging ➢ Subtract numbers with up to 5-digits with exchanging

Year 5: Autumn 1

Week 1: Place Value

Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000.

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 forward or backwards in steps of powers of 10 for any given number up to 1,000,000.

Count on or back as indicated.

100 more than 237			10,000 less than 13978		
100 more than 327			100,000 more than 135,478		
100 less than 347			100,000 more than 656,625		
100 less than 672			100,000 less than 435,878		
1000 more than 257			100,000 less than 856,925		
1000 more than 4298			1,000,000 more than 1,656,625		
1000 less than 3478			1,000,000 less than 4,935,878		
1000 less than 6625					
10,000 more than 13478			1,000,000 less than 1,856,925		

Autumn 1: Week 1: Practice and Consolidation

Place Value: Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000.

Teaching Sequence

- Count forwards and backwards from any given number in steps of 100
- Count forwards and backwards from a given number in steps of 1,000
- Count forwards and backwards from a given number in steps of 10,000
- Count forwards or backwards from a given number in steps of 100,000
- Count forwards and backwards from a given number in steps of 1,000,000

Oral and Mental Activities Examples:

- As a class count on in powers of 10, 100, 1000 from any given number.
- Then count back in 10, 100, 1000 from a given number.
- Move on to counting forwards and backwards in 10,000; 100,000 and 1,000,000 from any given number.
- Help pupils to have rapid recall when adding or subtracting up to 1000000 to a given number.
- Create a system of rapid recall and chanting to help pupils with their mental agility.
- Move on then to add or subtract in powers of 10 rapidly from numbers with up to 7 digits.

Pencil and Paper Activities Examples:

Count on or back in 10, 100, 1000, 10000, 100000, 1000000; from the given number. Use both tables and then use different numbers in the tables until you feel secure with adding or subtracting in powers of 10.

Count on from 236	
10	
100	
1000	
10000	
100000	
1000000	

Count back from 1579325	
10	
100	
1000	
10000	
100000	
1000000	

-1000000	- 100000	- 10000	- 1000	- 100	- 10	Number	+10	+100	+1000	+10000	+100000	+1000000
						4689127						

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

Place Value: Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000.

Teaching Sequence

- Count forwards and backwards from any given number in steps of 100
- Count forwards and backwards from a given number in steps of 1,000
- Count forwards and backwards from a given number in steps of 10,000
- Count forwards or backwards from a given number in steps of 100,000
- Count forwards and backwards from a given number in steps of 1,000,000

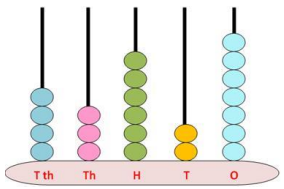
If pupils have mastered this objective they will be able to complete these activities independently:

Start by writing 1 million.

Now write the number that is 1 more than 1 million;
The number that is 10 more than 1 million;
The number that is 100 more than 1 million;
The number that is 1000 more than 1 million;
The number that is 10000 more than 1 million;
The number that is 100000 more than 1 million;
The number that is 1000000 more than 1 million;
Write the number that is 1 less than 1 million
Now the number that is 10 less than 1 million

Abacus

On an abacus with 5-digits, place 25 beads so that you create different numbers.



Consider what are the largest and the smallest numbers you can make.
Now move on and try and do the same with a six and then seven digit abacus. Stick to 25 beads and see what are the largest and smallest numbers you can make. It is worthwhile checking the second smallest and largest also.

Take a number

24579	How many 10s?
12874	How many 100s?
3698	How many 10s?
729145	How many 10000s?
3612074	How many 100s
12452937	How many 1000000s?
4185	How many 100s?
98126723	How many 1000000s?

Using the six digits below, make as many numbers as you can (aim for at least 12).

6	0	2	1	9	0

Now, from each number, find 10000 more and 10000 less than the original number.

Autumn 1: Week 1: Working at greater depth

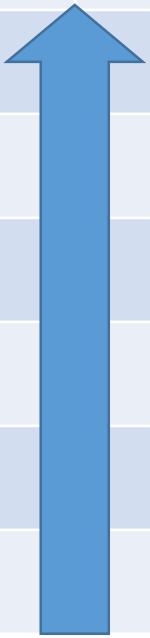
Place Value: Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Count forwards and backwards from any given number in steps of 100 ➢ Count forwards and backwards from a given number in steps of 1,000 ➢ Count forwards and backwards from a given number in steps of 10,000 ➢ Count forwards or backwards from a given number in steps of 100,000 ➢ Count forwards and backwards from a given number in steps of 1,000,000	Create six-digit numbers where the digit sum is sixteen and the hundreds digit is one. e.g. 540133, 623104 What is the largest/smallest number you can make? Add 100000 to the smallest and the largest number. Now create a 7-digit number where the digit sum is 19 and the thousands digit is 2. What is the smallest/largest digit you can make?	5 children were given a maths problem where the answer was 14850. Hamish wrote 13858 as his answer; Nicola wrote 14735; Jemma wrote 16187; Aliz wrote 15925 and Harriet wrote 14648. Who was closest to the answer and who was furthest away? Explain how you know.
	6 9 7 1 8 5 2 Using the number cards above make up two 5-digit numbers that are more than 10000 apart. Now, make up two 5-digit numbers that are less than 10000 apart. Challenge yourself to find as many pairs that are more than 10000 and as many pairs that are less than 10000 apart.	Create sets of 5 cards: You need sets where you have an original number (5 or 6 digits); a number that is 10000 greater; a number that is 10000 smaller; a number that is 1000 greater and a number that is 1000 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.

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: Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.	Me	My Teacher
Can you count forwards and backwards from a given number in steps of 1000000s from a given number?		
Can you count forwards and backwards from a given number in steps of 100000s from a given number?		
Can you count forwards and backwards from a given number in steps of 10000s from a given number?		
Can you count forwards and backwards from a given number in steps of 1000s from a given number?		
Can you count forwards and backwards from a given number in steps of 100s from a given number?		
Can you count forwards and backwards from a given number in steps of 10s?		



Year 5: Autumn 1

Week 2: Place Value: Decimals

Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 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	**Decimals:** Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.

Write down the next 2 numbers:			Find one thousandth of:		
2.7; 2.5; 2.3; 2.1;			£1500.00		
4.33; 4.35; 4.37;			2660Kg		
8.891; 8.841; 8.791; 8.741;			£55,000		
12.267; 12.257; 12.247;			3800Km		
86.191; 86.195; 86.199;			£680,000		
66.397; 65.387; 64.377;			1256L		
36.097; 35.087; 34.077;			4710Kg		
541.987; 541.977; 541.967			729000cm		

Autumn 1: Week 2: Practice and Consolidation

Place Value: Decimals: Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.

Teaching Sequence

- Count up in thousandths starting at zero
- Count back in thousandths to zero
- Count up in thousandths starting at any 'thousandths number'
- Count back in thousandths starting at any 'thousandths number'
- Know that thousandths arise from dividing an object, quantity or number into 1000 equal parts
- Place fractions (thousandths) in order – ascending and descending.

Oral and Mental Activities Examples:

- Explain that thousandths are created by dividing by 1000.
- Show the thousandths value in decimal and fractional form
- Remind pupils of the relationship between tenths, hundredths and thousandths.
- Pupils need to know that 100 thousandths is equivalent to one tenth and that 10 thousandths is equivalent to one hundredth.
- Use a metre stick to first show one tenth and then go on to explain the value of one hundredth and then one thousandths.

Pencil and Paper Activities Examples:

Fill in the missing numbers:

0.001			0.004	0.005		0.007	
	2/1000	3/1000			6/1000		8/1000

Match the decimal value to the fraction:

0.512	0.103	0.427	0.559	0.776
$\frac{427}{1000}$	$\frac{512}{1000}$	$\frac{559}{1000}$	$\frac{776}{1000}$	$\frac{103}{1000}$

Continue these sequences:

0.124……0.126…….0.128…….0.130…… ☐ ……. ☐

1.456…… 1.556……1.656……..1.756…….. ☐ …….. ☐

How many thousandths in:

One tenth ☐ one hundredth ☐ one whole ☐

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

Place Value: Decimals: Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Count up in thousandths starting at zero ➢ Count back in thousandths to zero ➢ Count up in thousandths starting at any 'thousandths number' ➢ Count back in thousandths starting at any 'thousandths number' ➢ Know that thousandths arise from dividing an object, quantity or number into 1000 equal parts ➢ Place fractions (thousandths) in order – ascending and descending.	Look at these 8 cards:  Using as many or as few as you need how many numbers with three decimal places can you make up that are between 7.001 and 7.105?	• One thousandth of a town's population of 148000 were born on February 29th. • How many people were not born on February 29th? • Three thousandths of 15000 sailors had a sea sickness. • How many sailors did not have sea sickness? • Nine hundredths of the 32000 competitors were from France. How many competitors came from France?
	Find 1/1000th or 0.001 of the following amounts: £50,000 5500 litres 183,920 Kg 345,000 cm 9800 Km 1,000,000 £129,500 4 million	The population of the UK is approximately 64,000,000. How much is one thousandth of the population? The population of Jamaica is approximately 3,000,000. How much is one thousandth of the population? The population of Cuba is approximately 11,000,000. How much is one thousandth of the population?

Autumn 1: Week 2: Working at greater depth

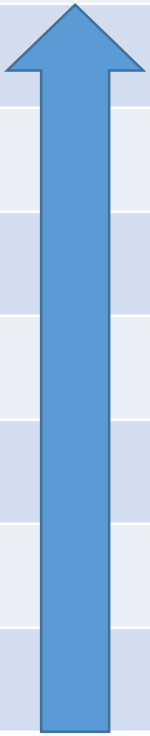
Place Value: Decimals: Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Count up in thousandths starting at zero ➢ Count back in thousandths to zero ➢ Count up in thousandths starting at any 'thousandths number' ➢ Count back in thousandths starting at any 'thousandths number' ➢ Know that thousandths arise from dividing an object, quantity or number into 1000 equal parts ➢ Place fractions (thousandths) in order – ascending and descending.	**What's in a number:** Take a number like 23.763 It is ☐ less than 24 It is ☐ more than 23 It is ☐ more than 23.5 It is ☐ less than 23.8 Now find another number with 3 decimal places and ask your friends similar questions.	**More than…..Less than** • Write a decimal fraction that is less than 0.01 but more than 0.001. Now write its fractional equivalent. • Write a decimal fraction that is less than 0.21 but more than 0.03. Now write its fractional equivalent. • Write a decimal fraction that is less than 0.05 but more than 0.039. Now write its fractional equivalent. Think of 5 more similar questions to ask your friend.
	Cake Mixture A special cake weighs 8Kg (8000 grams). Half of the cake is made from flour. Three tenths of the cake is made of milk. Three thousandth 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.	**What do you notice?** 1/100 of 100 = 1 1/1000 of 100 = 0.1 2/100 of 100 = 2 2/1000 of 100 = 0.2 How can you use this to work out: 6/100 of 200 6/1000 of 200?

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: Decimals: Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000.	Me	My Teacher
Can you work out how many thousandths there are in any number to include ones, tenths, hundredths and thousandths?		
Can you work out how many thousandths there are in any ones value?		
Can you work out how many thousandths there are in any given tenth value?		
Can you work out how many thousandths there are in any given hundredth value?		
Do you know that 10 thousandths are equivalent to one hundredth?		
Do you know that 100 thousandths are equivalent to one tenth?		
Do you know that 1000 thousandths are equivalent to one whole?		



Year 5: Autumn 1

Week 3: Addition & Subtraction

Add and subtract numbers mentally with increasingly large numbers.

Autumn 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	Autumn 1: Week 3
Objective: Addition & Subtraction	Add and subtract numbers mentally with increasingly large numbers.

Add these rapidly			***Subtract these rapidly***		
60,500 + 10,000			56,910 – 10,000		
89,478 + 10,000			129,035 – 10,000		
234,812 + 100,000			472,912 – 100,000		
602,825 + 100,000			629,012 – 100,000		
328,901 + 10,000			670,135 – 100,000		
792,013 + 10,000			824,012 – 100,000		
1,203,467 + 1,000,000			1,352,978 – 1,000,000		
7,982,479 + 1,000,000			8,482,912 – 1,000,000		

Autumn 1: Week 3: Practice and Consolidation

Addition & Subtraction: Add and subtract numbers mentally with increasingly large numbers.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
Mentally: ➢ Add any two 2-digit numbers ➢ Subtract any 2-digit number from any other greater 2-digit number ➢ Subtract any 2-digit number from any 3-digit number ➢ Add any 2-digit and any 3-digit number ➢ Subtract any 2-digit number from any 4-digit number ➢ Add together two 3-digit numbers ➢ Subtract a 3-digit number from a greater 3-digit number ➢ Add any 1000s number to any 4 or 5-digit number ➢ Subtract any 1000s number from a greater 5-digit number	• This unit is about improving pupils' rapid recall. • Much of the learning is about using a timer to see how pupils can improve their mental agility. • Many of the examples here will be similar to the activities that pupils have been used to during the 3 x 15 minutes basic number sessions. • This part will be linked to such exercises as one minute testing, etc.	Complete the pattern:  + 5 = 14 + 50 = 140 + 500 = 1400 + 5000 = 14000 What do you notice? Explain this to a partner. Create a similar pattern with subtraction. Look at these patterns and continue them: 31 + 69 150 + 850 1250 + 8750 41 + 59 250 + 750 1275 + 8725 51 + 49 350 + 650 1300 + 8700 61 + 39 450 + 550 1325 + 8675 Now look at these patterns and continue them: 1250 – 250 12000 – 1000 120000 - 10000 1200 – 300 11500 – 1500 115000 - 15000 1150 – 350 11000 - 2000 110000 - 20000 1100 – 400 10500 - 2500 105000 - 25000 Bonding in 100s to 1000 400 + 600 = 1000 What are the others? Also bonding in 1000s to 10000 Bonding in 10000s to 100,000 30000 + 70000 = 100000 What are the others? Also bonding in 100,000 to 1,000,000.

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

Addition & Subtraction: Add and subtract numbers mentally with increasingly large numbers.

Teaching Sequence

Mentally:

- Add any two 2-digit numbers
- Subtract any 2-digit number from any other greater 2-digit number
- Subtract any 2-digit number from any 3-digit number
- Add any 2-digit and any 3-digit number
- Subtract any 2-digit number from any 4-digit number
- Add together two 3-digit numbers
- Subtract a 3-digit number from a greater 3-digit number
- Add any 1000s number to any 4 or 5-digit number
- Subtract any 1000s number from a greater 5-digit number

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

Sequence Checker

177,000, 187,000, 197,000, 217,000
What is wrong with this sequence of numbers?

238,000, 228,000, 218,000, 208,000, 188,000
What is wrong with this sequence of numbers?

456,000, 455,500, 455,000, 454,500, 453,000
What is wrong with this sequence of numbers?

Improving your mental subtraction

Take 129 from 347

129 → 200 = 71
200 → 300 = 100
300 → 347 = 47
Answer = 218

Use this method to calculate the following:

521 – 276; 712 – 413; 926 – 382
691 – 367; 827 – 672; 520 - 167

Take 500 away from each of these numbers:

1,234,893	439,265	812,256
768,092	845,289	723,127

Take 5000 away from each of these numbers:

1,346, 989	2,346, 235	3,125,890
2,562,123	5,763,124	7.090,123

Mental agility involving money

Paying amounts with a £50 note:
How quickly can you respond when asked to give change?

How much change will you have from a £50 if you were asked to pay:

£21.98; £14.92 £17.93 £16.32 £16.88
£19.34 £34.56 £14.87 £17.45 £17.77

Autumn 1: Week 3: Working at greater depth

Addition & Subtraction: Add and subtract numbers mentally with increasingly large numbers.

Teaching Sequence	Activities for pupils working at greater depth:	
Mentally: ➢ Add any two 2-digit numbers ➢ Subtract any 2-digit number from any other greater 2-digit number ➢ Subtract any 2-digit number from any 3-digit number ➢ Add any 2-digit and any 3-digit number ➢ Subtract any 2-digit number from any 4-digit number ➢ Add together two 3-digit numbers ➢ Subtract a 3-digit number from a greater 3-digit number ➢ Add any 1000s number to any 4 or 5-digit number ➢ Subtract any 1000s number from a greater 5-digit number	**Paying multiple amounts** Work these out mentally first and then check: Pay with one or two £50 notes for these tickets. How much change will I receive? • 2 adult tickets @ £13.50 and 2 children's tickets @£9.50 • 4 adult tickets @ £9.99 and 6 children's tickets @ £7.99 • 4 adults tickets @ £19.50 • 6 children's tickets @ £7.95	**What are the missing digits?** Estimate first and then check. 123,908 + 125,0 ☐ 6 = 248,984 256, ☐ 56 + 125,896 = 382,452 ☐ 72,901 + 262,980 = 1,035,881 1,892,009 - 435, ☐ 76 = 1,456,233 3,901,834 - 1, ☐ 34,999 = 1,966,835
	Minus 1500 Take 1,500 away from each of these numbers: Mentally first and then check 1,234,893 439,265 812,256 768,092 845,289 723,127 Take 50,000 away from each of these numbers: 1,346, 989 2,346, 235 3,125,890 2,562,123 5,763,124 7.090,123	**Card Fun** Have two sets of cards: Set A has numbers of multiples of 100; 1,000; 10,000 and 100,000 on them. Set B has numbers in their millions. The idea is to show one of the Set B cards and then either add or subtract the next card from Set A. Pupils play this in 2s or 4s and time each other to see how many correct answers they get within a given time frame.

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 & Subtraction: Add and subtract numbers mentally with increasingly large numbers.	Me	My Teacher
Have you established strategies for dealing with larger numbers, including breaking them up where it is appropriate to do so?		
Can you add or subtract any 1000s number to a 4 or 5 digit number?		
Have you developed a strategy for adding and subtracting numbers which go through the multiples of 10 line, eg. 123 – 97 or 236 + 197?		
Can you mentally subtract a 2-digit number from a 3-digit number rapidly?		
Can you mentally subtract any 2-digit number from a greater 2-digit number rapidly?		
Can you mentally add any 2, 2-digit numbers rapidly?		

Year 5: Autumn 1

Week 4: Geometry: Angles

Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles.
Identify:

- **Angles at a point on a straight line & half a turn (total 180°)**
- **Angles at a point & one whole turn (total 360°)**
- **Other multiples of 90°**

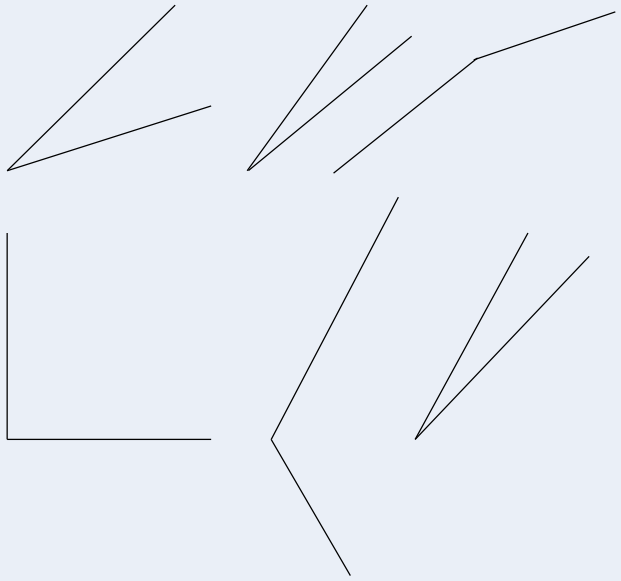
Draw given angles, & measure them in degrees

Autumn 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	Autumn 1: Week 4
Objective: Geometry: Angles	Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: - Angles at a point on a straight line & ½ a turn (total 180°) - Angles at a point & one whole turn (total 360°) - Other multiples of 90° Draw given angles, & measure them in degrees

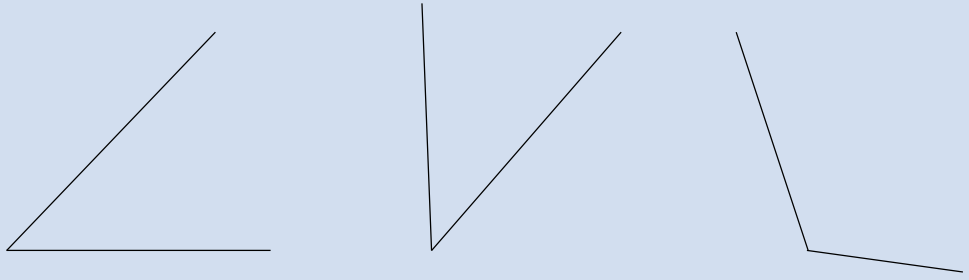
Mark acute angles with an A; Obtuse angles with a O and a right angle with a R:



Draw an acute; obtuse and a right angle in the space below:

Autumn 1: Week 4: Practice and Consolidation

Geometry: Angles: Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: Angles at a point on a straight line & ½ a turn (total 180°); Angles at a point & one whole turn (total 360°); Other multiples of 90°; Draw given angles, & measure them in degrees

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know that 90° is equivalent to a quarter turn ➢ Know that 180° is equivalent to a half turn ➢ Know that 270° is equivalent to a three-quarter turn ➢ Know that 360° is equivalent to a full turn ➢ Estimate, compare and measure angles in drawings, identifying acute, obtuse and reflex angles ➢ Able to use a protractor to measure angles ➢ Able to use a protractor to draw angles	• Ensure that pupils are secure with the idea of angles and turns, for example a quarter turn is measured as 90°. • Know that angles are measured precisely using a protractor. • Know that it is easy to classify angles into acute; obtuse and reflex as well as using the term right angle and a straight line. • Re-emphasise the idea of an angle being something opening from a given point. • Introduce pupils to the term protractor and model how to use one.	Looking around the classroom; the inside and outside areas of your school and possibly around the immediate area outside your school, take photographs of any right angles you see and put together in a small booklet showing them and their location but also a brief explanation of why a right angle is needed at that point. Draw 3 acute angles and then use a protractor to measure them to the nearest degree. Draw 3 obtuse angles and then use a protractor to measure them to the nearest degree. Why is it helpful for protractors to be transparent? First estimate and then measure the following angles:  Now draw an angle of 60°; 45°; 120° and 36°

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

Geometry: Angles: Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: Angles at a point on a straight line & ½ a turn (total 180°); Angles at a point & one whole turn (total 360°); Other multiples of 90°; Draw given angles, & measure them in degrees

Teaching Sequence

- Know that 90° is equivalent to quarter turn
- Know that 180° is equivalent to half turn
- Know that 270° is equivalent to three-quarter turn
- Know that 360° is equivalent to full turn
- Estimate, compare and measure angles in drawings, identifying acute, obtuse and reflex angles
- Able to use a protractor to measure angles
- Able to use a protractor to draw angles

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

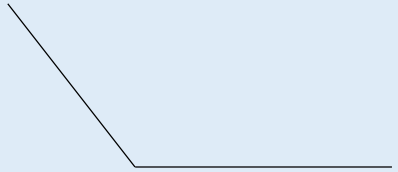
Think of the angle created between the hands of a clock:

Is the angle an acute; obtuse or a right angle at these times:

4 o'clock;	ten past three
twenty past six	quarter past twelve
9 o'clock	five past seven

Now give another 3 examples of when the hands make an acute; obtuse or a right angle.

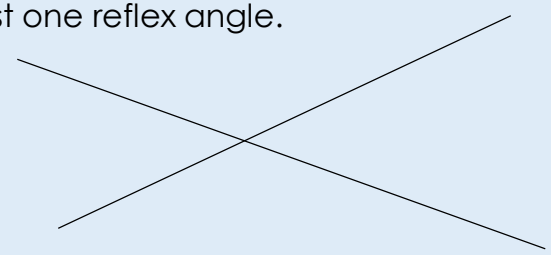
Without checking, is this angle likely to be 60°?



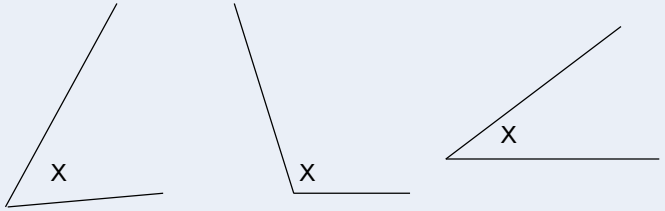
Explain your reasoning before checking the angle. Then without using a protractor draw an angle of 60° and then check how accurate you have been. You should aim for accuracy within 5°

Draw 3 reflex angles and record their angles in degrees.

On the intersecting lines below, mark at least one reflex angle.



Estimate the following angles (x) and then check them:



You should aim to be within 5°.

Autumn 1: Week 4: Working at greater depth

Geometry: Angles: Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: Angles at a point on a straight line & ½ a turn (total 180°); Angles at a point & one whole turn (total 360°); Other multiples of 90°; Draw given angles, & measure them in degrees

Teaching Sequence

- Know that 90° is equivalent to quarter turn
- Know that 180° is equivalent to half turn
- Know that 270° is equivalent to three-quarter turn
- Know that 360° is equivalent to full turn
- Estimate, compare and measure angles in drawings identifying acute, obtuse and reflex angles
- Able to use a protractor to measure angles
- Able to use a protractor to draw angles

Activities for pupils working at greater depth:

Draw the capital letter '**A**' where the angle at the top is 30°.

Draw the capital letter '**K**', ensuring that the angle in the centre is 45°.

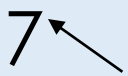
Draw the capital letter '**V**' ensuring that the angle at the bottom is 35°.

Draw the capital letter '**X**' making sure that the intersecting angles are 45°.

Look carefully at the number:

Estimate what the angle should be and then check to see if you could draw a '4' with the angle you estimated.

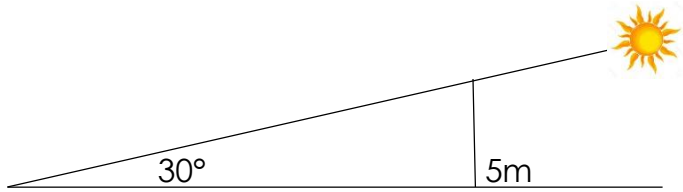
Now look at the number:



Estimate the angle and then attempt to draw the number 7 with this angle.

What's the time Mr Wolf?
The minute and hour hands are open at an angle of 90°. The hour hand is between 4 and 6.
Think of at least two possible times it could be?
The angle between the two hands is 60° and the minute hand is at 7. Think of at least two possible times it could be.

- Now make up similar problems for others to solve

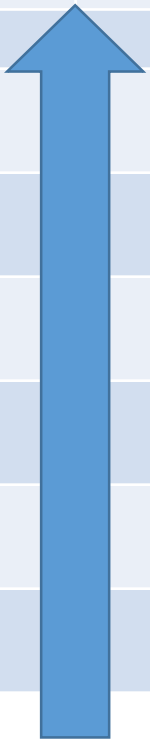


The sun forms an angle of 30° to the Earth as shown above. How long will the shadow of a lamp-post 5m high be (to the nearest 5 cm)?
Start by creating a diagram.

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.

Geometry: Angles: Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: Angles at a point on a straight line & half a turn (total 180°); Angles at a point & one whole turn (total 360°); Other multiples of 90°; Draw given angles, & measure them in degrees	Me	My Teacher
Can you draw a given angle and measure them in degrees (°)?		
Can you estimate an angle and then check it?		
Do you know that you use a protractor to measure angles?		
Do you know that angles are measured in degrees which has a symbol like this (°)?		
Can you identify a reflex angle?		
Can you identify an obtuse angle?		
Can you identify an acute angle?		



Year 5: Autumn 1

Week 5: Measures: Perimeter and Area

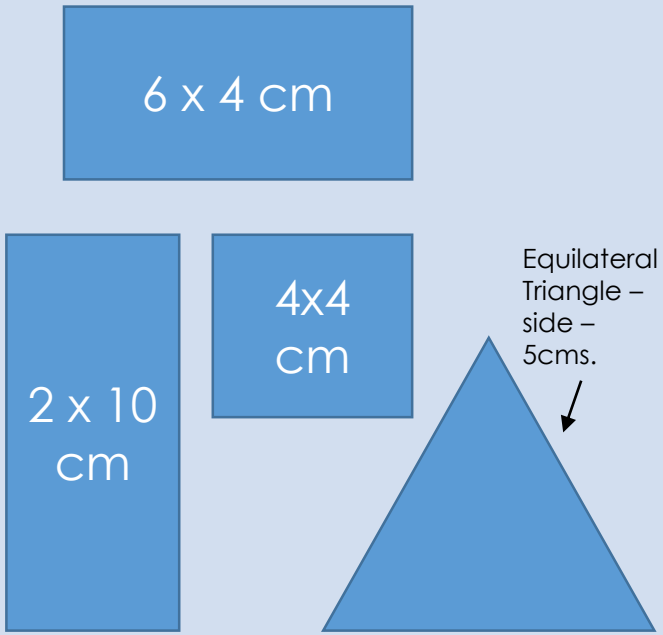
-Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
- Calculate & compare the area of rectangles (including squares), & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Autumn 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	Autumn 1: Week 5
Objective: Measures	**Perimeter and Area:** -Measure and calculate the perimeter of composite rectilinear shapes in cm and m.: Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

What is the perimeter of the shapes below?



Draw a shape within the grid and then count up the number of squares used

Autumn 1: Week 5: Practice and Consolidation

Measures: Perimeter and Area: -Measure and calculate the perimeter of composite rectilinear shapes in cm and m.: Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

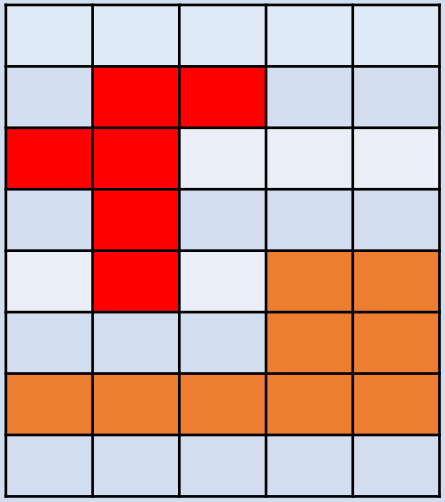
Teaching Sequence

- Calculate the perimeter of a range of shapes, including composite shapes by dividing into smaller shapes
- Know the units of measure for calculating area and how to represent (cm^2/m^2)
- Explain how to calculate the area of a shape using a formula
- Calculate area using formula
- Calculate the area of composite shapes by dividing into smaller shapes
- Calculate the area of larger spaces using m^2

Oral and Mental Activities Examples:

- Remind pupils of the Year 4 learning in relation to perimeter.
- Introduce the notion of working to centimetre squared paper and the quick way of measuring area.
- Use examples of desk tops to emphasise the difference between perimeter and area.
- Ensure pupils are confident of their use of the symbol ² in relation to area.
- Talk about the different ways area is used in everyday life, eg, buying carpet or floor covering.
- At this stage concentrate on either cm^2 or m^2.

Pencil and Paper Activities Examples:

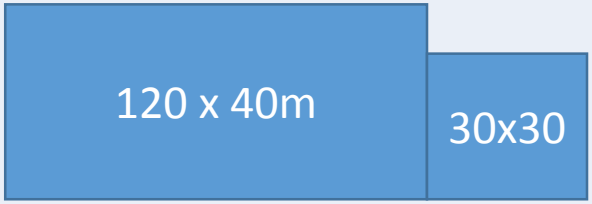


If the squares on this paper are 1cm^2 what is the perimeter and area of the shaded shapes?

Using cm squared paper create more shapes for your friend to work out the perimeter and area.

If half the squared paper on the left was shaded, what would be the area shaded?

If a field measures 100m x 50m, what is their perimeter and area? Look at the diagram below showing two adjoining fields.



Both fields are measured in metres.
Find the perimeter of the adjoining fields and also find its area.

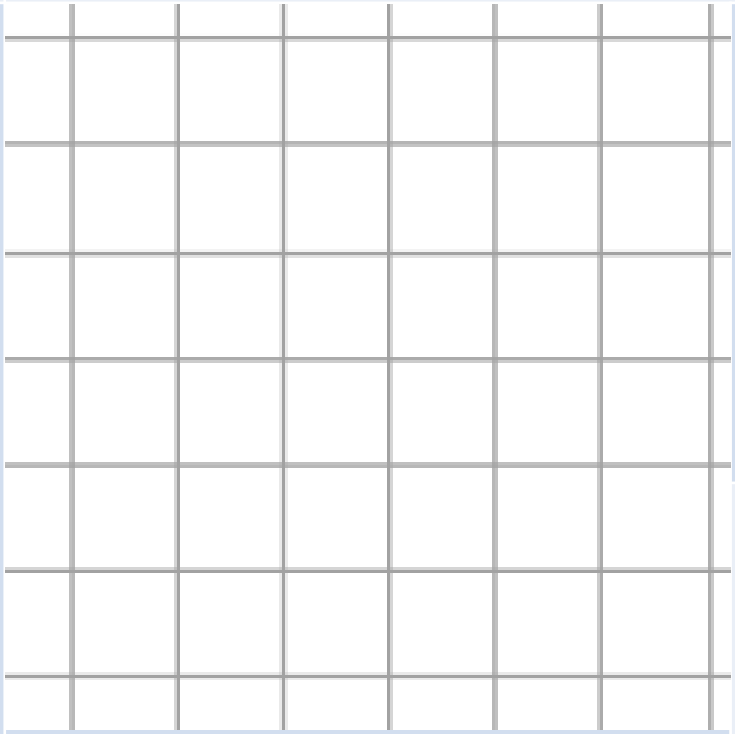
Autumn 1: Week 5: Mastering this Objective – Deeper Understanding

Measures: Perimeter and Area: -Measure and calculate the perimeter of composite rectilinear shapes in cm and m.: Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Teaching Sequence

- Calculate the perimeter of a range of shapes, including composite shapes by dividing into smaller shapes
- Know the units of measure for calculating area and how to represent (cm^2/m^2)
- Explain how to calculate the area of a shape using a formula
- Calculate area using formula
- Calculate the area of composite shapes by dividing into smaller shapes
- Calculate the area of larger spaces using m^2

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



Draw a 4 x 4 square on this squared paper and then draw 2 more rectangles with the same area. Now find the perimeter of the 4x4 square and draw 2 other shapes with the same perimeter.

Use centimetre squared paper to create the following rectangles:
6 x 4 cm
10 x 4 cm
8 x5 cm
Now for each of the above create another shape which has the same area and separately a shape which has the same perimeter.
Will the shape for area always be the same as the shape for perimeter?
Explain your thinking.

Using centimetre squared paper.

Make up 4 shapes that have 16 sq. cm
The shapes should not just be rectangles or squares.
Work out the perimeter of each of the shapes you have made and put a fence around the perimeter of each.
The fence costs £10 per metre.
Which is the most and least expensive to surround with fencing?

Autumn 1: Week 5: Working at greater depth

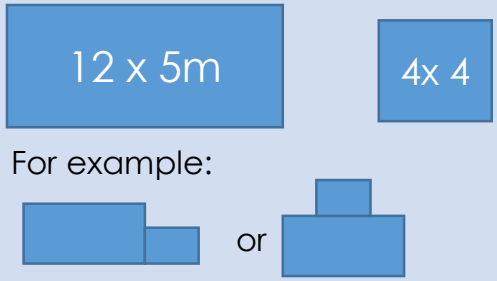
Measures: Perimeter and Area: -Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Teaching Sequence

- Calculate the perimeter of a range of shapes, including composite shapes by dividing into smaller shapes
- Know the units of measure for calculating area and how to represent (cm^2/m^2)
- Explain how to calculate the area of a shape using a formula
- Calculate area using formula
- Calculate the area of composite shapes by dividing into smaller shapes
- Calculate the area of larger spaces using m^2

Activities for pupils working at greater depth:

Put these two shapes together to create different shapes:



For example:

Will their perimeter and area always be the same? Explain your reasoning.

Enclosing a Field A farmer wants to create an enclosed field with an area of 100 sq. metres. When he has decided on his shape he will have to buy fencing around the perimeter. The fencing will cost £6 per metre.
He wants to create the new enclosed field so that the fence is going to be as cheap as possible.
What should the dimensions of the enclosed field be? Now work out the cost of the fence. You are dealing with whole metres only.

Garden
A new garden is about to be grassed.
The dimensions of the garden are 12 x 8 metres.
The gardener wants to put a vegetable plot of 4 x3 metres and a shed measuring 3 x 2 metres in the garden.
If the rest of the garden is covered in grass and grass costs £12 per sq metre, how much will the grass cost altogether?

Playground Design
Design your own school playground.
The dimensions of the space available to you are 60 x 40 metres.
You have to include the following:

- Small enclosed football area
- Quiet sitting area
- Trim Trail

Put together a design and think of how best to enclose the football and the quiet area. Costs have to be considered. Enclosure fences at £15 per metre; Flooring for football at £45 per sq metre. Present your design including dimensions and costs.

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.

Measures: Perimeter and Area: -Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.	Me	My Teacher
Can you use information about calculating the area of a square or rectangle to work out the area of irregular shapes that can be divided up into squares and rectangles?		
Can you use information about calculating the area of a square or rectangle to work out the area of irregular shapes that can be divided up into squares and rectangles?		
Can you use information about calculating the area of a square or rectangle to work out the area of irregular shapes that can be divided up into squares and rectangles?		
Do you know that the area of a square or a rectangle is measured in cm^2 or m^2?		
Can you create a shape that has the same area as a shape you have already drawn on cm. squared paper?		
Can you work out the area of given shapes using cm. squared paper?		
Can you calculate the perimeter of a composite shape, given the dimensions?		
Can you calculate the perimeter of a rectangle or square?		

Year 5: Autumn 1

Week 6: Addition & Subtraction

Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

Autumn 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: Addition & Subtraction	Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

16448 12255+	11325 14123+	10462 20257+		32876 10323-	15689 21643-	78592 35869-	
34571 24259+	75682 23876 43975+	95832 73271 56659+		42879 34588-	53653 24676-	84932 46737-	

Autumn 1: Week 6: Practice and Consolidation: Part 1 (Addition)

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Add numbers with up to 5-digits with no exchanging ➢ Add numbers with up to 5-digits with exchanging ➢ Subtract numbers with up to 5-digits with no exchanging ➢ Subtract numbers with up to 5-digits with exchanging	• Remind pupils of the formal methods of adding and subtracting 4-digit numbers. • Concentrate on exchanging between columns. • Gain better levels of understanding by using partitioning to help deepen the understanding but ensure that pupils are provided with time to practise the columnar methods.	Add numbers with more than 4 digits using partitioning to support understanding: 23671 (20000 + 3000 + 600 + 70 + 1) 43872+ (40000 + 3000 + 800 + 70 + 2) 60000 + 6000 + 1400 + 140 + 3 60000 + 6000 + 1000 + 400 + 100 +40 + 3 60000 + 7000 + 500 + 40 + 3 67543 Using the above method add these: 34671 + 67128 ; 25278 + 41693 ; 54123 + 82941 ; 94721 + 41839 Now using columnar addition complete the following: 65122 + 22316 ; 461143 + 426815 ; 912301 + 245178 ; 901245 + 637924 56124 + 24685 ; 92567 + 13532 ; 245012 + 434999 ; 672014 + 562771

Autumn 1: Week 6: Practice and Consolidation: Part 2 (Subtraction)

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Add numbers with up to 5-digits with no exchanging ➢ Add numbers with up to 5-digits with exchanging ➢ Subtract numbers with up to 5-digits with no exchanging ➢ Subtract numbers with up to 5-digits with exchanging	• Remind pupils of the formal methods of adding and subtracting 4-digit numbers. • Concentrate on exchanging between columns. • Gain better levels of understanding by using partitioning to help deepen the understanding but ensure that pupils are provided with time to practise the columnar methods. • Ensure that there is only exchange in one column before moving on to exchanging in more than one column.	76329 (70,000 + 6000 +300 + 20 + 9) (70,000+6000+200+120+9) 24263-(20,000 + 4000 +200 + 60 + 3) (20,000+4000+200+ 60+3) 50,000+2000+0 +60 +6 52066 Using the above method subtract these: 34671 25278 54123 94721 22128- 21193- 22901- 41239- Now using columnar subtraction complete the following: 65122 461143 912301 901245 22316- 426815- 245178- 637924- 56124 92567 245012 672014 24685- 13532- 434999- 562771-

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

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

Teaching Sequence

- Add numbers with up to 5-digits with no exchanging
- Add numbers with up to 5-digits with exchanging
- Subtract numbers with up to 5-digits with no exchanging
- Subtract numbers with up to 5-digits with exchanging

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

63289	
41,864	21,425

The bar model provides you with the following calculations:
41,864 + 21,425 = 63,289
21,425 + 41,864 = 63,289
63,289 – 21,425 = 41,864
63,289 – 41,864 = 21,425

Now work out the missing numbers on these bar models and then set out the four calculations for each:

84,932	
61,364	

27,884	41,885

Melchester Rovers is a very popular football team. At their first match 67,982 watched them play and at the second match 1236 more people watched them play.
How many people watched them play their first two matches?
Set out your calculation using columnar addition.
Stan says that 250,000 watched them play their first 2 matches. How far short were they of this figure?

Two famous groups sell their music through downloads.
U True have sold 145,925 of their latest song during April and Y Cue have sold 378,912 in April.
How many more downloads have Y Cue sold in April?
When you add both groups' April sales together do they come to more or less than 500,000?
Y Cue sold half as much again during May and U True sold the same amount again in May. What is their total sales for April and May?

Autumn 1: Week 6: Working at greater depth

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).

Teaching Sequence

- Add numbers with up to 5-digits with no exchanging
- Add numbers with up to 5-digits with exchanging
- Subtract numbers with up to 5-digits with no exchanging
- Subtract numbers with up to 5-digits with exchanging

Activities for pupils working at greater depth:

52578	+ or –	13982
72975		41290
61238		21782

Add each of the numbers on the left to each of the numbers on the right (9 in all). Now subtract each of the numbers on the right from the numbers on the left.

☐ + 14675 = 6☐724

Which numbers go in the boxes?
What different answers are there?

Now try:

☐4326 + 32☐72 = ☐

Set each calculation out as columnar addition

American Cities

The table below shows the changes that have happened to the population of large American cities.

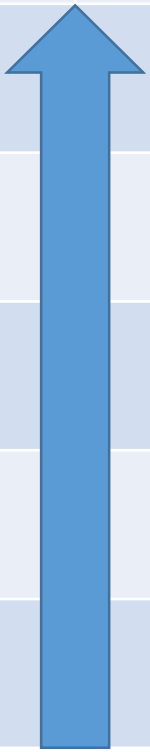
Cities	Present Population (m)	Population in 1990 (m)
New York	8,340,000	7,320,000
Los Angeles	3,860,000	3,490,000
Chicago	2,710,000	2,780,000
Houston	2,160,000	1,630,000
Philadelphia	1,550,000	1,580,000
Phoenix	1,490,000	980,000

Work out whether Los Angeles or Houston has grown more since 1990. Show your workings.
Two of the cities' populations have become smaller and four cities' populations have grown. Work out by how much the total populations of each of the six cities have grown or become smaller since 1990. Show all your workings.

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.

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).	Me	My Teacher
Can you subtract a 5-digit number from another using column subtraction which requires exchange between the units, tens, hundreds or thousands (or any two of these)?		
Can you subtract a 5-digit number from another using column subtraction which requires no exchange between the units, tens, hundreds or thousands?		
Can you add 3 numbers with 5-digits using column addition where the units, tens or hundreds make more than 10?		
Can you add 2 numbers with 5-digits together using column addition, where the units, tens or hundreds when added make more than 10?		
Can you add 2 numbers with 5-digits together using column addition without exchange between units and tens?		



YEAR 5 : AUTUMN 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
1 Multiplication & Division - Factors	**2 Multiplication & Division**	**1 Fractions**	**3 Multiplication & Division**	**1 Statistics**	**Consolidate and Assess**
Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.	-Multiply and divide numbers mentally drawing upon known facts. -Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers -Establish whether a number up to 100 is prime and recall prime numbers up to 19.	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.	Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.	Complete, read and interpret information in: - tables, including timetables	Start this week by revising the learning covered in the first half of 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 first half of the Autumn term. Analyse the results and use information to help focus the intervention and pre-teaching sessions, as needed, for the following half term.
➢ Identify multiples of all numbers up to 100. ➢ Know all factors that make up all numbers to 100.	➢ Use mental applications to multiply numbers making use of multiplication tables up to 12x12. ➢ Use mental applications to divide numbers making use of multiplication tables up to 12x12. ➢ Describe what a prime number is ➢ Describe what a prime factor is ➢ Describe what a composite number is ➢ Explain how to work out whether a number is a prime number. ➢ Recall all prime numbers to 19.	➢ Identify equivalent fractions for ?/3 ➢ Identify equivalent fractions for ?/4 ➢ Identify equivalent fractions for ?/10 ➢ Identify equivalent fractions for ?/100 ➢ Write 0.5; 0.25; 0.1 as fractions ➢ Write any decimal with 1 decimal place as a fraction ➢ Write any decimal with 2 decimal places as a fraction	➢ Multiply any number with up to 3-digits by a single digit number. ➢ Multiply any number with up to 4-digits by any single number. ➢ Multiply any number with up to 3-digits by a 2-digit number. ➢ Multiply any number with up to 4-digits by a 2-digit number.	➢ Know how to construct a table from a set of given information ➢ Know how to construct a table using only the relevant information ➢ Read a table to answer questions ➢ Read a timetable to answer questions ➢ Construct own table and timetable making decision about labelling	

Year 5: Autumn 2

Week 1: Multiplication & Division

Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.

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	Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.

What are the factors of the following numbers?			***Write down 2 multiples of the following numbers.***		
24			5	and	
16			7	and	
35			9	and	
36			11	and	
80			13	and	
50			8	and	
66			16	and	
77			20	and	

Autumn 2: Week 1: Practice and Consolidation

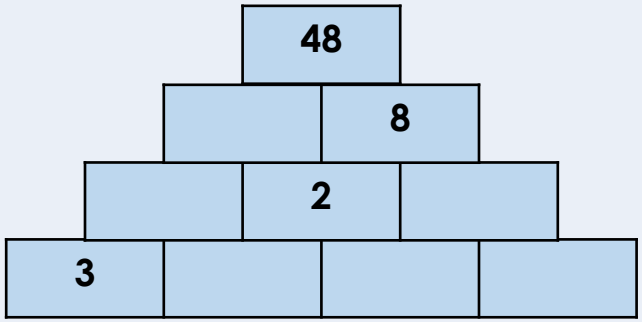
Multiplication & Division: Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Identify multiples of all numbers up to 100. ➢ Know all factors that make up all numbers to 100.	• Start by ensuring pupils are confident and secure with their times tables to x12. • Pupils should be able to answer a times table question out of order and also deal with the inverse. • Take any multiplication example from the times table, ie, 6 x 8 = 48 and break down the factors, ie, 3 x 2 x 2 x 2 = 48 • Pupils need to be confident about all factors to 100.	What are the smallest factors you can break numbers into: eg, 24 = 2 x 2 x 2 x 3 Now set out the smallest factors for: 36 49 27 45 108 88 96 120 60 75 90 112
		Play a game of matching one set of cards to another: One set of cards to have multiple as in times table, eg, 6 x 8; the other set to have factors set out (3 x 2) x (2 x 2 x 2) Pupils to be given starting point for their game but then move on to create more interesting games.
		What are the following numbers multiples of: 16 36 45 99 110 100 25 70 20 120 90 63 50
		Show the common factors that the following pair of numbers have: 36 and 24; 25 and 10; 16 and 10; 84 and 14; 81 and 27
		Make a table showing all numbers between 1 and 20 on the left and their factors on the right:

No	Factors
1	1 x 1
2	2 x 1

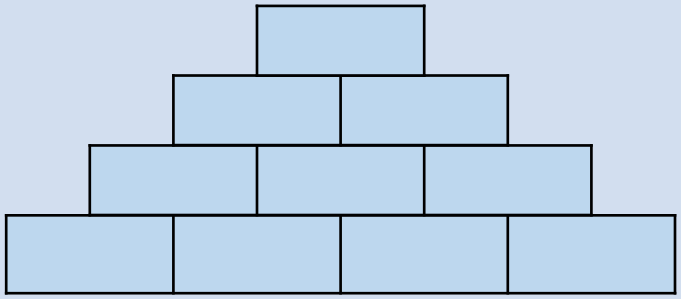
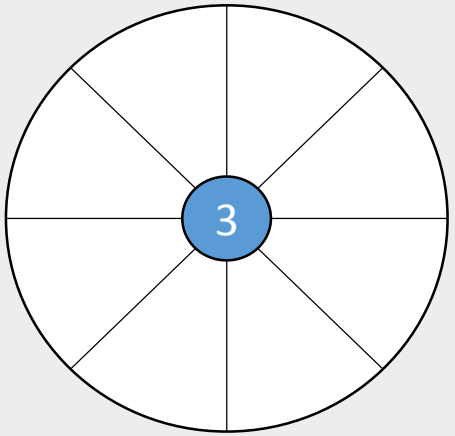
Autumn 2: Week 1: Mastering this Objective – Deeper Understanding

Multiplication & Division: Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Identify multiples of all numbers up to 100. ➢ Know all factors that make up all numbers to 100.	Complete these patterns: 3 x 7 = 6 x 8 = 3 x 70 = 6 x 80 = 3 x 700 = 6 x 800 = 3 x 7,000 = 6 x 8,000 = 6 x 6 = 8 x 9 = 6 x 60 = 8 x 90 = 6 x 600 = 8 x 900 = 6 x 6,000 = 8 x 9,000 =	**Multiples and factors** 8 is a multiple of 4 and a factor of 16 □ is a multiple of 3 and a factor of 12 10 is a multiple of □ and a factor of □ 20 is a multiple of □ and a factor of 60 14 is a multiple of 7 and a factor of □ □ is a multiple of 2 and a factor of 24 Make up some more for your friend to solve.
	 Multiplication pyramid. What are the rules? Work this one out and then create another of your own.	When considering the smallest factors that you can break numbers into, 24 has 4 factors, ie 24 = 2 x 2 x 2 x 3. Which of the following pairs have most factors? 16 or 25 30 or 60 12 or 16 24 or 50 18 or 32 36 or 80

Autumn 2: Week 1: Working at greater depth

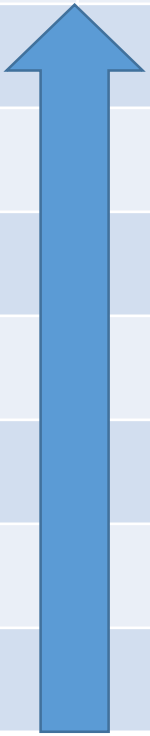
Multiplication & Division: Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Identify multiples of all numbers up to 100. ➢ Know all factors that make up all numbers to 100.	**Multiplication Pyramid**  Put in the numbers 1 to 4 in any order on the bottom row. What are all the possible numbers you could get at the top of the pyramid? Is the number on the top larger if you put the highest numbers on the outside or inside on the bottom row? Now create pyramids with different combinations from 1 to 5 along the bottom row and see what number you will get on the top.	Look at the following circle. The number in the centre is a factor and you need to place as many multiples of this number in the segments of the circle.  Now do the same with the following numbers in the centre of the segment: 2; 5; 7; and 11 Find the missing numbers: ☐ ÷ 8 = 120 ÷ 10 = ☐ ÷ 100 = 192 ÷ ☐

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: Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.	Me	My Teacher
Can you recognise common factors in any pair of numbers?		
Can you name at least 2 multiples of any given number up to 20?		
Do you recognise numbers that only have 1 and themselves as factors?		
Can you find the smallest factors of any number up to 100?		
Can you find the factors of any number up to 20?		
Do you understand the term multiple?		
Do you understand the term factor?		



Year 5: Autumn 2

Week 2: Multiplication & Division

-Multiply and divide numbers mentally drawing upon known facts.
-Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
-Establish whether a number up to 100 is prime and recall prime numbers up to 19.

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	-Multiply and divide numbers mentally drawing upon known facts. -Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers -Establish whether a number up to 100 is prime and recall prime numbers up to 19.

Circle the prime numbers in this set of numbers

24 13 25

11 7 9

What are the factors of the following numbers?

24	
36	
48	
60	
72	
84	

Complete these very rapidly:

6 x 7		
14 ÷ 2		
8 x 9		
72 ÷ 8		
12 x 6		
90 ÷ 10		
45 ÷ 5		
8 x 7		

Autumn 2: Week 2: Practice and Consolidation

Multiplication & Division: -Multiply and divide numbers mentally drawing upon known facts. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Use mental applications to multiply numbers making use of multiplication tables up to 12x12. ➢ Use mental applications to divide numbers making use of multiplication tables up to 12x12. ➢ Describe what a prime number is ➢ Describe what a prime factor is ➢ Describe what a composite number is ➢ Explain how to work out whether a number is a prime number. ➢ Recall all prime numbers to 19.	• Remind pupils of the term factor and what it stands for. • Introduce the concept of a prime number and help pupils to establish full understanding of the term. • Use the term composite as it relates to numbers that are not prime numbers. • Check that pupils know all prime numbers to 19 by chanting them regularly alongside their times tables.	Multiply 2-digit numbers by x2 to x12, using the following method: 16 x 7 = (10 x 7 = 70) + (6 x 7 = 42) = 70 + 42 = 112 18 x 8 15 x 7 26 x 9 25 x 5 24 x 8 32 x 8 27 x 6 23 x 9 Divide 3-digit numbers by x2 to x12, using the following method: 147 ÷ 7 = (140 ÷ 7 = 20) + (7÷ 7 = 1) = 21 128 ÷ 8 225 ÷ 9 138 ÷ 6 119 ÷ 7 232 ÷ 8 234 ÷ 9 210 ÷ 6 287 ÷ 7 Describe a prime number. List all prime numbers to 20. Describe a composite number. List 5 composite numbers between 20 and 50. If 7 x 6 = 42, what is 70 x 6? If 8 x 9 = 72, what is 80 x 9? If 4 x 8 = 32, what is 40 x 8? If 7 x 7 = 49, what is 70 x 7? If 9 x 3 = 27, what is 90 x 3? If 8 x 5 = 40, what is 80 x 5? If 7 x 6 = 42, what is 700 x 6? If 8 x 9 = 72, what is 800 x 9? If 4 x 8 = 32, what is 400 x 8? If 7 x 7 = 49, what is 700 x 7? If 9 x 3 = 27, what is 900 x 3? If 8 x 5 = 40, what is 800 x 5?

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

Multiplication & Division: -Multiply and divide numbers mentally drawing upon known facts. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19.

Teaching Sequence

- Use mental applications to multiply numbers making use of multiplication tables up to 12x12.
- Use mental applications to divide numbers making use of multiplication tables up to 12x12.
- Describe what a prime number is
- Describe what a prime factor is
- Describe what a composite number is
- Explain how to work out whether a number is a prime number.
- Recall all prime numbers to 19.

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

Starting from 1, name the 6th prime number when counting to 100.
Starting from 5, name the 6th prime number when counting on towards 100.
Starting at 90, name the 4th prime number when counting backwards from 90.
Starting at 2, name the 10th composite number you will say when counting on towards 100.
Starting at 90, name the 5th composite number you will say when counting back.

Make a list of all the prime numbers to 50. Make a table as shown and show at least two multiples of the prime numbers.

Prime no	Multiples	

Create a grid with numbers on the coordinates.
In each square put a multiplication problem which has to derive from x2 to the x12 tables, eg, 60 x 7 or 400 x 5 or 450 ÷ 9.
Work in groups of 4, each in turn has 1 minute to answer as many as they can. Another partner gives the coordinates and the idea is to respond as rapidly as possible. Each of the group creates their own grid and they play on each one in turn.

	A	B	C	D	E	F
6	60 X7					
5			700 ÷ 7			
4				400 x 5		
3						
2						
1						

Autumn 2: Week 2: Working at greater depth

Multiplication & Division: -Multiply and divide numbers mentally drawing upon known facts. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Use mental applications to multiply numbers making use of multiplication tables up to 12x12. ➢ Use mental applications to divide numbers making use of multiplication tables up to 12x12. ➢ Describe what a prime number is ➢ Describe what a prime factor is ➢ Describe what a composite number is ➢ Explain how to work out whether a number is a prime number. ➢ Recall all prime numbers to 19.	**Board Game** Create a board game with 10 x 10 squares. In each square, put the numbers 1 to 100. Use a dice with numbers 1 to 6. In turn, throw the dice and move to the next number which has the number thrown as a factor. Take turns and the idea is to reach 100 as quickly as possible. Having played the game once try to make the rules more interesting but it needs to have reference to multiplication and division.	**Missing Digits** What goes in the missing space? 12 ☐ 2 ÷ 6 = 212 14 ☐ 4 ÷ 7 = 212 22 ☐ 3 ÷ 7 = 321 r 6 323 x ☐ 1 = 13243
	Always, Sometimes or Never • Is it always, sometimes or never true that multiplying a number always makes it bigger? • Is it always, sometimes or never true that prime numbers are odd? • Is it always, sometimes or never true that when you multiply a whole number by 9, the sum of its digits is also a multiple of 9? • Is it always, sometimes or never true that a square number has an even number of factors? Add some additional statements.	**Ancient Egypt** When building a model of an Ancient Egyptian pyramid, pupils were trying to work out how many bricks they would need. Each of the 4 sides of the pyramid started with 15 bricks at the base. The row after the base would need 13 bricks, the row after 11 and then 2 less for each row thereafter. • Work out how many rows there are altogether (show your workings). • Work out how many bricks they required to complete the pyramid (Show your workings).

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: -Multiply and divide numbers mentally drawing upon known facts. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19.	Me	My Teacher
Can you quickly work out multiplication facts that have derived from x2 to x12 tables, eg, 70 x 5 = 350?		
Can you very rapidly say what all the prime numbers to 19 are?		
Can you describe what a composite number is?		
Can you describe what a prime number is?		
Do you feel confident when dealing with the inverse of multiplication facts, eg, how many 7s in 42?		
Are you very secure and confident when answering a multiplication fact taken from the x2 to the x12 tables?		

Year 5: Autumn 2

Week 3: Fractions

Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.

Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.

Autumn 2: Week 3: Pre-Learning Task

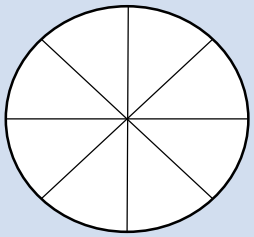
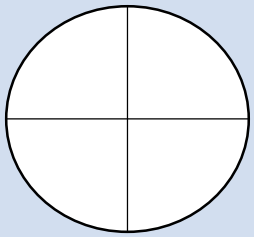
The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Autumn 2: Week 3
Objective: Fractions	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.

Think of another way to write these fractions			***Write these fractions as decimal fractions***		
$\frac{1}{4}$			$\frac{1}{4}$		
$\frac{2}{3}$			$\frac{3}{10}$		
$\frac{3}{4}$			$\frac{3}{4}$		
$\frac{7}{10}$			$\frac{7}{10}$		

Autumn 2: Week 3: Practice and Consolidation

Fractions: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Identify equivalent fractions for ?/3 ➢ Identify equivalent fractions for ?/4 ➢ Identify equivalent fractions for ?/10 ➢ Identify equivalent fractions for ?/100 ➢ Write 0.5; 0.25; 0.1 as fractions ➢ Write any decimal with 1 decimal place as a fraction ➢ Write any decimal with 2 decimal places as a fraction	• Use squared paper and circles to show how equivalent fractions work. • Use the metre stick again with different divisions, ie, 8; 10; 5; 4; 6 and 3. • Establish the relationship between thirds and sixths; quarters and eighths and tenths and fifths. • Using the metre sticks look at the similarities between fractions and decimal fractions.	  Shade in six segments from the first circle and three segments from the second. Why can you say that: $\frac{6}{8} = \frac{3}{4}$ Create other pairs of circles to show that 2/3rd = 4/6th and that 5/10th = 1/2 ; 2/8th = ¼ ; 2/10th = 1/5th . Complete the following: $\frac{2}{4} = \frac{4}{8}$ $\frac{3}{4} = \frac{\square}{\square}$ $\frac{5}{10} = \frac{\square}{\square}$ $\frac{1}{3} = \frac{\square}{\square}$ Write your own involving 4th and 8th; 3rd and 6th; 5th and 10th Complete the following table:

1/10		3/10		1/2		7/10		9/10	
0.1	0.2		0.4		0.6		0.8		1.0

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

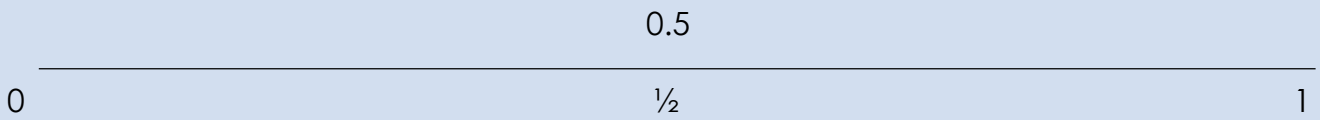
Fractions: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.

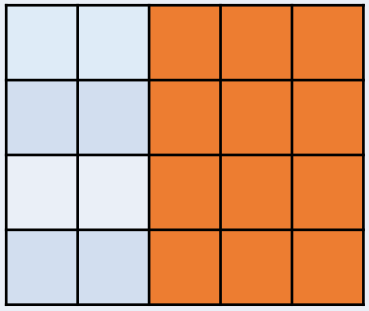
Teaching Sequence

- Identify equivalent fractions for ?/3
- Identify equivalent fractions for ?/4
- Identify equivalent fractions for ?/10
- Identify equivalent fractions for ?/100
- Write 0.5; 0.25; 0.1 as fractions
- Write any decimal with 1 decimal place as a fraction
- Write any decimal with 2 decimal places as a fraction

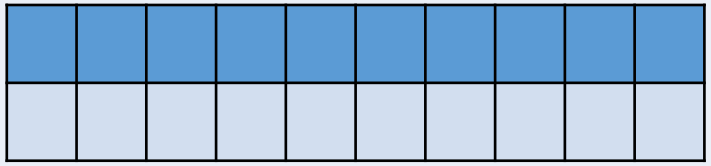
If pupils have mastered this objective they will be able to complete these activities independently:

Use the number line below to place in the following values:
decimals above the line and fractions below the line
1/10; 0.1; 0.25; ¼; 3/10; 1/8; 0.4; 0.75; 7/10;





Look at each of the matrices and write out the shaded value of each in as many ways as you can using fractions and decimals.



Put the following in order with the lowest value first:

1. ½ 0.3 6/10 0.4 ¾
2. 1/8 0.2 ¼ ¾ 0.9
3. 1/3 0.4 2/3 0.7 0.9

Use one of the following signs (>; <; or =) to complete the following:

0.3 ☐ ¾

½ ☐ 0.6

7/8 ☐ 0.8

Autumn 2: Week 3: Working at greater depth

Fractions: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.

Teaching Sequence

- Identify equivalent fractions for ?/3
- Identify equivalent fractions for ?/4
- Identify equivalent fractions for ?/10
- Identify equivalent fractions for ?/100
- Write 0.5; 0.25; 0.1 as fractions
- Write any decimal with 1 decimal place as a fraction
- Write any decimal with 2 decimal places as a fraction

Activities for pupils working at greater depth:

Which of these pairs is closer to 1?			Answer
0.9	7/10		
7/8	19/24		
0.2	¼		
7/9	17/18		
0.75	0.8		
0.35	1/3		
0.15	3/10		

At a party Sally wants to give all her friends ¾ of a bar of chocolate each. Look at the chart below and work out how many bars of chocolate she needs to buy:

Friends	Bars
4	
6	
10	

Calculation Time

Look at the calculation below:

$$\frac{A}{C} + \frac{B}{D} =$$

Using the numbers 1, 2, 3 or 4 to replace A, B, C and D, what is the smallest and largest answer you can get?

Do the same with the numbers 2, 4, 6 and 8
Do the same with the numbers 1, 3, 5 and 7

Factory Workers

In a factory 2/3 of all workers were metal workers;

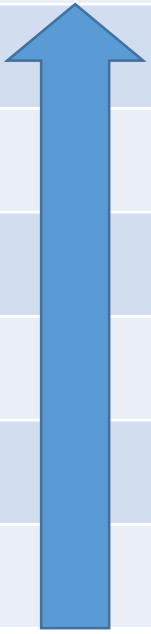
- 1/10 were polishers;
- 1/10 were furnace workers;
- 1/20 were packers and
- 1/12 were office staff.

The total workforce was more than 500 but less than 550. How many workers were there altogether?
How many workers were metal workers; polishers; furnace workers; packers and office staff?

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.

Fractions: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Read and write decimal numbers as fractions, e.g. 0.71 = 71/100.	Me	My Teacher
Can you write ½ in at least three different ways by changing the denominator and numerator?		
Can you write 1/3 in at least three different ways by changing the denominator and numerator?		
Can you write equivalent fractions for x/100?		
Can you write equivalent fractions for any fraction?		
Can you write ¼ and ¾ in at least three different ways by changing the denominator and numerator?		
Can you write ½ in at least three different ways by changing the denominator and numerator?		



Year 5: Autumn 2

Week 4: Multiplication & Division

Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

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: Multiplication & Division	Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

Complete these multiplications

230 x3	405 5x		907 14x	809 12x	
317 9x	448 5x		902 12x	506 26x	
5231 5x	5645 7x		3244 17x	7209 19x	
7223 4x	9541 5x		8655 24x	6573 34x	

Autumn 2: Week 4: Practice and Consolidation

Multiplication & Division: Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Multiply any number with up to 3-digits by a single digit number. ➢ Multiply any number with up to 4-digits by any single number. ➢ Multiply any number with up to 3-digits by a 2-digit number. ➢ Multiply any number with up to 4-digits by a 2-digit number.	• Remind pupils of the learning already done on multiplying 3 and 4 digit numbers by a single digit number. • The main difference here is that pupils are moving on to multiplying by 2 digits. • Remind pupils about multiplying by 10 and how this applies to multiplication of 2-digit numbers. • Multiply a number by multiples of 10s to ensure better level of understanding	Multiply the following rapidly and mentally, then check: 123 x 10 257 x 10 276 x 10 627 x 10 891 x 10 382 x 20 276 x 20 119 x 30 419 x 50 591 x 100 Using columnar multiplication complete the following: 329 x 6 429 x 7 728 x 9 921 x 6 826 x 9 672 x 9 318 x 5 627 x 8 218 x 6 925 x 7 Complete the following: 234 × 12 = 468, 2340 435 × 21 = 435, 8700 628 × 17 = 4396, 6280 779 × 21 = 779, 1558 923 × 15 = 4615, 9230 Complete the following calculations: 236 x 16 528 x 14 729 x 13 891 x 18 239 x 20 1672 x 15 2518 x 32 1248 x 21 1278 x 21 1376 x 23

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

Multiplication & Division: Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

Teaching Sequence

- Multiply any number with up to 3-digits by a single digit number.
- Multiply any number with up to 4-digits by any single number.
- Multiply any number with up to 3-digits by a 2-digit number.
- Multiply any number with up to 4-digits by a 2-digit number.

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

Theatre Prices

Manchester	Birmingham	London	Leeds
2109	1734	3812	1034
£16	£18	£24	£15

The top row of the table above shows how many tickets were sold by 4 different theatres in four different cities for the show 'Shrek'. The bottom row shows how much each ticket cost. Which city made most money?

Multiplication Fun

Row A	Row B
3278	26
2381	16
1578	18

Multiply each of the 4-digit numbers in Row A by each of the 2-digit numbers in Row B. This should give you 9 different calculations.

Which combination gives you the largest number and which combination gives you the smallest number?

Use formal methods to calculate your answers.

Shopkeeper

A shopkeeper buys in 210 boxes of chocolates. In each box of chocolates there are 36 chocolates.
How many chocolates were there in total?

After 5 days, 36 boxes had been sold. How many chocolates still remain?

Use formal methods to calculate your answers.

Create your own calculation

7	6	3	1	2

Arrange these 5 digits in any way you like so as to make a multiplication problem of a 3-digit number by a 2-digit number,
eg, 123 x 67.
Arrange the numbers in such a way as to get the largest possible answer and then so as to get the smallest possible answer.
Use formal methods to calculate your answers.

Autumn 2: Week 4: Working at greater depth

Multiplication & Division: Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.

Teaching Sequence

- Multiply any number with up to 3-digits by a single digit number.
- Multiply any number with up to 4-digits by any single number.
- Multiply any number with up to 3-digits by a 2-digit number.
- Multiply any number with up to 4-digits by a 2-digit number.

Activities for pupils working at greater depth:

Find the missing digit:

2 ☐ 6	☐ 25	728
16X	18x	2 ☐ x
3776	7650	16016
32 ☐	☐ 25	662
18x	24x	2 ☐
5832	17400	17212

Knowing the Product

The product of a 2-digit and 3-digit number is approximately 1500.
What could the numbers be?

The product of a 2-digit and 3-digit number is approximately 6500.
What could the numbers be?

The product of a 2-digit and 3-digit number is approximately 3000.
What could the numbers be?
Get as close as you can

Selling cars – Profit Margins

A car manufacturer is bringing out 4 new cars. They have been priced as below. The profit the garage will make from each car is also shown below.

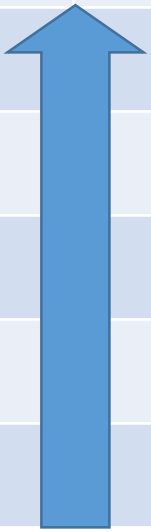
Car Name	Price (£)	Profit (£)
Ford Lioness	35,000	4,123
Vauxhall Puma	24,000	1,768
Hondo Tiger	43,000	4,123
Mazda Cheetah	54,000	6,789

A garage buys in 3 of each car and then sells them, how much profit will it make altogether?
Use the columnar method for setting out your calculations.
Explain which is the quickest way of solving this problem.

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.

Multiplication & Division: Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.	Me	My Teacher
Can you multiply any number with 4-digits by a 2-digit number using formal methods?		
Can you multiply a 2 or 3-digit number by a 2-digit number using formal methods?		
Can you multiply a 2, 3 or 4-digit number by a 100s number?		
Can you multiply a 2, 3 or 4-digit number by a 10s number?		
Can you multiply a 2or 3-digit number by a 1-digit number using formal methods?		



Year 5: Autumn 2

Week 5: Statistics

Complete, read and interpret information in:

- **tables, including timetables**

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	Complete, read and interpret information in: - tables, including timetables

Bus Timetable

2011-2012

Buses to the city will run at the following times:

Monday to Friday		Sunday	
Depart	**Arrive**	**Depart**	**Arrive**
9.30	10.00	10.00	10.30
11.30	12.00	12.00	12.30
12.30	13.00	14.00	14.30
13.30	14.00	16.00	16.30
16.30	17.00	18.00	18.30
18.30	19.00	20.00	20.30
20.30	21.00		
22.30	23.00		

How many buses depart on Monday to Friday?

What time does the bus that departs at 13.30 arrive (Monday to Friday)?

How long does each journey take?

What is the longest gap between buses departing on Monday to Friday?

Birmingham	06:23	06:53	07:23	07:53
Coleshill	06:35	07:05	07:35	08:05
Nuneaton	07:00	07:22	07:51	08:22
Hinckley	-	07:29	07:58	08:29
Leicester	07:17	07:48	08:17	08:48

What time does the train that leaves Birmingham at 06:53 arrive at Leicester?

What time does the train that leaves Coleshill at 07:05 arrive at Hinckley?

If I miss the 07:22 from Nuneaton to Leicester, which train could I catch next?

Autumn 2: Week 5: Practice and Consolidation

Statistics: Complete, read and interpret information in:
- tables, including timetables

Teaching Sequence

- Know how to construct a table from a set of given information
- Know how to construct a table using only the relevant information
- Read a table to answer questions
- Read a timetable to answer questions
- Construct own table and timetable making decision about labelling

Oral and Mental Activities Examples:

- Talk to pupils about collecting information and collating it.
- Remind pupils about keeping a tally as part of collecting information.
- Look at a range of different tables and their suitability in terms of keeping the information collected.
- Look at a range of timetables and help pupils understand how to read them.
- Talk about where timetables are used and why they are so important.

Pencil and Paper Activities Examples:

BUS TIMETABLE

Newport	06:50		07:25	08:45	09:10	09:45
Underwood	07:00	07.25	07:41	08:55	09:19	09:53
Magor	07:11	07.41	07:51	09:04	09:31	10:02
Rogiet	07:18	07.59	07:59	09:11	09:38	10:11
Caldicot	07:29	08.12	08:09	09:16	09:47	10:16
Portskewett	07:33	08.15	08:14	09:20	09:53	10:21
Chepstow	07:45	08.30	08:30		10:05	10.40

How many buses travel between Newport and Chepstow between 06:50 and 10:40?
If I miss the 08:55 from Underwood to Magor, when will the next bus be along?
What time does the second bus leave Caldicot?
If I catch the 08:45 from Newport, what time will I be at Rogiet?
If I catch the 07:25 from Underwood what time will I be at Chepstow?

Look at the following timetable:

	Abbey	Batty	Celtic	Delph
Bus A	07:00	07:16	07:36	07:55
Bus B	07:20			
Bus C	07:40			
Bus D	08:00			
Bus E	08:20			

The part timetable shows the times for one journey between Abbey and Delph and gives you the times 5 buses leave Abbey.
If each bus takes the same amount of time as Bus A, fill in the rest of the timetable.

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

Statistics: Complete, read and interpret information in:
- tables, including timetables

Teaching Sequence

- Know how to construct a table from a set of given information
- Know how to construct a table using only the relevant information
- Read a table to answer questions
- Read a timetable to answer questions
- Construct own table and timetable making decision about labelling

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

Cambridge	07:05	08:05	08:35	09:05
Trumpington	07:16	08:16	08:46	09:16
Great Shelford	07:22	08:22	08:52	09:22
Stapleford	07:25	08:25	08:55	09:25
Sawston	07:32	-----	09:02	09:32
Pampisford	-----	08:38	09:08	-----
Duxford Wheatsheaf	07:45	-----	-----	09:45
Duxford Imperial War Museum	-----	-----	09:15	-----
Whittlesford	-----	-----	-----	09:50

At what time does the 08:16 train from Trumpington arrive at Palpisford?
How long did the 08:35 train from Cambridge take before arriving at Sawston?
How long is the journey between Cambridge and Stapleford?
The train that arrives at 09:55 at Whittlesford left Great Shelford at what time?

Look at the timetable above and create 5 questions for your friends to answer.
In the meantime you will have 5 questions that your friends will give you.

Newport	Cardiff	Bridgend	Port Talbot	Swansea
02:30	02:55	03:15	03:35	03:55
	03:25			
		04:15		
			05:05	

Look at the timetable above showing the times of trains between Newport and Swansea.
If each train takes exactly the same amount of time, fill in the missing times.

Think up 5 questions to ask your friends in relation to the timetable.

Is there any other way you could present this information that would be easier for someone to read? Try and design an alternative timetable.

Autumn 2: Week 5: Working at greater depth

Statistics: Complete, read and interpret information in:
- tables, including timetables

Teaching Sequence

- Know how to construct a table from a set of given information
- Know how to construct a table using only the relevant information
- Read a table to answer questions
- Read a timetable to answer questions
- Construct own table and timetable making decision about labelling

Activities for pupils working at greater depth:

DEPARTURES

Time	Flight		Destination	Gate
12:00	OD	1961	New York	06
12:15	PN	0034	Chicago	18
12:20	T3	0529	Las Vegas	32
12:30	PN	2415	Honolulu	14
12:50	GI	1872	San Francisco	09
12:55	T3	0944	Washington	27
13:20	SF	2778	Houston	20
13:45	OD	0061	Miami	31
13:50	BK	1532	Boston	04
14:05	OD	3487	New York	12
14:30	PN	0194	Atlanta	03
14:35	SF	0028	Chicago	08

Departure time
This Departure timetable tells you the times flights leave for various American cities. It gives you the time of departure; flight number; destination and which gate it leaves from.
Use the information to create 10 questions you could ask your friends related to this timetable.
Now create a similar departure board for planes leaving Heathrow.

The London Underground map is one of the most complex maps you will ever come across. However, it is very interesting.

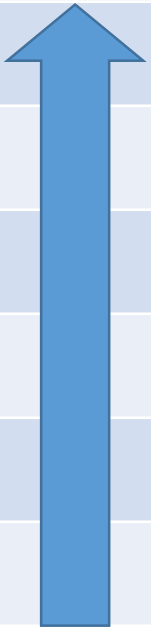
Get a copy of the full underground map.
List all the stations on the circle line.
Then work out journeys between two stations calling at as few stations as possible.

A train leaves London Victoria every 30 minutes after 06.00 each morning.
It calls at London Bridge; Herne Bay; Gravesend and Gillingham.
The journey between London Victoria to Gillingham takes 1hr and 30 mins.
London Victoria to London Bridge takes 20 minutes; London Bridge to Herne Bay 30 minutes; and Herne Bay to Gravesend 10 minutes.
Make up your own timetable showing the first 5 trains that leave London Victoria each morning.

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: Complete, read and interpret information in: - tables, including timetables	Me	My Teacher
Can you use the London underground map and ask and answer questions related to it?		
Can you read and answer questions about a bus or train timetable for your immediate locality?		
If given a set of information, can you create your own timetable?		
By looking at a timetable, can you think of questions you could ask your friend to solve?		
Can you read a more complex bus or train timetable?		
Can you read a simple bus or train timetable?		



Year 5: 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 5: Autumn 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back from a given number in steps of 100/1000/10,000 up to and beyond 100,000
- Read, write and order numbers to 100,000 and beyond
- Compare numbers to 100,000 and beyond
- Partition numbers to 100,000 and beyond
- Find powers of 10 more than a given number
- Read, write, order and compare decimal numbers up to 2dp
- Partition decimal numbers to 2dp
- Round decimals with 1dp to the nearest whole number
- Multiply and divide numbers mentally drawing upon known facts
- Multiply and divide any whole number by 10 and 100 and multiply and divide any decimal number by 10 and 100
- Count on/back with positive and negative numbers, including through zero
- Count on/back in fraction and decimal sequences e.g. 2.5 or 1 ½
- Round any number up to 100,000 to the nearest 10, 100 and 1000
- Add/subtract: 4-digit and 1-digit numbers, a 4 digit and tens, a 4-digit number and hundreds and a 4-digit number and thousands and combinations of pairs of 2,3 or 4 digit numbers
- Find factors and factor pairs of each number up to and beyond 20
- Find complements to 1000
- Convert units of measurement (km and m; cm and m; cm and mm; gram and km, ml and L)

- 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 5 : SPRING 1: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
3 Place Value Roman Numerals	**3 Addition & Subtraction**	**4 Multiplication & Division**	**2 Measures Area**	**2 Geometry Reflection/ Translations**	**3 Geometry**
- Interpret negative numbers in context, count forwards and backwards with positive and negative numbers including through zero. - Read Roman numerals to 1000 and recognise years written in Roman numerals	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.	Calculate & compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
➢ Interpret temperatures at -°C on a thermometer. ➢ Count forward from -20 to 20 ➢ Count backwards from 20 to -20 ➢ Revisit Roman numerals to 100 ➢ Read Roman numerals to 1000 ➢ Write Roman numerals to 1000 ➢ Read dates in context represented in Roman numerals	➢ Use rounding to add and subtract any 2-digit numbers to check reasonableness of answer. ➢ Use rounding to add and subtract any 3-digit numbers to check reasonableness of answer. ➢ Use rounding to add and subtract any 4-digit numbers to check reasonableness of answer.	➢ Divide any number with 3-digits by a single digit number with no remainder. ➢ Divide any number with 4-digits by a single digit number with no remainder. ➢ Divide any number with 3-digits by a single digit number with a remainder. ➢ Divide any number with 4-digits by a single digit number with a remainder. ➢ Divide any number with 3-digits by 10, showing remainder where appropriate. ➢ Divide any number with 4-digits by 10, showing remainder where appropriate.	➢ Know the units of measure for calculating area and how to represent (cm^2/m^2) ➢ Explain how to calculate the area of a shape using a formula ➢ Calculate area using formula ➢ Calculate the area of composite shapes by dividing into smaller shapes ➢ Calculate the area of larger spaces using m^2	➢ Reflect a shape and re-plot ➢ Translate a shape and re-plot ➢ Describe the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed	➢ Use known facts to explain differences between shapes

Year 5: Spring 1

Week 1: Place Value: Roman Numerals and Negative Numbers

- Interpret negative numbers in context, count forwards and backwards with positive and negative numbers, including through zero.
- Read Roman numerals to 1000 and recognise years written in Roman numerals

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	**Roman Numerals and Negative Numbers** - Interpret negative numbers in context, count forward and backwards with positive and negative numbers, including through zero. - Read Roman numerals to 1000 and recognise years written in Roman numerals

What are the next 2 numbers in these sequences?			***Write the value of these Roman numerals.***		
+5; +4; +3; +2 +1; 0;			V11		
-8; -7; -6; -5; -4;			XX111		
-7; -5; -3;			DCXX		
+10; +7; +4: +1;			XC		
+16; +12; +8; +4;			M		
-16; -13; -10; -7; -4;			CMXX11		
-40; -30; -20; -10;			XC11		
+19; +14; +9; +4;			XX111		

Spring 1: Week 1: Practice and Consolidation

Place Value: Roman Numerals and Negative Numbers - Interpret negative numbers in context, count forward and backwards with positive and negative numbers including through zero.
- Read Roman numerals to 1000 and recognise years written in Roman numerals

Teaching Sequence

- Interpret temperatures at -°C on a thermometer.
- Count forwards from -20 to 20
- Count backwards from 20 to -20
- Revisit Roman numerals to 100
- Read Roman numerals to 1000
- Write Roman numerals to 1000
- Read dates in context represented in Roman numerals

Oral and Mental Activities Examples:

- Remind pupils of the learning already covered with regard to negative numbers in Year 4.
- Use a large metre stick to show what happens when we go through zero.
- Consider when negative numbers are used in everyday life, eg, measuring temperature of freezers, etc.
- Remind pupils of the learning about Roman numerals to 100 giving particular attention to numbers like 4; 9; 40 and 90;
- Discuss when Roman numerals are used in everyday life, including dates.

Pencil and Paper Activities Examples:

Continue these sequences:

+8; +6; +4; +2; ☐ ☐

+8; +5; +2; ☐ ☐

-17; -12; -7; ☐ ☐

-15; -13; -11; ☐ ; -7; -5; ☐

In	Out
-2	+3
	+7
	-4
-9	

In	Out
	-5
+9	
+2	-3
	-2

In	Out
-5	
-10	+2
	-4
	+6

50			78			90	
	L11			LXX11			CXX
39			810			175	
	XX11			XL11			CM
156			275			46	

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

Place Value: Roman Numerals and Negative Numbers - Interpret negative numbers in context, count forward and backwards with positive and negative numbers including through zero.
- Read Roman numerals to 1000 and recognise years written in Roman numerals

Teaching Sequence

- Interpret temperatures at -ºC on a thermometer.
- Count forwards from -20 to 20
- Count backwards from 20 to -20
- Revisit Roman numerals to 100
- Read Roman numerals to 1000
- Write Roman numerals to 1000
- Read dates in context represented in Roman numerals

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

Which of these sequences are correct and which are not? Explain why.

-19	**-14**	**-9**	**-4**	**0**	**+4**	**+9**
17	**13**	**9**	**5**	**1**	**-3**	**-7**
18	**8**	**0**	**-2**	**-12**	**-22**	**-32**
125	**90**	**55**	**30**	**-5**	**-40**	**-75**

Write the following dates in Roman numerals:

Date	Roman numerals
1951	
2016	
2017	
1999	
2001	

Decide on your own positive or negative number to operate these machines

In	Out
+2	
-13	
-6	
-28	
+21	

In	Out
-56	
-34	
+2	
-54	
-6	

If the Romans had played cricket, record the Centurions' scores.

Name	Score	Roman
Flavius	40	
Tintus	120	
Claudius	75	
Julius	90	
Arius	61	

Spring 1: Week 1: Working at greater depth

Place Value: Roman Numerals and Negative Numbers - Interpret negative numbers in context, count forward and backwards with positive and negative numbers including through zero.
- Read Roman numerals to 1000 and recognise years written in Roman numerals

Teaching Sequence

- Interpret temperatures at -°C on a thermometer.
- Count forwards from -20 to 20
- Count backwards from 20 to -20
- Revisit Roman numerals to 100
- Read Roman numerals to 1000
- Write Roman numerals to 1000
- Read dates in context represented in Roman numerals

Activities for pupils working at greater depth:

Use as few or as many of these numbers as you like and make pairs of numbers as set out below.

+	3	2	4	-

- Make up a pair of numbers that are more than 50 apart.
- Make up a pair of numbers that are less than 10 apart
- Make up two numbers that have the greatest difference.
- Now create your own questions with another set of numbers.

Write the full date in Roman numerals:

Date	Roman Date
4/11/2011	1V/ X1/ MMX1
19/12/1990	
12/4/1951	
30/7/2007	
18/5/2011	
7/5/1980	

The coldest and warmest temperatures for the first 10 days in January were recorded:

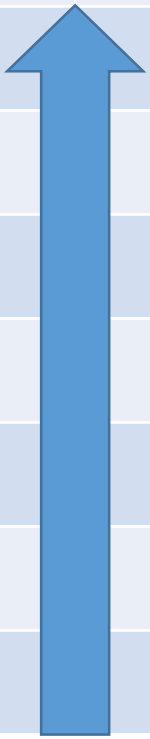
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
warmest	+2	+3	+5	+1	-3	-5	-2	0	+1	+3
coldest	-2	0	+1	-2	-6	-8	-7	-4	-5	-2

What is the difference in temperature between the warmest recorded and the coldest recorded? Make up another 5 questions related to this table.

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: Roman Numerals and Negative Numbers - Interpret negative numbers in context, count forwards and backwards with positive and negative numbers including through zero. - Read Roman numerals to 1000 and recognise years written in Roman numerals	Me	My Teacher
Can you count backwards from + 30 to -30?		
Can you count forwards from - 20 to + 20?		
Can you interpret temperatures at minus ^{0}C on a thermometer?		
Do you know all the Roman numerals to 1000?		
Do you know the Roman symbol for 100?		
Do you know the Roman symbol for 50?		
Can you remember the Roman numbers from 1 to 10?		



Year 5: Spring 1

Week 2: Addition & Subtraction

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

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: Addition & Subtraction	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Round these numbers to nearest 10			***Round these numbers to the nearest 100***		
23			3209		
185			1204		
67			3109		
329			210		
201			650		
178			2106		
276			2550		
210			1820		

Spring 1: Week 2: Practice and Consolidation

Addition & Subtraction: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Teaching Sequence

- Use rounding to add and subtract any 2-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 3-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 4-digit numbers to check reasonableness of answer.

Oral and Mental Activities Examples:

- Remind pupils of the rules related to rounding.
- Talk to pupils about the usefulness of rounding as a way of checking reasonableness of calculations.
- Use rounding in different contexts, finding quick ways of getting possible answers.
- Consider the use of rounding when dealing with money, mass and length.

Pencil and Paper Activities Examples:

Round the following numbers as directed:

	Round to 100		Round to 1000
2391		23916	
1672		37501	
1775		78210	
1750		91023	
2309		92340	

Round the following amounts to the nearest £1:

£23.90 £78.91 £57.23 £25.95 £76.91
£17.92 £67.92 £38.77 £12.50 £20.78

Round these distances to the nearest 100 metres:

253m 1Km 241m 3Km 45m 679m 9Km 329m

Consider the following calculations and round numbers to the nearest 10 and give an approximate rounded answer:

239 + 219 672 + 471 853 + 329 912 + 452 167 + 230
781 + 623 823 + 632 954 + 167 90 + 128 276 + 673

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

Addition & Subtraction: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Teaching Sequence

- Use rounding to add and subtract any 2-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 3-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 4-digit numbers to check reasonableness of answer.

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

A number rounded to the nearest 10 is 270. What are the highest and lowest numbers it could be?

A number rounded to the nearest 100 is 4900. What are the highest and lowest numbers it could be?

A number rounded to the nearest 1000 is 47000. What are the highest and lowest numbers it could be?

As Tom goes around the supermarket he rounds his purchases to the nearest £1. He buys the following items:

Bread 95p	Beans 52p
Ice Cream £2.72	Butter 79p
Bacon £3.45	Sausages £2.71
Tea Bags £2.17	Sugar £1.81
Milk 99p	Jam £1.36

Tom has £20. Is he confident that he has enough? Approximately, how much change should he expect?

On a special Tour de Europe the organisers are trying to work out how difficult each stage will be. The table below shows the exact distance of each stage and the level of difficulty (according to how steep each stage is) marked between 1 and 5.

Stage	Ex dist Km	Rounded	Difficulty	Rate
1	294		3	
2	528		2	
3	276		4	
4	602		1	
5	305		5	

They give each stage a rating by rounding the distance to the nearest 10Km and then multiply the rounded distance by the difficulty factor. Order each stage according to its rating.

Spring 1: Week 2: Working at greater depth

Addition & Subtraction: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Teaching Sequence

- Use rounding to add and subtract any 2-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 3-digit numbers to check reasonableness of answer.
- Use rounding to add and subtract any 4-digit numbers to check reasonableness of answer.

Activities for pupils working at greater depth:

Two 3-digit numbers have been rounded to the nearest 10 and then added together or subtracted.
Here are some of the answers.

230; 560; 780; 920; 830

Work out what possible calculations they could have been in the first place (both additions and subtractions).

Now do the same by creating two 4-digit numbers that have been rounded to the nearest 1000.

Look at the table below showing costs of train tickets between London and

	Milton K	Stoke	M'chest
Adult	£67.85	£82.92	£121.95
Child	£35.50	£45.50	£75.55

Round the amounts to the nearest £10 and answer these questions:
I have £100, will I have enough to buy an adult and a child ticket to Milton Keynes?
I have £200, will I have enough to buy 1 adult and 2 children's tickets to Stoke?
Now make up some more questions of your own.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
2415Km	1724Km	821Km	938Km	2109Km

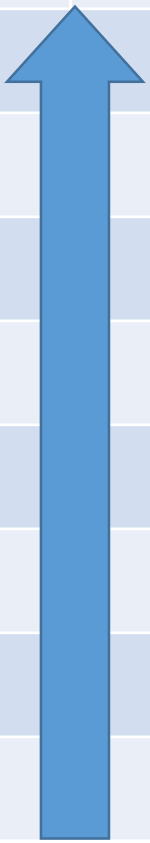
A family is going on a driving holiday around America. They have 5 stages to the holiday. The distances travelled are outlined on the table.

They are trying to work how much they will spend on fuel. Firstly, they round up each stage to the nearest 100Km. and then they work out that each 100Km will cost them £15 in fuel. What will be the approximate cost of the fuel?

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.

Addition & Subtraction: Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Me	My Teacher
Can you use rounding in relation to approximating distances?		
Can you use rounding as a way of working out if you have enough money to pay for several purchases?		
Can you round any number up to 1,000,000 to the nearest 100,000, 10,000, 1000, 100 or 10?		
Can you round any number up to 100,000 to the nearest 10,000, 1000, 100 or 10?		
Can you round any number up to 10,000 to the nearest 1,000, 100 or 10?		
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 5: Spring 1

Week 3: Multiplication & Division

Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.

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: Multiplication & Division	Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.

Calculate these problems

235 ÷ 5	248 ÷ 4		9150 ÷ 9	6076 ÷ 3	
3372÷ 6	1036÷7		1452 ÷ 7	8987 ÷ 6	
566÷5	247÷8		8114 ÷ 7	3247 ÷ 10	
873÷5	987÷4		7209 ÷ 10	8656 ÷ 10	

Spring 1: Week 3: Practice and Consolidation

Multiplication & Division: Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Divide any number with 3-digits by a single digit number with no remainder. ➢ Divide any number with 4-digits by a single digit number with no remainder. ➢ Divide any number with 3-digits by a single digit number with a remainder. ➢ Divide any number with 4-digits by a single digit number with a remainder. ➢ Divide any number with 3-digits by 10, showing remainder where appropriate. ➢ Divide any number with 4-digits by 10, showing remainder where appropriate	• Remind pupils of the learning already done on dividing 2 and 3 digit numbers by a single digit number. • The main difference here is that pupils are moving on to dividing larger numbers, with and without remainders. • Remind pupils about dividing by 10 and how this applies to division of larger numbers. • Set out the divisions by using the formal method and encourage pupils to follow this method.	Divide the following numbers by 10: 210 450 720 810 930 770 980 120 320 Now divide these by 10: 452 657 983 824 781 936 902 827 943 127 Calculate the following: Set them out using a formal method. 456 ÷ 8 868 ÷ 7 1125 ÷ 9 2112 ÷ 6 1810 ÷ 5 2322 ÷ 9 2276 ÷ 4 5886 ÷ 6 These may or may not have remainders: 638 ÷ 5 7829 ÷ 9 2391 ÷ 8 9246 ÷ 9 1738 ÷ 6 4287 ÷ 7 1245 ÷ 5 6729 ÷ 8 A builder was building 6 identical houses. He ordered 9120 bricks. How many bricks were needed for each house? 8 fishermen caught 4480 cod when they went out fishing. They shared the fish between them. How many did each fisherman have?

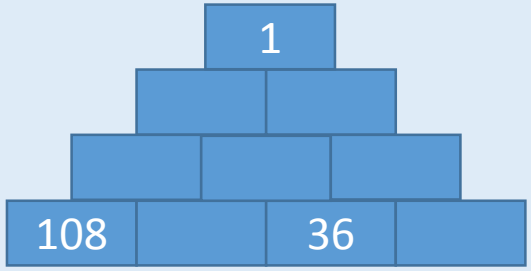
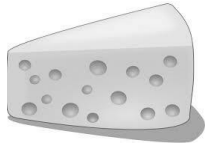
Spring 1: Week 3: Mastering this Objective – Deeper Understanding

Multiplication & Division: Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Divide any number with 3-digits by a single digit number with no remainder. ➢ Divide any number with 4-digits by a single digit number with no remainder. ➢ Divide any number with 3-digits by a single digit number with a remainder. ➢ Divide any number with 4-digits by a single digit number with a remainder. ➢ Divide any number with 3-digits by 10, showing remainder where appropriate. ➢ Divide any number with 4-digits by 10, showing remainder where appropriate	2 Kg of sweets are divided equally between 7 children. How many grams of sweets will each get and how much will be left over? A 5m piece of wood is cut into 9 equal pieces. How long will each piece be and how much wood is left over? £18.50 is divided equally between 8 children. How much does each child get and how much money is left over?	When a 3-digit number is divided by a 1-digit number the answer is 117. What was the original 3-digit number? There could be a number of answers. Give two possibilities. When a 4-digit number is divided by a 1-digit number the answer is 927. What was the original 4-digit number? There could be a number of answers. Give two possibilities.
	Jenny has a book that has 238 pages. She reads 7 pages each day. How long will it take her to read her book? Henry has 342 stickers. He can stick 9 stickers into each page. How many pages does he need to stick all his stickers in? 216 children turn up for a football tournament. The organiser makes up teams of 6 children. How many teams will there be?	Ahmet has an on-line directory of names of members of a sports club. 25 names are listed on each page, beginning with page 1. On what page is the 730th name listed? Explain a quick way of working this out. 

Spring 1: Week 3: Working at greater depth

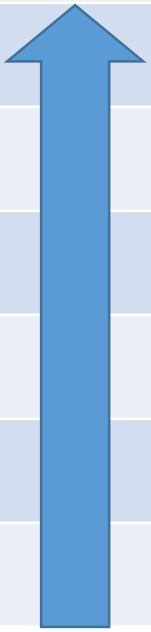
Multiplication & Division: Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Divide any number with 3-digits by a single digit number with no remainder. ➢ Divide any number with 4-digits by a single digit number with no remainder. ➢ Divide any number with 3-digits by a single digit number with a remainder. ➢ Divide any number with 4-digits by a single digit number with a remainder. ➢ Divide any number with 3-digits by 10, showing remainder where appropriate. ➢ Divide any number with 4-digits by 10, showing remainder where appropriate	A 2m piece of ribbon has been divided equally among a number of people (no more than 10). There is a 5 cm piece left over. How many people received the pieces of ribbon? 1000 marbles were shared equally between 5 and 10 children. When they were handed out there were 4 left over. How many children were there and how many did each get?	Look at the tower below. When dividing the two bricks next to each other it gives you number on the brick above. Fill in the missing numbers. 
	When 3472 was divided by a single-digit number between 3 and 9 there was no remainder. How many possible single-digit numbers could there have been? When 4673 was divided by a single digit number larger than 5 there was a remainder of 2. How many possible single-digit numbers could there have been?	Cheese costs £7.50 for 1kg. Mary buys 200 grams of cheese. How much does she pay? Next week the cheese is 20% cheaper. How much would 100g cost then? 

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.

Multiplication & Division: Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.	Me	My Teacher
Can you divide any number with 4-digits by 10 with a remainder?		
Can you divide any number with 3-digits by 10 with a remainder?		
Can you divide any number with 4-digits by a single digit number with remainder?		
Can you divide any number with 3-digits by a single digit number with remainder?		
Can you divide any number with 4-digits by a single digit number (no remainder)?		
Can you divide any number with 3-digits by a single digit number (no remainder)?		



Year 5: Spring 1

Week 4: Measures: Area

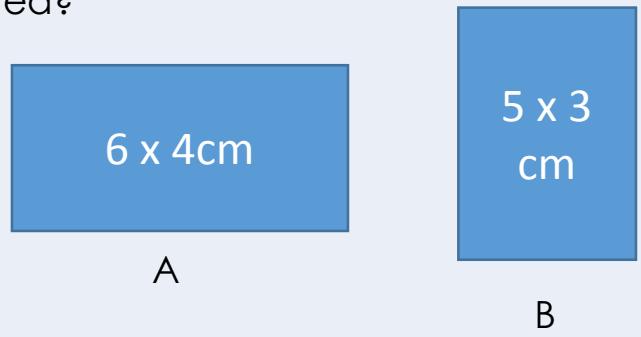
Calculate & compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Spring 1: Week 4: Pre-Learning Task

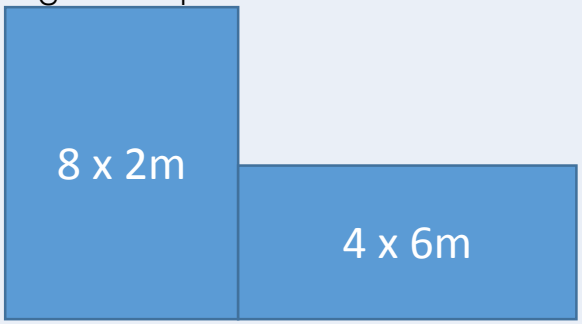
The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name	Spring 1: Week 4
Objective: Measures	**Area:** Calculate & compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Which rectangle has the greatest area?

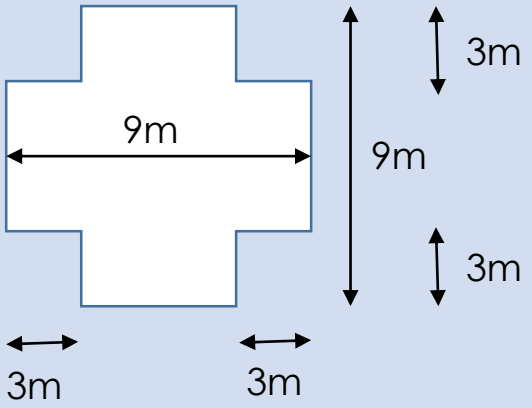


Estimate and then work out the area of this irregular shape.



A gardener has two lawns.
One is a square with a side of 9 metres.
The other is a rectangular shape with one side being 10 metres and the other side being 7 metres.
If he uses the same lawn mower to cut the grass of both lawns, which one should take the shortest time?

Square or Rectangular Lawn?



Estimate and then work out the area of this shape.

Spring 1: Week 4: Practice and Consolidation

Measures: Area: Calculate & compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know the units of measure for calculating area and how to represent (cm^2/m^2) ➢ Explain how to calculate the area of a shape using a formula ➢ Calculate area using formula ➢ Calculate the area of composite shapes by dividing into smaller shapes ➢ Calculate the area of larger spaces using m^2	• Remind pupils of the work they have already done in relation to perimeter and area in Year 4. • Remind them of the quick way to work out the area of a rectangle and square. • Use examples to compare. • Remind pupils of the use of the symbol ² to stand for the measurement of an area. • Start by using squared paper as a reminder. • Move on to show how to measure the area of irregular shapes made up of two rectangles or squares.	Using squared paper, draw rectangles or squares that have the following areas: 20cm^2 48cm^2 36cm^2 24cm^2 On squared paper draw these 3 rectangles or squares: 8 x 6 cms 5 x 5 cms 10 x 8 cms 7 x 5 cms Estimate which you believe to the largest area. Now check your estimations by working out the area of each, using the formula for finding area. Find the area of the following by estimating in the first instance and then using measures to find out the exact dimensions: Measure to the nearest cm or m in each case: • Playground or football or netball pitch on playground; • Desk top in classroom • Hall floor • A book • Computer monitor • Interactive White Board

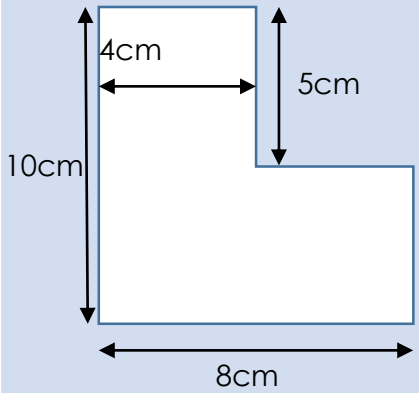
Spring 1: Week 4: Mastering this Objective – Deeper Understanding

Measures: Area: Calculate & compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Teaching Sequence

- Know the units of measure for calculating area and how to represent (cm^2/m^2)
- Explain how to calculate the area of a shape using a formula
- Calculate area using formula
- Calculate the area of composite shapes by dividing into smaller shapes
- Calculate the area of larger spaces using m^2

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



Find the area of the L shaped figure.
Estimate first and then work it out.

Explain how you did it.

A large playing area has an area of $100m^2$.

If the sides are in whole metres, what could be the dimensions of the playing area?

A book cover has an area of $32cms^2$
The sides of the book measure in whole cm. There are 2 possible dimensions for the book. Which is the most likely?

Explain why.

In a school there are 7 classes. The Headteacher decides that each class is going to have its own small garden and creates garden boxes of 3m x 2m for each class.
The boxes are set in a large grass field that was 20m x 10m.

Work out the area taken up by the 7 garden boxes and work out the area of grass that remains.

A farmer has a very long field which measures 120m by 50 m.

He decides to grow cabbages in a quarter of the field; potatoes in another third of the field and sprouts in the remaining part of the field.

Work out the area he has for growing:
- Cabbages;
- Potatoes; and
- Sprouts

Spring 1: Week 4: Working at greater depth

Measures: Area: Calculate & compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Know the units of measure for calculating area and how to represent (cm^2/m^2) ➢ Explain how to calculate the area of a shape using a formula ➢ Calculate area using formula ➢ Calculate the area of composite shapes by dividing into smaller shapes ➢ Calculate the area of larger spaces using m^2	Draw 3 different rectangles or squares where the perimeter is 48cm. Estimate which has the greatest area. Now check and record. Draw 3 different rectangles or squares where the perimeter is 36cm. Estimate which has the greatest area. Now check and record.	**Laying a lawn** Alf decides to lay a lawn in his back garden. The dimensions of his back garden are 12 metres by 10 metres. He wants to leave a border of 1m going all the way around his back garden. Make a diagram of the space he is going to lawn and work out the area of this space. If the grass he buys costs £3.50 per square metre, how much will it cost to lay the lawn?
	Fencing Fields A farmer buys 3.2km of wire netting to go around two separate rectangular fields. He uses 1600m for the first field and 1.2km for the second field. How much wire netting does he have left? What could be the perimeters and areas of the two fields?	If I know the dimensions of a right angled triangle, how can I work out its area? Now try finding the area of a right angled triangle that has one side of 10cm. and the other side which is 15cm. What if the sides were 12cm x 20cm? Why can you not work out the area of a triangle which does not have a right angle in the same way. Explain your thinking.

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.

Measures: Area: Calculate & compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2) & estimate the area of irregular shapes.	Me	My Teacher
Are you confident to estimate the area of an irregular shape before finding out the exact area?		
Are you confident to estimate the area of a rectangle or square before finding out the exact area?		
Can you use information about calculating the area of a square or rectangle to work out the area of irregular shapes that can be divided up into squares and rectangles?		
Do you know that the area of a rectangle is measured by multiplying the length of the longer side by the shorter?		
Do you know that the area of a square is measured by multiplying the length of a side by itself?		
Do you know that the area of a square or a rectangle is measured in cm^2 or m^2?		

Year 5: Spring 1

Week 5: Geometry: Reflection & Translations

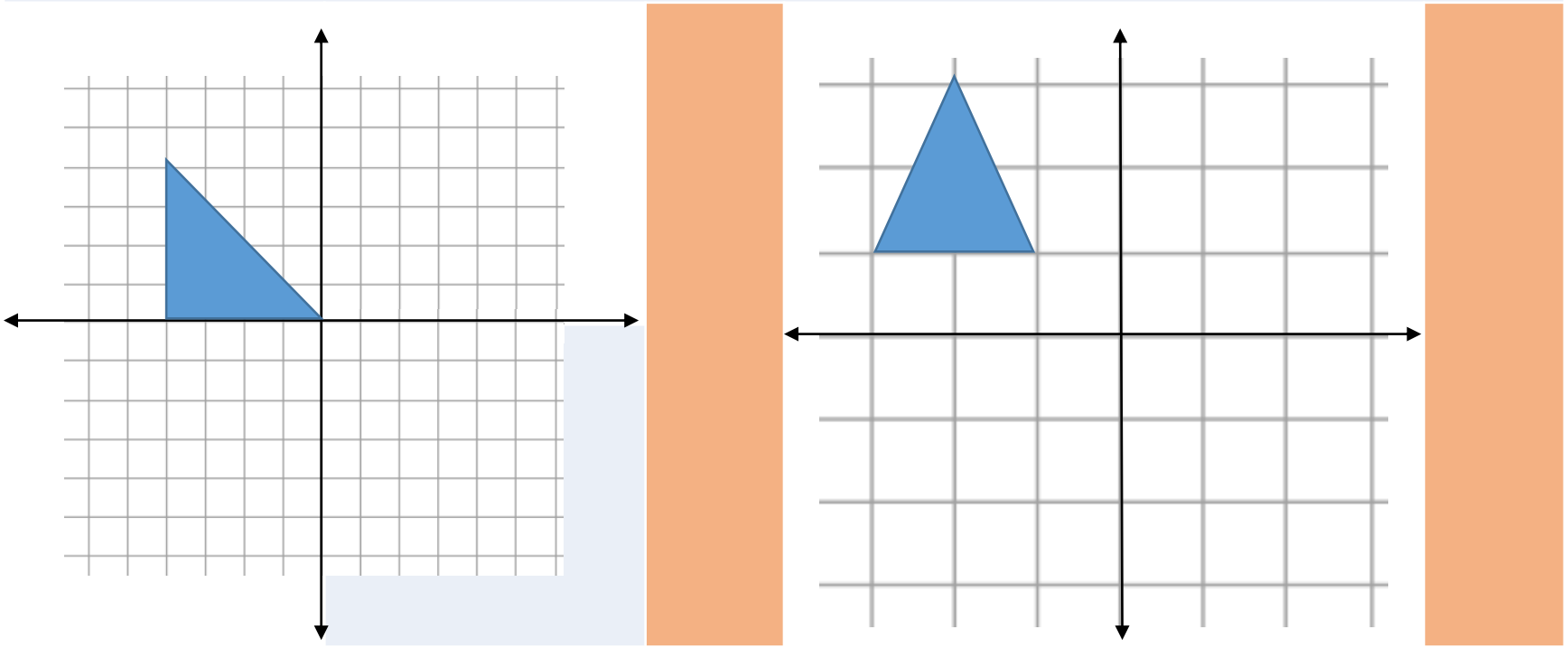
Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed

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.

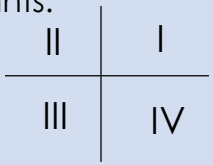
Name	Spring 1: Week 5
Objective: Geometry	**Reflection & Translation:** Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed

Reflect the shapes shown into each of the 4 quadrants



Spring 1: Week 5: Practice and Consolidation

Geometry: Reflection & Translation: Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Reflect a shape and re-plot ➢ Translate a shape and re-plot ➢ Describe the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed	• Focus on the use of the language: reflection and translation and ensure pupils are secure and confident about what they mean. • Ensure pupils are also secure and confident about the use of the 4 quadrants. • Remind pupils about numbering the axes so that they can plot shapes according to numbers shown. • Talk to pupils about the naming of the 4 quadrants and how they are often shown using Roman numerals.	Use squared paper and put in a horizontal and vertical axes. Create the four quadrants:  Number the coordinates and then colour a square in quadrant one and reflect it to quadrant 2, 3 and 4.
		Use squared paper and put in a horizontal and vertical axes. On each piece of squared paper draw the following shapes: • Rectangle; • Triangle; and • The letter L Make sure the base of the shape lies on the axes. Reflect each in turn into each of the 4 quadrants.
		Use squared paper putting in the same horizontal and vertical axes. On each piece of squared paper draw the same shapes as before but this time note their positions by using numbers on the horizontal and vertical axes. Translate each shape into another quadrant by using precise movements which can be described, eg, (2,2 to 4, 4)

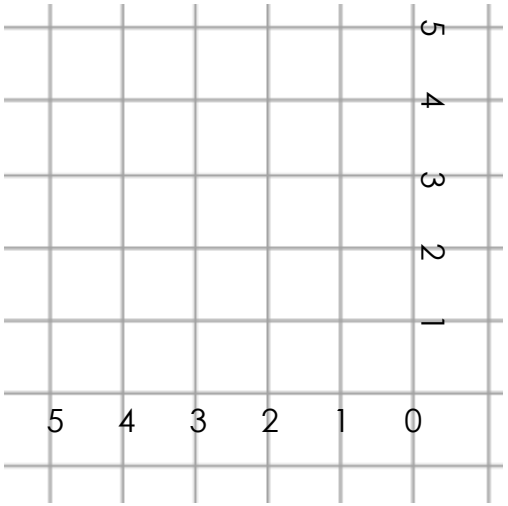
Spring 1: Week 5: Mastering this Objective – Deeper Understanding

Geometry: Reflection & Translation: Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed

Teaching Sequence

- Reflect a shape and re-plot
- Translate a shape and re-plot
- Describe the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed

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



Join the point (1,1) to (4,1) and then (4,1) to (4,4) and then to (1,4) before joining (1,1)

Make other shapes in the first and second quadrants by plotting the points as with the square in the example.

Now reflect each point by working out the distance from the vertical and horizontal axes.

Using the same set up as before, this time translate the square into another quadrant taking care to ensure that the movement is recorded carefully. Make sure that the size and shape are unaltered.
Now plot different shapes on the first and second quadrants and reflect and translate these into other quadrants.

Make an irregular shape in the first or second quadrant by plotting each point very carefully.
Don't show this to your friend but just provide them with a list of the coordinate points. See how well they can match your shape. See if you can both translate or reflect your shape.

Put the following shapes into the first or second quadrant and then reflect and translate them into the other quadrants.

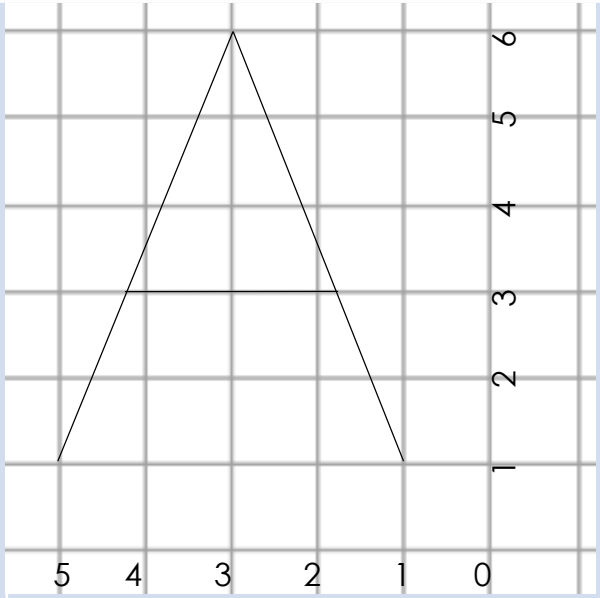
Spring 1: Week 5: Working at greater depth

Geometry: Reflection & Translation: Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed

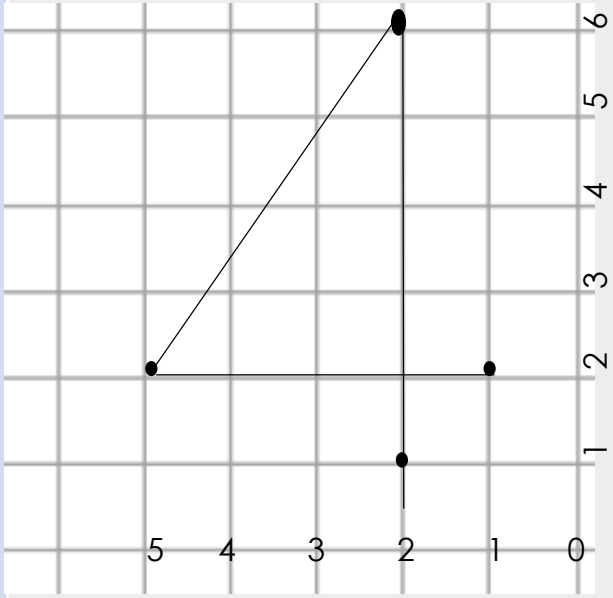
Teaching Sequence

- Reflect a shape and re-plot
- Translate a shape and re-plot
- Describe the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed

Activities for pupils working at greater depth:



Staring with the letter A, plot letters of the alphabet on to the first or second quadrant and then reflect them into the other quadrants taking account of the distance from the vertical and horizontal axes.
Use only letters that have straight lines:
A E F H I K L M N T V W X Y Z

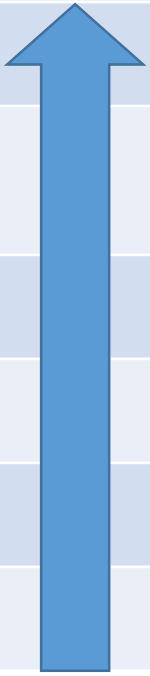


Using the numbers 4 and 7 plot each onto the first or second quadrant as shown with the number 4 above – record the points and then translate the number into another quadrant taking careful note of the movements made.
Now choose 4 letters from the alphabet to do the same with.

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.

Geometry: Reflection & Translation: Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed	Me	My Teacher
Can you translate a shape from one quadrant to another ensuring that the shape and size is unchanged?		
Can you reflect a shape from one quadrant to another when the shape does not sit on the horizontal or vertical plane?		
Can you reflect a shape from one quadrant to another when the shape sits on the horizontal or vertical plane?		
Can you pinpoint a spot within a quadrant and describe it by the coordinate points?		
Do you know which is the first, second, third and fourth quadrant?		
Can you create the four quadrants in the coordinate plane?		



Year 5: Spring 1

Week 6: Geometry

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

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: Geometry	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

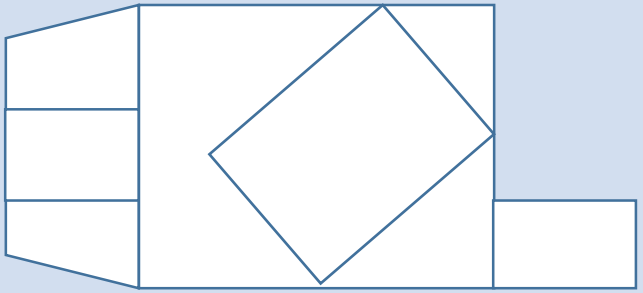
Draw a regular and an irregular triangle in the space below

Apart from rectangle and square, name two other 4-sided shapes and draw them below.

Spring 1: Week 6: Practice and Consolidation

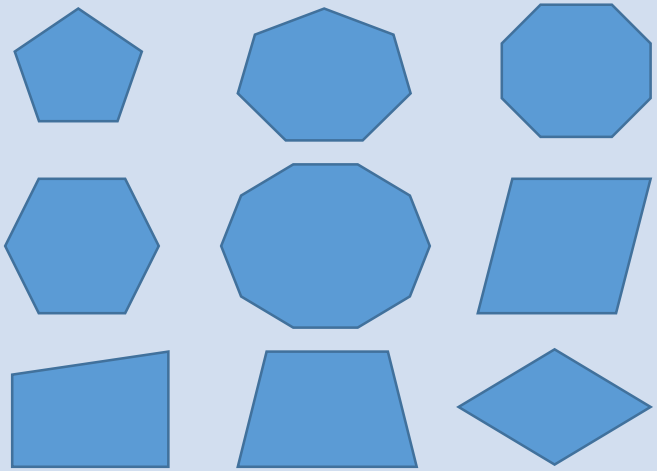
Geometry: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:

➢ Use known facts to explain differences between shapes	• Provide pupils with a definition for each of these shapes:
	  • Parallelogram
	  • Rhombus
	  • Kite
	  • Quadrilateral
	  • Trapezium
	• Help them to name the polygons that have more than 4 sides.
	• Play the description game. I have 4 sides; 2 of my angles are 90°, etc.
		How many different 4 sided shapes can you draw?
		Some will be regular and some irregular. Name them.
		
		Link these polygons to the number of sides they have:
		
		Pentagon 10
		Octagon 6
		Hexagon 8
		Decagon 7
		Heptagon 5
		
		Link the term 'oct' with other items that have eight associated with them.
		Which language do we associate many of these names with?
		
		Look at the shape below.
		Find as many regular and irregular shapes as you can and name them:
		
		 
		
		Find a:
		• Trapezium
		• Rectangle
		• Quadrilateral
		• Isosceles Triangle
		• Right angled triangle
		
		Create your own drawing using intersecting shapes and look for various polygons.

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

Geometry: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

Teaching Sequence	**If pupils have mastered this objective they will be able to complete these activities independently:**	
➢ Use known facts to explain differences between shapes	**Name each of these shapes:** 	**Card Game** Make up a set of cards with different shapes on. The shapes should include lots of 4-sided shapes, such as rhombus; trapezium; etc. and as many triangles as possible: equilateral; isosceles; right angled triangle, etc. and all the polygons up to 10 sides. Play in groups of 4. Distribute the cards amongst all players. The shape should not be revealed to others. The idea is that one person has a card and has to try and get the others to guess the shape by being very succinct with their description. Points can be awarded, etc.
	Same and Different Take any two of the shapes above and explain how they differ from one another. Record your findings. You could choose two and give them to your friend to explain and then record. Name a shape that has more than 4 sides and has a least one set of parallel lines.	**Who am I?** • I have more than 5 sides but not 10. My name is used by a pussy that lives in the sea. Who am I? • I used to be a square but someone leant on me? Who am I? Can you make some more of these type of clues to help someone identify the shape?

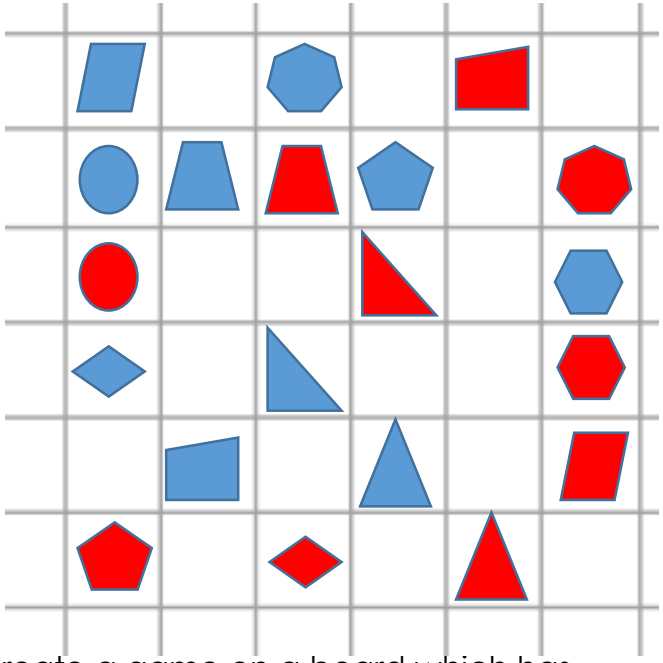
Spring 1: Week 6: Working at greater depth

Geometry: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

Teaching Sequence

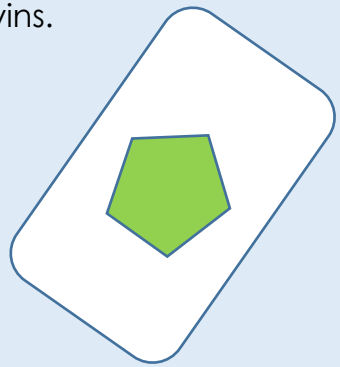
- Use known facts to explain differences between shapes

Activities for pupils working at greater depth:



Create a game on a board which has various shapes already marked within each space, as above.
Have a set of cards with descriptions on and players move to the next square where there is a shape that matches the description. The board can be full or semi covered.

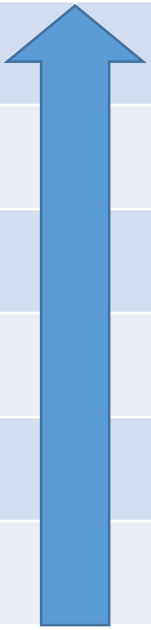
Logically Shaped
Take 6 different shapes.
Each shape will have 4 different colours.
All shapes will be either small or large.
Give them all values, eg, rhombus is 6; triangle is 3; quadrilateral is 4;
Colours also have values, eg green is 4.
Large will double your score; small will halve your score. All will be on cards of the same size.
So a blue rhombus may be worth 6 (for the shape) and 2 (for the colour). The 8 score is then doubled or halved according to size.
There will be 48 cards altogether.
Each player is given 6 cards and they have to work out their score. The one with the highest score wins.



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.

Geometry: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	Me	My Teacher
Can you recognise parallel and perpendicular lines within shapes?		
Can you name the polygons with 5 to 10 sides?		
Can you describe a quadrilateral well enough for someone to identify it?		
Do you know the following: parallelogram; rhombus; kite; trapezium?		
Do you know what a quadrilateral is?		
Can you identify and name triangles: equilateral; isosceles; scalene or right angled?		



YEAR 5 : SPRING 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
5 Multiplication & Division	**4 Geometry**	**2 Fractions**	**3 Measures**	**2 Statistics**	**Consolidate and Assess**
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	-Identify 3D shapes, including cubes and other cuboids, from 2D representations - Use the properties of rectangles to deduce related facts & find missing lengths & angles.	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.	- Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water). - Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).	Solve comparison, addition and difference problems using information presented in a line graph	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 and pre-teaching sessions, as needed, for the following term.
➢ Multiply any number by 10. ➢ Multiply any number by 100. ➢ Multiply any number by 1000. ➢ Divide any number by 10. ➢ Divide any number by 100. ➢ Divide any number by 1000.	➢ Identify 3D shapes from 2D images ➢ Calculate missing lengths and angles using known facts	➢ Know that a whole number can be written as a fraction, e.g. 2/2 etc. ➢ Know that 1½ can be written as 3/2 etc. ➢ Convert any improper fraction to a mixed fraction and vice versa	➢ Know that volume is measured in cm^3 and m^3 ➢ Use cubes to calculate the volume of a given shape ➢ Use water and measuring equipment to calculate the capacity of a range of containers ➢ 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 an amount of more than 1l in ml	➢ Compare information in line graphs to answer questions ➢ Solve addition problems using information in line graphs to answer questions ➢ Solve difference problems using information in line graphs to answer questions	

Year 5: Spring 2

Week 1: Multiplication & Division

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

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	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Multiply the following numbers by 10, 100 or 1000			***Divide the following numbers by 10, 100 or 1000***		
231 x 10			542 ÷ 10		
27.4 x 10			234.7 ÷ 10		
238 x 100			3289 ÷ 100		
2.52 x 100			345.12 ÷ 100		
218 x 1000			6721 ÷ 1000		
34.123 x 1000			6212.8 ÷ 1000		
32.1 x 1000			3.123 ÷100		
237.32 x 100			3.12 ÷ 10		

Spring 2: Week 1: Practice and Consolidation

Multiplication & Division: Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Multiply any number by 10. ➢ Multiply any number by 100. ➢ Multiply any number by 1000. ➢ Divide any number by 10. ➢ Divide any number by 100. ➢ Divide any number by 1000.	• There is a need to ensure that levels of understanding about place value are good enough to show pupils the quick method of multiplying and dividing by 10, 100 and 1000. • Work on rapid responses to multiplying and dividing by 10, in the first instance. • Pupils sit in groups of 4 to 6 and respond very rapidly to a given number by multiplying by 10, then 100 and finally 1000. They then divide by 10, 100 and 1000.	

	X 10	X 100	X 1000
34			
126			
2371			
2187			
271			

	÷ 10	÷ 100	÷ 1000
5281			
6721			
9014			
7812			
891			

Multiply by 10; 100 and 1000

23.135 25.152 87.261 136.257 23.11 289.12

Divide by 10, 100 and 1000

67.12 42.16 425.125 67.21 95.32 56.17 91.34

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

Multiplication & Division: Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Multiply any number by 10. ➢ Multiply any number by 100. ➢ Multiply any number by 1000. ➢ Divide any number by 10. ➢ Divide any number by 100. ➢ Divide any number by 1000.	Very rapidly multiply the following by 10. 32.3 45.6 176 23 349.23 1.678 Now do the same by very rapidly multiplying by 100: 23.12 672.12 98 12.56 23.67 Now, divide these by 10 very rapidly: 2.45 15,23 351.34 267.23 1.56	At the school concert there were 200 seats. The tickets were all sold and the school collected £2,400 for them. Find a quick way of working out how much each ticket cost. The shopkeeper announced that he had just received a special delivery of the new Wonka chocolate bar. He sold all his 2000 bars within the hour. He added up the money he took for them and it came to £2400. Find a quick way of finding out how much each bar cost.
	If you know how to multiply by 10, how can you go about multiplying by multiples of 10? Look at this example: 234 x 20 You know 234 x 10 = 2340 then multiply 2340 x 2 = 4680 Now complete these: 347 x 30 379 x 40 161 x 30 563 x 20 432 x 50 283 x 30 671 x 20 523 x 60 116 x 40	Very rapidly divide the following by 100. 32.3 45.6 176 23 349.23 1.678 Now do the same by very rapidly dividing by 1000: 123.12 672.12 98 102.56 23.67 Now, multiply these by 10 very rapidly: 2.45 15,23 351.34 267.23 1.56

Spring 2: Week 1: Working at greater depth

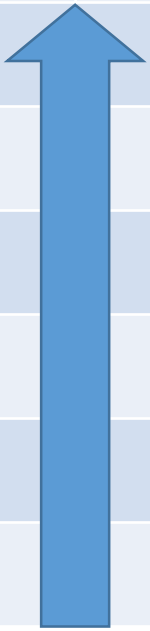
Multiplication & Division: Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Multiply any number by 10. ➢ Multiply any number by 100. ➢ Multiply any number by 1000. ➢ Divide any number by 10. ➢ Divide any number by 100. ➢ Divide any number by 1000.	At a recent music festival the organisers sold exactly 4000 tickets. The money they collected from the tickets was £104,000. How much did each ticket cost. Did you work out a quick way of doing this? In addition each person spent on average £24.89 on food and souvenir items. How much money was collected for food and souvenirs? The festival cost £154,000 to put on, including food and souvenirs. Did the festival make a profit? Show your workings.	A new football stadium is being built. The seating is arranged in blocks of 100. There are 4 sides to the stadium (North Stand; East Stand; South Stand and West Stand). The North Stand will have 36 blocks of 100; the East Stand will have 48 blocks of 100; the South Stand will have 54 blocks of 100; and the West Stand will have 19 blocks of 100. How many seats will the stadium have in total.
	10 gymnastic competitors wanted time on the competition floor before the final started. They had 4 hours and 40 minutes before the floor was closed. How much time was each allocated on the floor before the final started? A footballer touches the ball every 100 seconds. If s/he is playing for 90 minutes, how many times will they touch the ball?	For every block of 100 tickets in the West Stand the football club receives £3,665. How much will each West Stand ticket cost? How much will the club get if the West Stand is full? For every block of 100 tickets in the South Stand the football club receives £4,865. How much will each South Stand ticket cost? How much will the club get if the South Stand is full?

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: Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	Me	My Teacher
Can you divide any 2, 3, 4, 5 or 6-digit number by 1000?		
Can you divide any 2, 3, 4, 5 or 6-digit number by 100?		
Can you divide any 2, 3, 4, 5 or 6-digit number by 10?		
Can you multiply any 2, 3, 4, 5 or 6-digit number by 1000?		
Can you multiply any 2, 3, 4, 5 or 6-digit number by 100?		
Can you multiply any 2, 3, 4, 5 or 6-digit number by 10?		



Year 5: Spring 2

Week 2: Geometry

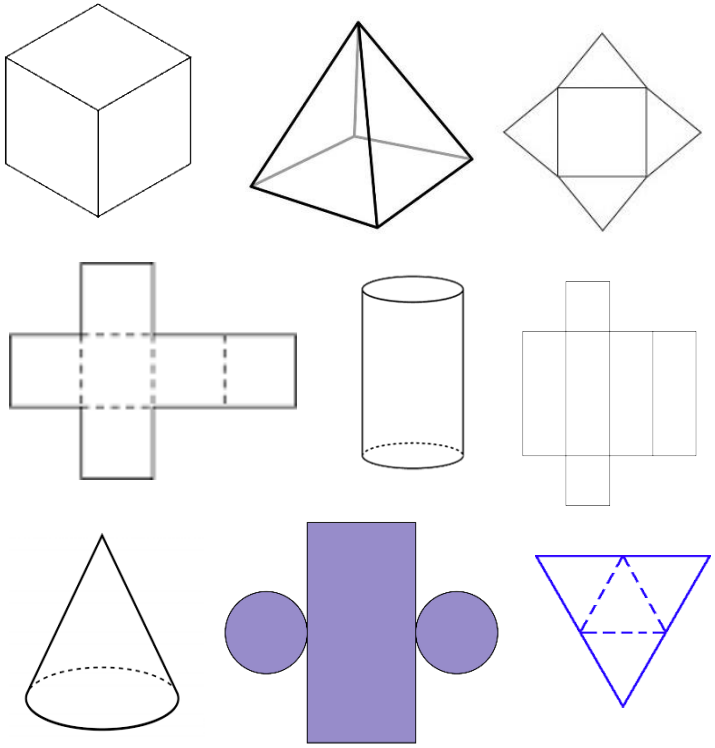
-Identify 3D shapes, including cubes and other cuboids, from 2D representations
- Use the properties of rectangles to deduce related facts & find missing lengths & angles.

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: Geometry	-Identify 3D shapes, including cubes and other cuboids, from 2D representations - Use the properties of rectangles to deduce related facts & find missing lengths & angles.

Name these 3D shapes



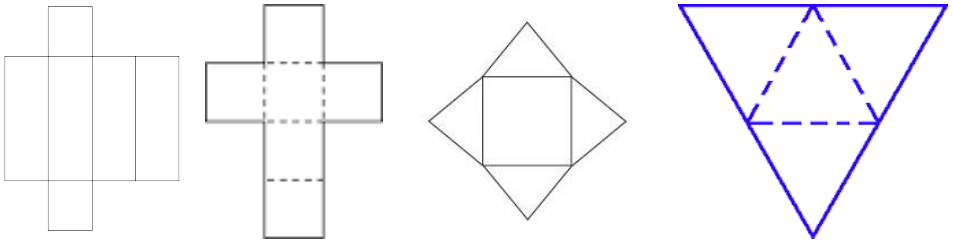
Draw shapes with accuracy

Draw a square with sides of 5cm

Draw an equilateral triangle with a sides of 6cm

Spring 2: Week 2: Practice and Consolidation

Geometry: -Identify 3D shapes, including cubes and other cuboids, from 2D representations
- Use the properties of rectangles to deduce related facts & find missing lengths & angles.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Identify 3D shapes from 2D images ➢ Calculate missing lengths and angles using known facts	• Remind pupils of the learning already covered in previous years about 2D and 3D shapes. • Use 3D shapes with pupils and ensure that they know the names of each of the 3D shapes. • Look at a range of nets and remind pupils of the terms associated with nets and 3D shapes. • Remind pupils about the learning covered in Autumn1 about drawing angles and using a protractor. • Help pupils to set out and draw angles very accurately.	Look at these nets, make a drawing of their equivalent 3D shapes:  Draw a number of squares that have the following sides: 10cm 5cm 15cm 8cm Ensure that all angles are very accurate. • Draw a rectangle that has 2 sides of 10cm and two sides of 8cm. • Draw an equilateral triangle that has sides of 10cm. • Draw a right-angled triangle that has one side of 6cm and another side of 8cm. • Draw a triangle that has one side of 10cm; one angle of 45° and one angle of 60°. • Draw the following angles: 65°; 80°; 110°.

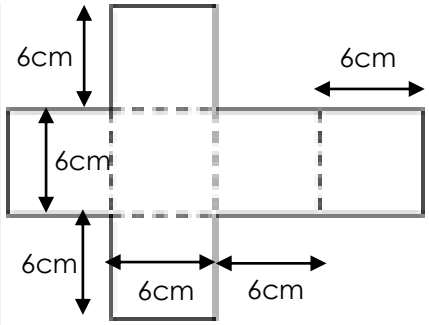
Spring 2: Week 2: Mastering this Objective – Deeper Understanding

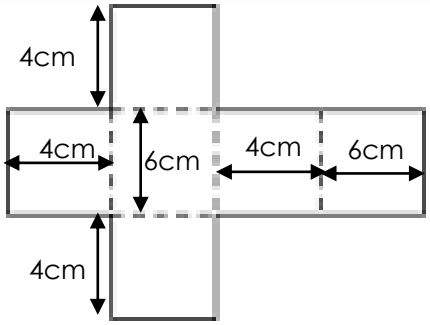
Geometry: -Identify 3D shapes, including cubes and other cuboids, from 2D representations
- Use the properties of rectangles to deduce related facts & find missing lengths & angles.

Teaching Sequence

- Identify 3D shapes from 2D images
- Calculate missing lengths and angles using known facts

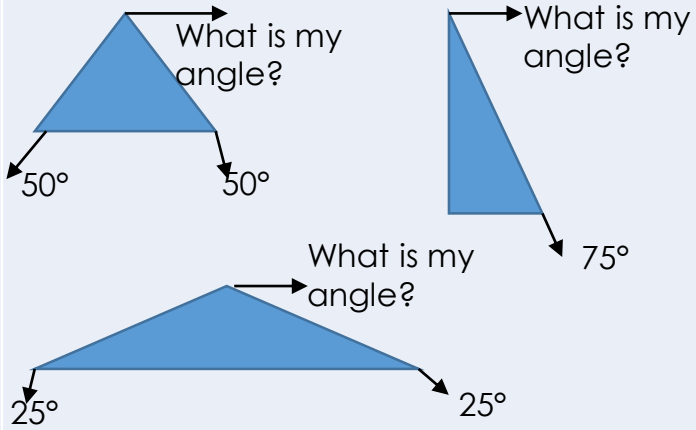
If pupils have mastered this objective they will be able to complete these activities independently:





Look carefully at each of these two nets. Although they look similar they make different 3D shapes.
Firstly, make up the two shapes shown following the dimensions as set out.
Name them, in relation to 3D shapes.

Knowing what you already know about triangles, work out the missing angles.



Knowing what you know about rectangles, work out the following sides.

My perimeter is 34cm
Two of my sides measure 5cm What do my other 2 sides measure?

My area is 50cm².
My perimeter is 30cm.
What do my sides measure?

My area is 48cm².
Two of my sides measure 6cm. What do my other 2 sides measure?

Spring 2: Week 2: Working at greater depth

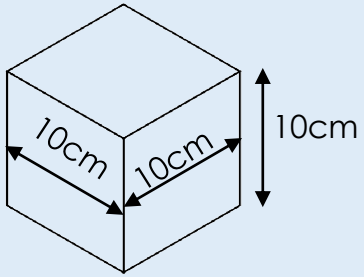
Geometry: -Identify 3D shapes, including cubes and other cuboids, from 2D representations
- Use the properties of rectangles to deduce related facts & find missing lengths & angles.

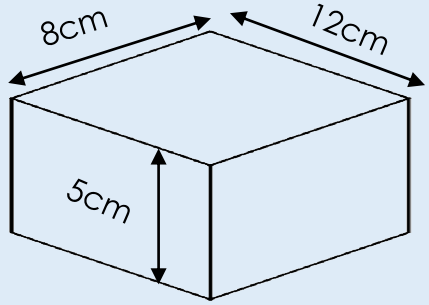
Teaching Sequence

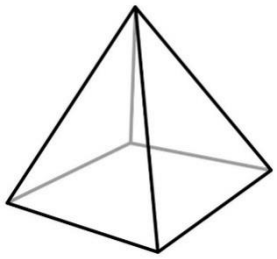
- Identify 3D shapes from 2D image
- Calculate missing lengths and angles using known facts

Activities for pupils working at greater depth:

Look at the two 3D shapes below. The measurements are set out with them.
Create the nets that would make these two 3D shapes







Now do the same with a triangular based pyramid.

This square-based pyramid has a base that is 10cm x 10cm.
Each of the triangles is an equilateral triangle.
Create the net and make a square based pyramid.

Work me out
I am a right-angled triangle. I have an area of 24cm². What are the lengths of 2 of my sides?
I am a triangle I have one angle of 65° and another angle of 35°. What is my third angle?
I am a square and my area is 25cm², what is my perimeter?
Think of some more questions you could create related to your knowledge of triangles and rectangles.

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.

Geometry: -Identify 3D shapes, including cubes and other cuboids, from 2D representations - Use the properties of rectangles to deduce related facts & find missing lengths & angles.	Me	My Teacher
Can you draw a given angle using a protractor and label it appropriately?		
Can you draw a triangle to a given set of angles and sides?		
Can you draw an isosceles triangle accurately given the length of side and the base?		
Can you draw a right-angled triangle when given the lengths of sides?		
Can you draw an equilateral triangle with a given length?		
Can you draw a rectangle accurately having been given the length and breadth?		
Can you draw a square accurately having been given the length of the side?		
Can you recognise 3D shapes from their nets?		

Year 5: Spring 2

Week 3: Fractions

Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

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: Fractions	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

Write $\frac{9}{4}$ as a mixed number.			How many ¼ are there in 3¾?		
Write $\frac{12}{5}$ as a mixed number.			How many ⅛ are there in 3⅜?		
Write $\frac{17}{6}$ as a mixed number.			How many 1/10 are there in 3 3/10?		
Write $\frac{19}{5}$ as a mixed number.			How many 1/3 are there in 3 2/3?		

Spring 2: Week 3: Practice and Consolidation

Fractions: Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know that a whole number can be written as a fraction, e.g. 2/2 etc. ➢ Know that 1½ can be written as 3/2 etc. ➢ Convert any improper fraction to a mixed fraction and vice versa	• Begin by using a metre stick which can be divided into equal parts. Start with four parts. Emphasise that 4 parts of 4 is one whole and can be expressed as 4/4. Similarly 6 parts of 6 is 6/6, etc. • Establish understanding of the numerator and denominator. The denominator is the parts it has been divided into and the numerator is the number of those parts you have. In this way pupils should see that 6 parts of 4 is one and 2 fourths or one and a half. • Ensure pupils know the terms improper and mixed fractions.	Write these as mixed numbers: $\frac{9}{4}$ $\frac{12}{5}$ $\frac{5}{3}$ $\frac{8}{7}$ $\frac{7}{6}$ $\frac{11}{4}$ $\frac{13}{5}$ $\frac{20}{7}$ Write these as improper fractions: $2\frac{1}{2}$ $4\frac{5}{6}$ $6\frac{2}{5}$ $8\frac{1}{4}$ $10\frac{3}{4}$ $7\frac{3}{8}$ $9\frac{2}{5}$ How many ½ in 5½? How many ¼ in 6¾? How many 1/3 in 72/3? How many ⅛ in 3⅞? How many ¼ in 5½? How many ⅛ in 3⅜? How many ¼ in 4¾? How many 1/6 in 85/6? Write as mixed numbers: Nine fifths. Twenty thirds Ten quarters Twelve tenths Sixteen fifths Eleven halves Nineteen thirds Twenty-two eighths Seven thirds

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

Fractions: Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

Teaching Sequence

- Know that a whole number can be written as a fraction, e.g. 2/2 etc.
- Know that 1½ can be written as 3/2 etc.
- Convert any improper fraction to a mixed fraction and vice versa

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

Convert the following sets of improper fractions to mixed fractions and then order them putting the highest value first:

$\frac{12}{5}$ $\frac{7}{2}$ $\frac{8}{3}$ $\frac{19}{5}$ $\frac{22}{3}$ $\frac{17}{8}$ $\frac{21}{4}$ $\frac{30}{7}$

$\frac{15}{4}$ $\frac{19}{2}$ $\frac{33}{7}$ $\frac{14}{9}$ $\frac{7}{2}$ $\frac{9}{5}$ $\frac{17}{7}$ $\frac{23}{7}$

Complete the following table:

Mixed	Improper
$3\frac{7}{8}$	
	$\frac{134}{7}$
$7\frac{3}{4}$	
	$\frac{152}{9}$

Use one of the following signs to complete these sentences (<; >; =)

$3\frac{1}{8}$ ☐ $\frac{17}{8}$

$6\frac{3}{4}$ ☐ $\frac{29}{4}$

$8\frac{3}{8}$ ☐ 75

Now create 2 of your own for your friends to solve.

Turn $3\frac{3}{5}$ into an improper fraction and then find half of $3\frac{3}{5}$.

Turn $3\frac{3}{7}$ into an improper fraction and then find half of $3\frac{3}{7}$.

Turn $9\frac{3}{9}$ into an improper fraction and then find half of $9\frac{3}{9}$.

Turn $16\frac{6}{7}$ into an improper fraction and then find half of $16\frac{6}{7}$.

Spring 2: Week 3: Working at greater depth

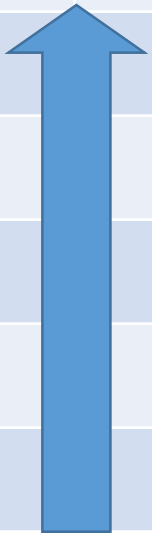
Fractions: Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Know that a whole number can be written as a fraction, e.g. 2/2 etc. ➢ Know that 1½ can be written as 3/2 etc. ➢ Convert any improper fraction to a mixed fraction and vice versa	**Taxi Journey** A taxi driver charges 10p for every ¼Km he takes his passenger. How much will a journey of 3¾ cost? What about a journey of 4½Km? What about a journey of 6¼Km? Make up some other journeys for your friends to solve.	**Wedding Ribbon** A dressmaker wants to buy special ribbon for a wedding dress. For every ⅛ of a metre the ribbon costs £2.50. The dressmaker wants 4⅜ metres. How much will the ribbon cost? What if she wanted to buy 6½metres?
	Pizza Delivery 10 children share some pizzas. They each get ⅜ of one pizza and there were 2 pieces left over. How many pizzas did they have delivered? On another day 11 children shared some pizzas. Each child got 5/6 of a whole pizza and there was 1 piece left over. How many pizzas were delivered this time?	**Moving Sand** Ahmet is given the task of moving sand from one place to another. His bucket holds 6/7Kg. He has to move 102/7Kg in total. How many journeys will Ahmet have to make to move all the sand? What if his bucket held 11/7Kg?

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.

Fractions: Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.	Me	My Teacher
Can you convert a mixed fraction into an improper fraction?		
Can you convert an improper fraction into a mixed fraction?		
Do you know that a whole number can be written as 2/2 or 4/4, etc.?		
Do you know what is meant by the term improper fraction?		
Do you know what is meant by the term mixed fraction?		



Year 5: Spring 2

Week 4: Measures

- Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water).
- Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).

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.

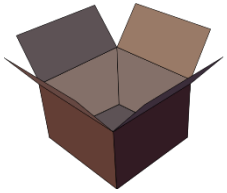
Name	Spring 2: Week 4
Objective: Measures	- Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water). - Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).

Find a number of boxes and use centimetre squares to check their volume.

	How many centimetres in 2m?		
	How many metres in 6 kilograms?		
	How many grams in 2 kilograms?		
	How many millilitres in 2 litres?		

Spring 2: Week 4: Practice and Consolidation

Measures: - Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water).
- Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know that volume is measured in cm^3 and m^3 ➢ Use cubes to calculate the volume of a given shape ➢ Use water and measuring equipment to calculate the capacity of a range of containers ➢ 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 an amount of more than 1l in ml	• Fill a container with either pieces of lego or unifix blocks or cm. cubes. • Explain that when trying to determine the volume of a space the measures are made in cm^3 or m^3 - the term being cubed. • Use cm^3 blocks to fill a small box and get pupils to work out how many cm^3 are required. • Move on to show how for spaces this can be measured by length x breadth x height. • Remind pupils of how many metres in a Km; cm in a metre; grams in Kg and ml in litres. • Help pupils to convert between these measures.	Find different size small boxes. Fill the boxes with cm. cubes. Work out how many cm cubes are required for each box and then record as that number with cm^3 symbol to follow.   Find volume even more accurately by multiplying the length x breadth x height. Find the measurement of the following: • A box that is 20 cm by 20 cm and is 15 cm high. • A cupboard that is 100 cm long; 25 cm wide and 80 cm high. Change these measurements as directed: • How many metres in 2Km? • How many grams in 1.2Kg? • How many cm in 4m 50cm ? • How many ml in 4 litres? • If a runner runs for 4Km and 500m how many metres will s/he have run altogether? • Express 5600m in Km.

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

Measures: - Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water).
- Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).

Teaching Sequence

- Know that volume is measured in cm^3 and m^3
- Use cubes to calculate the volume of a given shape
- Use water and measuring equipment to calculate the capacity of a range of containers
- 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 an amount of more than 1l in ml

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

To fill a bath it takes 150 litres of water.
You could have 3 showers with that amount of water.

Dave likes baths and has 4 each week.
Helen prefers showers and has one every day.

Which one uses most water in a week and what is the difference?

Which is more? (some may be equal)

- 1km or 1200 metres
- 2kg or 300 grams
- 5.5cm or 50mm
- 1.2 Km or 120cms.
- 1000ml or 1 litre
- 5.3m or 535cm
- 3000gms or 1.3 Kg
- 4 litres or 500 ml
- 6050gms or 6.5 Kg
- 7100m or 7.5Km
- 250gms or 0.2 Kg

Tour de Britain
The cycling tour had many stages. The distances are set out below:

Stage	Distance
1	18Km 200m
2	15Km 300m
3	10Km
4	8Km 500m
5	13Km 600m
6	22Km

What is the difference in metres between Stage 1 and Stage 3?
How far is it in metres between Stages 2 and 4?
In metres, how much further is Stage 6 than then next longest stage?
Put the stages in order, according to their distance in metres (longest first).

Spring 2: Week 4: Working at greater depth

Measures: - Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water).
- Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).

Teaching Sequence	Activities for pupils working at greater depth:

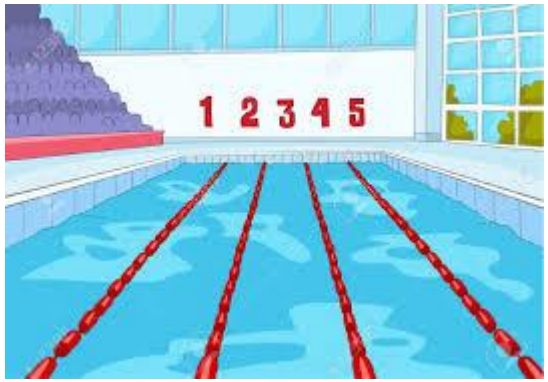
- Know that volume is measured in cm^3 and m^3
- Use cubes to calculate the volume of a given shape
- Use water and measuring equipment to calculate the capacity of a range of containers
- Express a distance of more than 1km in m
- Express a distance of more than 1cm in mm
- Express a mass of more than 1kg in g
- Express an amount of more than 1l in ml

Sponsored Walk

Ashley did a sponsored walk. She walked for 5Km and 200m non stop. She was sponsored at a rate of 5p per metre for this part of her walk.
How much money did she raise from this part of her walk?

The second stage of her walk was uphill. She discovered that for this part she lost 250grams in weight for every 500 metres she walked. The second stage was 4Km long. Before she started the second stage she weighed 58Kg.
How much did she weigh after the uphill climb?

The third stage was a walk along a coastline. For this part of her sponsorship she raised £360 at a rate of 4p per metre. How far did she walk during this third stage? Altogether she raised £2,100.
How much did she raise for the second stage.



An Olympic size pool holds 2,500,000 litres of water and measures 50m x 25m x 2m.

This works out to be 1000 litres for every $1m^3$.

Work out how many litres of water is there is in a swimming pool which is 25m x 10m x 2m.

If it costs £2 per day to keep 100,000 litres of water clean, how much does it cost to keep an Olympic size pool clean?

How does it cost to keep the smaller pool clean?

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.

Measures: - Estimate volume (e.g. using 1 cm^3 blocks to build cubes, including cuboids) & capacity (e.g. using water). - Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml).	Me	My Teacher
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?		
Can you use water to estimate and work out the capacity of a given container?		
Can you use cubes to work out the volume of a given shape?		
Do you know that volume is measured in cm^3 or m^3?		

Year 5: Spring 2

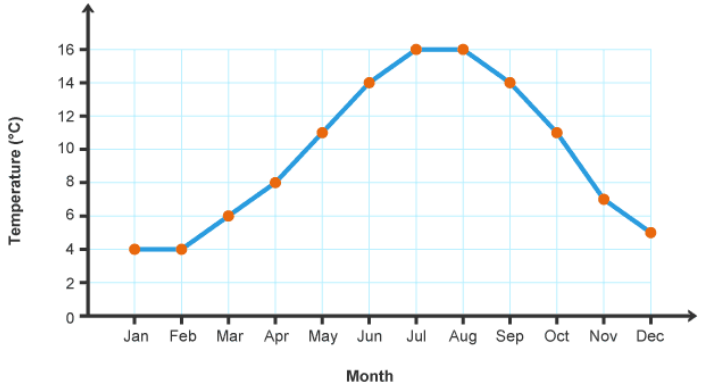
Week 5: Statistics

Solve comparison, addition and difference problems using information presented in a line graph

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.

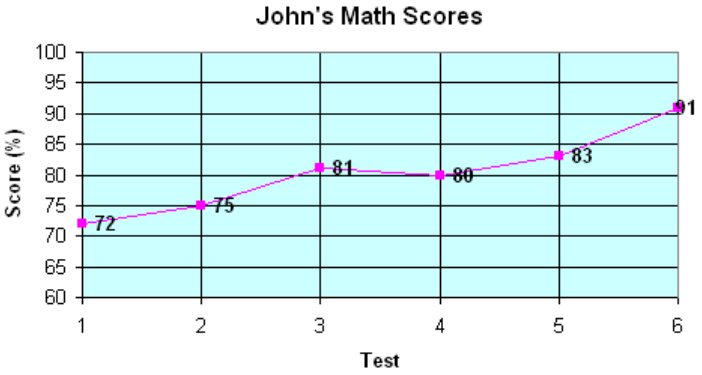
Name	Spring 2: Week 5
Objective: Statistics	Solve comparison, addition and difference problems using information presented in a line graph



Look at the information on the graph about average temperature each month and answer the following questions:

How many months is the average temperature more than 10°?

What is the difference between the average temperature in January and July?



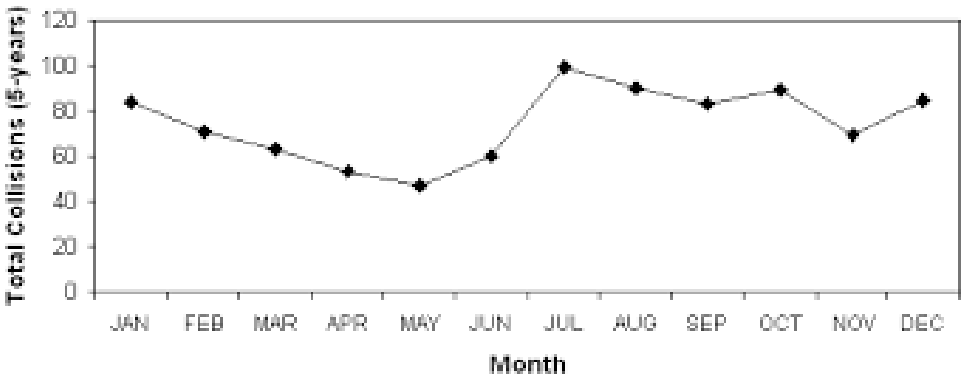
Look at the line graph which gives John's maths score over 6 tests.

In how many tests did John score 80 or more?

What is the difference between John's best and worst scores in the six tests?

Spring 2: Week 5: Practice and Consolidation

Statistics: Solve comparison, addition and difference problems using information presented in a line graph

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Compare information in line graphs to answer questions ➢ Solve addition problems using information in line graphs to answer questions ➢ Solve difference problems using information in line graphs to answer questions	• Revise the work done previously on bar charts; pictograms and tables. • Talk about suitability of presentation of information. • Talk to pupils about collecting information and collating it. • Remind pupils about keeping a tally as part of collecting information. • Introduce the idea of a line graph and explain where it can be more useful than other forms of representations.	 This line graph tells you about accidents that occur in an accident hot spot over a five year period. It presents information for every month during the 5 years. What is the difference between May and July? Put the months in order according to the number of collisions in each month (highest month first). Research to find the average monthly temperature in London during the last full year. Having collected the information create your own line graph. You need to think about your axes, your scale on the axes, a suitable title and think of 5 questions you could ask related to your graph.

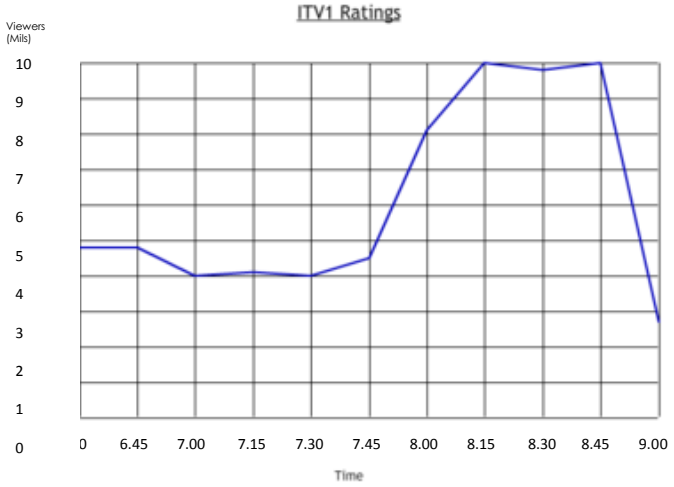
Spring 2: Week 5: Mastering this Objective – Deeper Understanding

Statistics: Solve comparison, addition and difference problems using information presented in a line graph

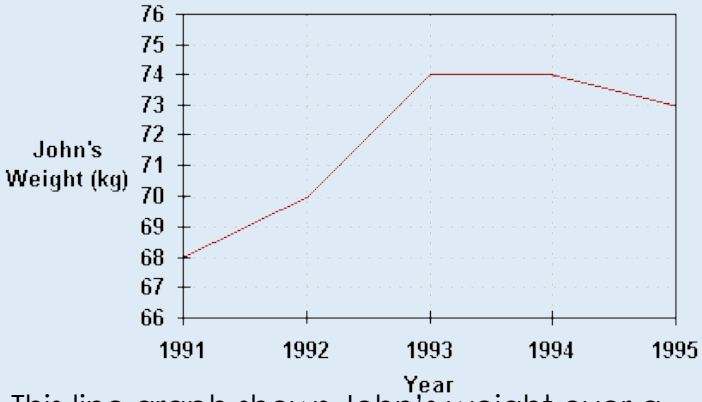
Teaching Sequence

- Compare information in line graphs to answer questions
- Solve addition problems using information in line graphs to answer questions
- Solve difference problems using information in line graphs to answer questions

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



The line graph shows the number of people watching TV between 6:30am and 9:00am. The vertical axis is in millions.
At what time did TV viewing peak?
Why would there be a sharp decline in viewers after 8:45am?
Why would there be a sharp increase in viewers between 7:45am and 8:15am?
Add another five questions about this graph that you can ask your friends.



This line graph shows John's weight over a four year period.
During which two years was John at his heaviest?
Why do you think John's weight fell between 1994 and 1995?
How old do you think John was in 1991?
During which two years did John's weight increase the most?

Now think of other questions you could ask your friends.

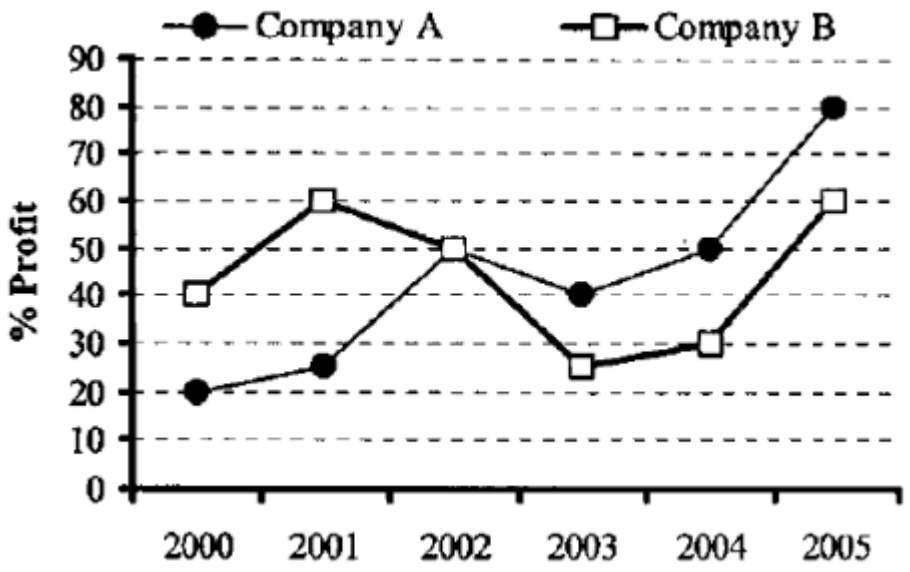
Spring 2: Week 5: Working at greater depth

Statistics: Solve comparison, addition and difference problems using information presented in a line graph

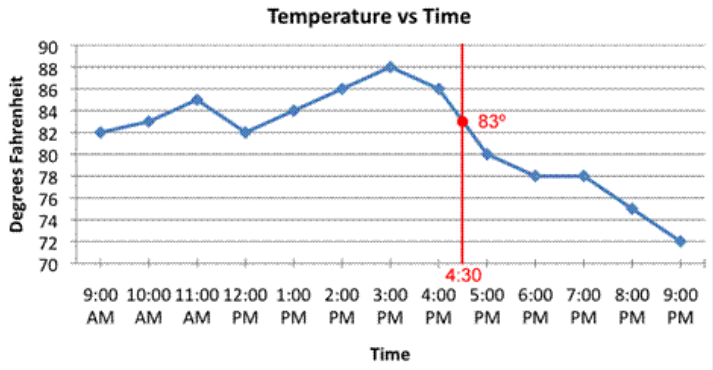
Teaching Sequence

- Compare information in line graphs to answer questions
- Solve addition problems using information in line graphs to answer questions
- Solve difference problems using information in line graphs to answer questions

Activities for pupils working at greater depth:



During which year did both companies make the same percentage of profit?
When was the percentage of profit the two companies made furthest apart?
Which company has improved its performance the most? Why can you say this?
Why should both companies feel confident about the percentage of profit they will make in 2006?

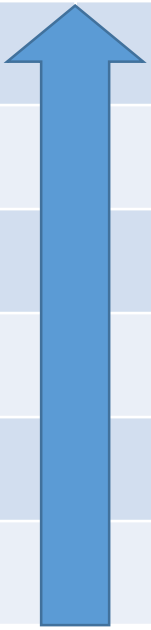


Create a number of questions to ask your friends about this line graph.
Some must be associated with difference and additions.
What do you think the temperature is likely to be at 4am? Give your reasons.
Why do you think there was such a sharp dip in temperature between 3pm and 6pm?

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.

Statistics: Solve comparison, addition and difference problems using information presented in a line graph	Me	My Teacher
Can you decide when information is best presented in a bar chart; line graph or table?		
Can you create your own line graph based on information you have collected and collated?		
Can you solve addition and subtraction problems presented to you in line graphs?		
Can you read, interpret and compare information presented in the form of a line graph?		
Can you present information you have collected in the form of a bar chart?		
Can you read and interpret information presented in a bar chart?		



Year 5: 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 intervention and pre-teaching sessions, as needed, for the following term.

Year 5: Spring 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back from a given number in steps of 100/1000/10,000/100,000 up to and beyond 500,000
- Read, write and order numbers to 500,000 and beyond
- Compare numbers to 500,000 and beyond
- Partition numbers to 500,000 and beyond
- Find powers of 10 more than a given number
- Read, write, order and compare decimal numbers up to 3dp
- Partition decimal numbers to 3dp
- Round decimals with 1 and 2dp to the nearest whole number
- Multiply and divide numbers mentally drawing upon known facts
- Multiply and divide any whole number by 10, 100, 1000 and multiply and divide any decimal number by 10 and 100
- Count on/back with positive and negative numbers, including through zero.
- Count on/back in fraction and decimal sequences? e.g. 2.5 or 1 ½
- Round any number up to 500,000 and beyond to the nearest 10, 100, 1000, 10,000 and 100,000
- Add mentally a 4 digit number and 3 digit number e.g. 8,345 + 230)
- Subtract mentally any 3-digit number from a 4-digit number e.g. 8,345 – 230
- Find factors and factor pairs of each number up to 50 and beyond
- Find complements to 100 and 1000; £1.00 and £5.00;to 1 using 2dp
- Convert units of measurement (km and m; cm and m; cm and mm; gram and km, ml and L)
- Mentally add and subtract tenths

- 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 5 : SUMMER 1: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
4 Place Value	**3 Fractions**	**4 Measures Time**	**4 Fractions Decimals**	**4 Addition & Subtraction**	**6 Multiplication & Division**
Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit	Compare and order fractions whose denominators are all multiples of the same number.	Solve problems involving converting between units of time.	-Round decimals with two decimal places to the nearest whole number and to one decimal place. - Read, write, order and compare numbers with up to three decimal places.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.
➢ Revise reading and writing numbers to 1000 ➢ Read all numbers from 1000 to 50,000 in numerals ➢ Read all numbers from 1000 to 1,000,000 in numerals ➢ Recognise the value of each digit up to 1,000,000 ➢ Know and use the terms: ones, tens, hundreds, ten thousands, hundred thousand and million correctly ➢ Partition any number up to 1,000,000 showing the value of each digit	➢ Compare and order fractions with the same denominator. ➢ Compare and order fractions with denominators of 2, 4, 8. ➢ Compare and order fractions with denominators of 5, 10. ➢ Convert fractions with different denominators to have a common denominator. ➢ Order two different fractions with different denominators that are multiples of the same number. ➢ Order more than two different fractions with different denominators that are multiples of the same number.	➢ Solve a range of problems involving all units of time	➢ Round a number with two decimal places to the nearest whole number. ➢ Round a number with two decimal places to the nearest number with one decimal place. ➢ Given 3 numbers with three decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with three decimal places, place in order (smallest to largest and vice versa).	➢ Identify the number of steps in a problem ➢ Identify the operations to be used ➢ Solve problems and check accuracy using estimation and rounding to check reasonableness of answer	➢ Know, by heart, the square of all numbers between 2 and 12. ➢ Know why a square number is called a square number by drawing squares ➢ Use the symbol ^{2} accurately. ➢ Explain the relationship between the square of a number and the square root of a number. ➢ Knowing the square of a number, use the inverse to calculate the square root. ➢ Use the symbol ^{3} accurately.

Year 5: Summer 1

Week 1: Place Value

Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

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: Week 1
Objective: Place Value	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Write these numbers in numerals			***Write these numbers in words***		
Two thousand, four hundred and fourteen			12,461		
Thirteen thousand, three hundred and sixty-four			123,879		
Two hundred and four thousand, one hundred and sixteen			15,247		
Four hundred thousand, three hundred and eighty- three			998,392		
Sixty thousand, four hundred and five			719,709		

Summer 1: Week 1: Practice and Consolidation

Place Value: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Revise reading and writing numbers to 1000 ➢ Read all numbers from 1000 to 50,000 in numerals ➢ Read all numbers from 1000 to 1,000,000 in numerals ➢ Recognise the value of each digit up to 1,000,000 ➢ Know and use the terms: ones, tens, hundreds, ten thousands, hundred thousand and million correctly ➢ Partition any number up to 1,000,000 showing the value of each digit	• Start by revising reading and writing numbers to 1000, 10,000, and 100,000. Remind pupils of place value. • Chant in thousands beyond 100,000 and 100,000 up to 1,000,000. • Half the class are given numbers in words and the other half have numbers. In turn a pupil with the words stands up from one side and the person, on the other side, with the corresponding number has to react as quickly as possible. • In small groups pupils play a bingo style game or a snap game involving words and numbers.	Write the number that comes directly before and after the centre number: | | 999,999 | | | | 179,999 | | | | 23,999 | | | | 200,000 | | | | 150,000 | | | | 234,599 | | Write these numbers in words: • 151,097 • 213,945 • 1,234,789 • 23,090 • 10,001 • 66,921 • 77,901 • 89,001 Partition these numbers: Example 2,459,123 (2,000,000 + 400,000 + 50,000 + 9,000 + 100 + 20 + 3) • 3,245,912 • 7,912,333 • 9,912,345 • 890,002

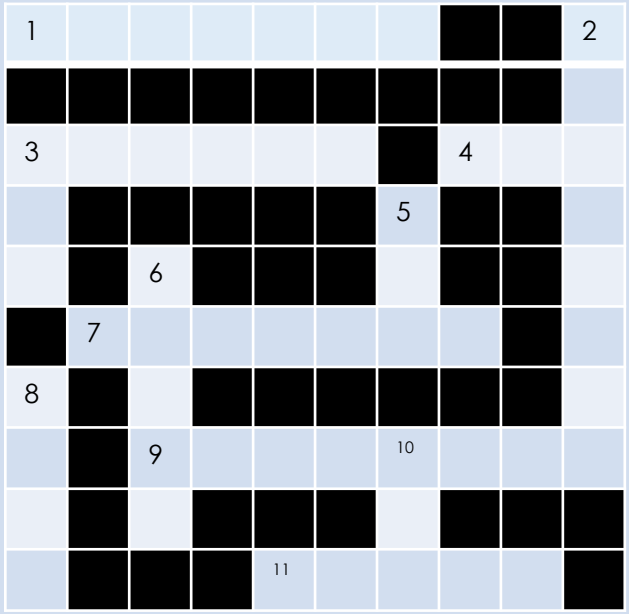
Summer 1: Week 1: Mastering this Objective – Deeper Understanding

Place Value: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Teaching Sequence

- Revise reading and writing numbers to 1000
- Read all numbers from 1000 to 50,000 in numerals
- Read all numbers from 1000 to 1,000,000 in numerals
- Recognise the value of each digit up to 1,000,000
- Know and use the terms: ones, tens, hundreds, ten thousands, hundred thousand and million correctly
- Partition any number up to 1,000,000 showing the value of each digit

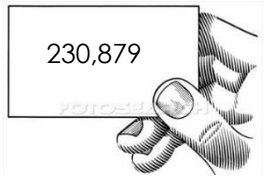
If pupils have mastered this objective they will be able to complete these activities independently:



1	4 X 25	2	500 x 2
3	2 X 10	5	After 1
4	4 ÷ 2	6	15 X 4
7	100,000 X 10	8	3^2
9	100 X 10	10	2 X 3
11	30 X 2		

Be aware that some numbers appear more than once.

Take a card with numbers written as words: 500,000 to a million and have another set of cards 1 to 499,999. Select a card from the first set and take away the number selected from the second set.



Match the numbers to the words:

230,945	Six hundred and twenty three thousand, nine hundred and one
623,901	Seven hundred and eighty three thousand and seven
783,007	Two hundred and thirty thousand, nine hundred and forty five.

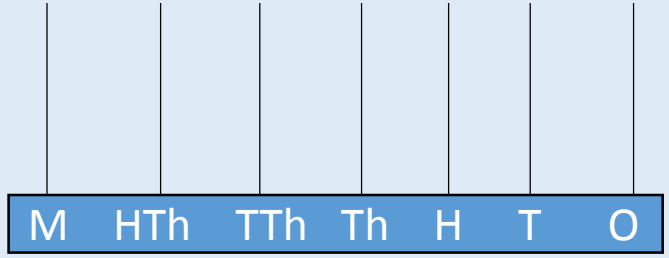
Write these numbers in words:

2	4	7	2	9	1	9
1	3	4	7	8	9	2

Now write some more for your friends to complete.

Summer 1: Week 1: Working at greater depth

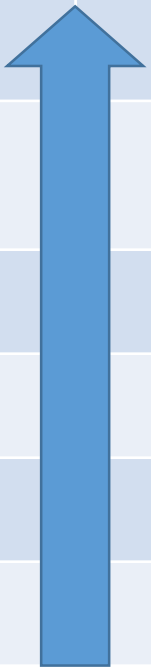
Place Value: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Revise reading and writing numbers to 1000 ➢ Read all numbers from 1000 to 50,000 in numerals ➢ Read all numbers from 1000 to 1,000,000 in numerals ➢ Recognise the value of each digit up to 1,000,000 ➢ Know and use the terms: ones, tens, hundreds, ten thousands, hundred thousand and million correctly ➢ Partition any number up to 1,000,000 showing the value of each digit	 Make up 7-digit numbers, with the numbers shown. The first digit has to be a 1. Make a pair of 7-digit numbers which are less than 100,000 apart. Make a pair of 7-digit numbers that are more than 500,000 apart. Make up a pair of 7-digit numbers that are less than 50,000 apart. Now think up some for yourself to give to your friends.	Look at the abacus below. You have 25 beads to place where you wish. If you have to put a bead in each of the pegs what are the smallest and largest numbers you can make? Now make up more to a given specification. 
	Take any 7 cards with a single digit on it. Start with the cards shown above. Make up as many 7-digit numbers as you can. Write five of them out in words. Choose another 7 cards with different digits on. How many numbers can you make? What do you notice?	Write the next two numbers in this sequence: • One million, one hundred and twenty thousand, four hundred and thirty five: • 1,020,435; • Nine hundred and twenty thousand, four hundred and thirty five; • 820,435

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: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit	Me	My Teacher
Can you partition any number up to 1,000,000 showing the value of each digit?		
Do you know and use terms: units; tens, hundreds, thousands, ten thousands, hundred thousands and one million correctly?		
Can you recognise the value of each digit up to 1,000,000?		
Can you read and write numbers to 1,000,000?		
Can you read and write numbers to 50,000?		
Can you read and write numbers to: 1000 and then to 10,000?		



Year 5: Summer 1

Week 2: Fractions

Compare and order fractions whose denominators are all multiples of the same number.

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: Fractions	Compare and order fractions whose denominators are all multiples of the same number.

Which is the larger?			***Complete the following***		
$\frac{7}{16}$ $\frac{3}{8}$			$\frac{7}{8}$ =	$\frac{\square}{16}$	
$\frac{7}{9}$ $\frac{2}{3}$			$\frac{3}{4}$ =	$\frac{\square}{12}$	
$\frac{3}{4}$ $\frac{11}{16}$			$\frac{3}{8}$ =	$\frac{\square}{16}$	
$\frac{1}{5}$ $\frac{4}{15}$			$\frac{1}{5}$ =	$\frac{\square}{10}$	

Summer 1: Week 2: Practice and Consolidation

Fractions: Compare and order fractions whose denominators are all multiples of the same number.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Compare and order fractions with the same denominator. ➢ Compare and order fractions with denominators of 2, 4, 8. ➢ Compare and order fractions with denominators of 5, 10. ➢ Convert fractions with different denominators to have a common denominator. ➢ Order two different fractions with different denominators that are multiples of the same number. ➢ Order more than two different fractions with different denominators that are multiples of the same number.	• Help pupils to make sets of multiples, eg, 2, 4, 8 and 16; 3, 6, 9 and 12. • Use two metre sticks, one with 8 divisions and one with 4 divisions. • Show pupils visually how four eighths is the same as two fourths. • Then do the same with 2 metre sticks with divisions of three and six. • Show pupils how to change a fraction in thirds to one with sixths or ninths.	Put sets of multiples together up to 16, e.g. 2, 4, 8, 16: **Multiples of 2** | **Multiples of 3** | **Multiples of 5** Some numbers will appear in more than one set. Complete the following: $\frac{1}{2}$ = $\frac{\square}{4}$ = $\frac{\square}{8}$ = $\frac{\square}{16}$ $\frac{2}{3}$ = $\frac{\square}{6}$ = $\frac{\square}{9}$ = $\frac{\square}{12}$ Find two fractions with different denominators which are equivalent to the following fractions: $\frac{2}{3}$ $\frac{5}{6}$ $\frac{7}{8}$ $\frac{1}{4}$ $\frac{6}{7}$ Within each pair of fractions which is the larger? $\frac{3}{8}$ or $\frac{4}{16}$; $\frac{2}{3}$ or $\frac{7}{9}$; $\frac{5}{6}$ or $\frac{11}{12}$; $\frac{2}{3}$ or $\frac{11}{12}$

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

Fractions: Compare and order fractions whose denominators are all multiples of the same number.

Teaching Sequence

- Compare and order fractions with the same denominator.
- Compare and order fractions with denominators of 2, 4, 8.
- Compare and order fractions with denominators of 5, 10.
- Convert fractions with different denominators to have a common denominator.
- Order two different fractions with different denominators that are multiples of the same number.
- Order more than two different fractions with different denominators that are multiples of the same number.

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

Make these true:

$\square/10 > \square/5$; $\square/3 > \square/9$

$\square/6 > \square/12$ $\square/8 > \square/16$

Find a fraction that is the same as the one shown but has a different denominator.

$\frac{3}{8}$ $\frac{2}{3}$ $\frac{5}{6}$ $\frac{1}{3}$ $\frac{3}{4}$

Now find a fraction that is larger than each of the ones shown below:

$\frac{3}{8}$ $\frac{2}{3}$ $\frac{5}{6}$ $\frac{1}{3}$ $\frac{3}{4}$

How do you know that they are larger?

Put at least 3 multiples into the following boxes.

Multiples of 2	Multiples of 3	Multiples of 5

Make up a pair of equal fractions from each set of multiples.

Join the fractions to the one that is of the same value:

$\frac{1}{4}$	$\frac{2}{6}$
$\frac{1}{3}$	$\frac{3}{30}$
$\frac{1}{5}$	$\frac{2}{8}$
$\frac{1}{10}$	$\frac{2}{10}$

Summer 1: Week 2: Working at greater depth

Fractions: Compare and order fractions whose denominators are all multiples of the same number.

Teaching Sequence

- Compare and order fractions with the same denominator.
- Compare and order fractions with denominators of 2, 4, 8.
- Compare and order fractions with denominators of 5, 10.
- Convert fractions with different denominators to have a common denominator.
- Order two different fractions with different denominators that are multiples of the same number.
- Order more than two different fractions with different denominators that are multiples of the same number.

Activities for pupils working at greater depth:

Denominator Fun

Write down two fractions where the denominator of one is a multiple of the denominator of the other.
Work out which is the larger fraction.
Explain your reasoning.

Now set up another five examples for your friends to complete.

Fraction Problems

Tom ate 11/16 of his pizza and Helen ate 7/8 of hers. Which of the two had more pizza?

Hannah played for 2/3 of the match and Jemma played for 5/6 of the match. Who played the longer?

Lizzie managed to complete ¾ of her exam paper and Tony manged 7/8. Who did the most?

More or Less

Look at these pairs of fractions.
What is the difference between them?

$\frac{2}{3}$ and $\frac{7}{9}$ $\quad\quad$ $\frac{2}{3}$ and $\frac{11}{12}$

$\frac{5}{6}$ and $\frac{11}{12}$ $\quad\quad$ $\frac{3}{8}$ and $\frac{5}{16}$

$\frac{1}{3}$ and $\frac{1}{6}$ $\quad\quad$ $\frac{1}{4}$ and $\frac{3}{16}$

How much more?

How much more do I need to add to 3/16 to make it ¼?

Now look at these:

How much more:

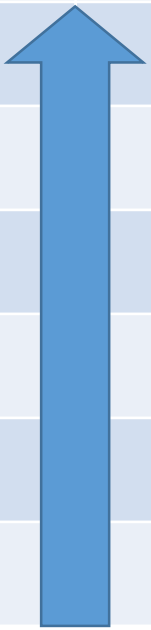
$\frac{2}{3} \rightarrow \frac{7}{9}$

$\frac{5}{6} \rightarrow \frac{11}{12}$

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.

Fractions: Compare and order fractions whose denominators are all multiples of the same number.	Me	My Teacher
Can you order more than 2 different fractions with different denominators that are multiples of the same number?		
Can you order 2 different fractions with different denominators that are multiples of the same number?		
Do you know how to convert fractions with different denominators into a common denominator?		
Can you compare and order fractions with denominators 5 and 10?		
Can you compare and order fractions with denominators of 2, 4 and 8?		
Can you compare and order fractions with the same denominator?		



Year 5: Summer 1

Week 3: Measures: Time

Solve problems involving converting between units of time.

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.

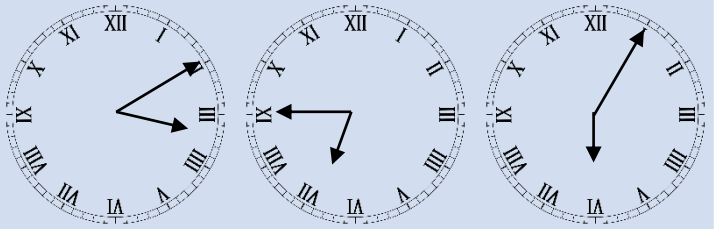
Name	Summer 1: Week 3
Objective: Measures	**Time:** Solve problems involving converting between units of time.

How many minutes?			***How many days?***		
2 hours			One week		
1 hour 15 minutes			Month of June		
6 hours 10 minutes			In 2016		
4 hours 25 minutes			In 2015		
8 hours			Between 1st of December and January 3rd		
3 hours 7 minutes					
5 hours 19 minutes			Between April 1st and May 17th		
3 hours 52 minutes					

Summer 1: Week 3: Practice and Consolidation

Measures: Time: Solve problems involving converting between units of time.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Solve range of problems involving all units of time	• Much of this unit is revising learning covered previously in both Years 4 and 5. • Revisit the number of seconds in a minute; the number of minutes in an hour; days of the week; months of the year. • Discuss a leap year. • Look at different formats of telling the time: 24 hour clock; using am and pm; digital and analogue; Roman numerals, etc.	Put these times in a 24 hour clock format: 2.30pm; 3.15am; 7.15am; 10pm; 2.13pm; 5.18am 8.15am; 10.17am; 12noon; 4.15pm; 8.12am; 11.12pm Sally left home at 6.15pm and arrived at her class at 19:05.How long did it take her? James started reading at 8.15pm and finished his book at 22:25. How long was he reading for? Tariq went out to play at 16:15 and came in for his supper at 7pm. How long was he out playing? Here are 3 clock faces showing the time in the afternoon. Using a 24 hour system tell the time for each one.



24 hour	Am/pm	Analogue
05:13		
	7.13pm	
		Half past six AM

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

Measures: Time: Solve problems involving converting between units of time.

Teaching Sequence	If pupils have mastered this objective they will be able to complete these activities independently:	
➢ Solve a range of problems involving all units of time	Put these lengths of time in order starting with the longest time. • 105 minutes • 1 hour 51 minutes • 6360 seconds • 6945 seconds • 1 hour 45 minutes • 129 minutes • 1 hour 55 minutes	The theatre production finished at 21:15 and the play lasted for 2 hours and 15 minutes. What time did the production start? Answer in a 24-hour format. Andrew was going to the theatre to see this production and he took a train. He left home 105 minutes before the production started. Again, in a 24 hour clock format, what time did Andrew leave his home?
	Which is the most sensible way to record the following: in seconds; in minutes; in hours or in days? Some may have 2 sensible ways. • 5km run • 100 metres dash • A plane journey to Spain • Round the world sailing race • A football match • Time spent in school during a typical day • Eat lunch • Take a photograph	Look at these sequences of time: write in the missing time in a 24 clock system. Quarter past six; 6.30am; 06:45; Seven in the morning; _____; 7.30am. Ten at night; 21:45; _____; 9.15pm; nine at night. 1.30am; 03:00; half past four in the morning; _____; 07:30

Summer 1: Week 3: Working at greater depth

Measures: Time: Solve problems involving converting between units of time.

Teaching Sequence

- Solve a range of problems involving all units of time

Activities for pupils working at greater depth:

Paris Holiday

A person going on holiday lands at Paris airport at 10.45 hours.
He left home at eight in the morning and spent 90 minutes in the airport before his plane took off.
How many minutes was he in the air?

How many minutes past between him leaving home and landing in Paris?

Time Zones

Sydney in Australia is 9 hours ahead of London; Dubai is 3 hours ahead and Turkey 2 hours ahead.
New York is 5 hours behind and Rio de Janeiro is 4 hours behind London.

Using a 24 hour clock system state what the time is in each of these cities or countries when it is the following times in London: 7 in the morning; 4 in the afternoon and 6 in the evening.

BUS TIMETABLE

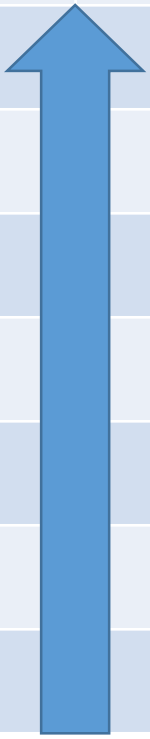
Newport	06:50		07:25	08:45	09:10	09:45
Underwood	07:00	07.25	07:41	08:55	09:19	09:53
Magor	07:11	07.41	07:51	09:04	09:31	10:02
Rogiet	07:18	07.59	07:59	09:11	09:38	10:11
Caldicot	07:29	08.12	08:09	09:16	09:47	10:16
Portskewett	07:33	08.15	08:14	09:20	09:53	10:21
Chepstow	07:45	08.30	08:30		10:05	10.40

Look at the bus timetable:
How many minutes does the first bus take between Newport and Chepstow?
Look at the time the buses leave Underwood. What is the greatest and smallest gap in minutes?
In minutes, what is the time difference between the first bus that leaves Newport and the last bus that leaves Newport?
Take 7 clock faces and show the time for the 7.25 bus that leaves Newport and then for each of the stops for that bus.

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.

Measures: Time: Solve problems involving converting between units of time.	Me	My Teacher
Do you understand about time zones and how that impacts on different countries across the world?		
Can you convert between different ways of showing and telling the time?		
Can you read the time in a 24 hour clock format?		
Can you read the time in analogue using am and pm?		
Do you know which months have 30 days and which year has an extra day (leap year)?		
Do you know how many minutes in an hour and how many hours in a day?		
Do you know how many seconds in a minute?		



Year 5: Summer 1

Week 4: Fractions: Decimals

-Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Read, write, order and compare numbers with up to three decimal places.

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: Fractions	**Decimals:** -Round decimals with two decimal places to the nearest whole number and to one decimal place. - Read, write, order and compare numbers with up to three decimal places.

Round these decimal numbers to one whole number			***Round these decimal numbers to one decimal place number***		
6.25			0.15		
7.5			2.58		
8.1			1.25		
9.3			3.75		
11.1			6.83		
9.3			9.45		
6.9			10.75		
8.5			3.78		

Summer 1: Week 4: Practice and Consolidation

Fractions: Decimals: -Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Read, write, order and compare numbers with up to three decimal places.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Round a number with two decimal places to the nearest whole number. ➢ Round a number with two decimal places to the nearest number with one decimal place. ➢ Given 3 numbers with three decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with three decimal places, place in order (smallest to largest and vice versa).	• Remind pupils of the principles related to rounding. • Explain that the same applies to rounding decimals. • Provide pupils with cards that have numbers with up to 2 decimal places on them and verbally get pupils to round the numbers to the nearest whole number or to the nearest one decimal place. • Remind pupils of the work already done with decimal numbers and reiterate the value of tenths; hundredths, etc. • Get pupils to compare numbers and order them using practical methods. • For example a group of 4 to 6 pupils could be given a number each and they have to organise themselves by highest first, etc.	Round the following numbers to the nearest whole number: 23.14; 16.43; 17. 52; 11.5; 16.33; 267.01 52.76 33.67 37.99 21.5 56.77 113.56 Round the following numbers to the nearest one decimal place: 23.74; 16.48; 17. 58; 11.57; 16.33; 267.71 52.796 33.627 37.99 121.55 56.77 113.56 Put these in order (highest value first) 1. 23.78 23.98 23.76 23.8 23.11 23.9 2. 45.89 17.66 33.79 12.23 1.89 17.68 3. 128.92 128.29 128.9 128.2 128.7 128 9 Write these as numbers: Twenty one point two three; Seventeen point five nine Seventy point zero five Eleven point three three

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

Fractions: Decimals: -Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Read, write, order and compare numbers with up to three decimal places.

Teaching Sequence

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

Write down all the possible two decimal place numbers that come between 15.1 and 15.2.

Write down all the possible two decimal place numbers that come between 16.5 and 16.6.

Write down all the possible two decimal place numbers that come between 18.15 and 19.2.

Write down the number that is one tenth more than 3.412.

Write down the number that is three hundredths more than 3.236.

Write down the number that is four hundredths more than 2.166.

Write down the number that is one tenth less than 3.003.

Complete this table:

Number	Nearest whole	Nearest Tenth	Nearest hundredth
3.126			
4.652			
5.912			
18.459			
17.992			
91.225			
11.002			

Counting on in 0.2 write the next five numbers after 3.135.

Counting back in 0.5 write down the five numbers that come before 3.784

Summer 1: Week 4: Working at greater depth

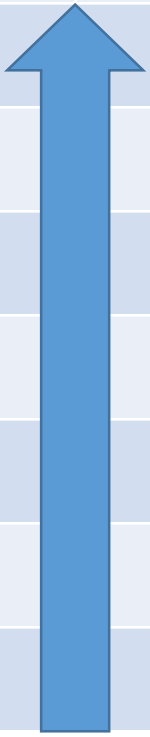
Fractions: Decimals: -Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Read, write, order and compare numbers with up to three decimal places.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Round a number with two decimal places to the nearest whole number. ➢ Round a number with two decimal places to the nearest number with one decimal place. ➢ Given 3 numbers with three decimal places, place in order (smallest to largest and vice versa). ➢ Given 5 numbers with three decimal places, place in order (smallest to largest and vice versa).	**Rounding** One decimal place numbers have been rounded to the nearest whole number. Here they are: 48 72 67 89 91 120 For each number put down all the possible one decimal numbers that they could have been in the first place.	3.7 is the 8th number in the sequence and 3.5 was the 4th in the sequence. What was the first number? 8.92 is the 7th number in the sequence; 8.44 is the 3rd number in the sequence. What are the 2nd and fifth numbers? 11.75 is the 10th number in the sequence; 10.4 is the 1st in the sequence; 11.0 is the 5th in the sequence. What are the 2nd and the 8th numbers?
	More Rounding Two decimal place numbers have been rounded to the nearest whole number. Here they are: 49 62 87 99 92 130 For each number work out the highest and lowest numbers they could have been originally.	A sequence of numbers goes up 0.1 then 0.2; then 0.3, and so on. Here is an example: 2.3; 2.4; 2.6; 2.9; 3.3…… What is the 10th number in the sequence that starts with 4.4? What is the 8th number in the sequence that starts with 3.67?

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.

Fractions: Decimals: -Round decimals with two decimal places to the nearest whole number and to one decimal place. - Read, write, order and compare numbers with up to three decimal places.	Me	My Teacher
Can you create a sequence with decimal numbers with up to three decimal places?		
Can you compare decimal numbers with up to three decimal places?		
Can you write any decimal number with up to three decimal places?		
Can you read any decimal number with up to three decimal places?		
Can you round a two decimal place number to the nearest one decimal place number?		
Can you round a two decimal place number to the nearest whole number?		
Can you round a one decimal place number to the nearest whole number?		



Year 5: Summer 1

Week 5: Addition & Subtraction

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

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

John and Helen have 17 sweets between them. John has 5 fewer than Helen.
How many sweets has Helen and how many has John?

John ☐ Helen ☐

4,620 children visited the dentist in a town in Yorkshire in the month of May. This was 55 more than visited the dentist in April but only half of the number that visited the dentists in March.
How many visited the dentist in April and March?

March ☐ April ☐

Henry V111 was born in 1491 and he lived for 56 years. In which year did he die?

☐

A farmer has 3,498 animals altogether. He has 560 cows; 1290 pigs; 402 sheep and the rest are chickens. How many chickens has he?

☐

Summer 1: Week 5: Practice and Consolidation

Addition & Subtraction: Solve addition and subtraction multi-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:
➢ Identify the number of steps in a problem ➢ Identify the operations to be used ➢ Solve problems and check accuracy using estimation and rounding to check reasonableness of answer	• Remind pupils about reading the questions very carefully and to look for key words. • Remind them that they should apply formal methods of addition and subtraction when it comes to adding or subtracting. • Try and link the questions with on-going learning such as the rainforests, etc. so as to make them more meaningful to the pupils.	A busy office wanted to get an idea of how busy they were so they counted all the e-mails they had received in one week. There were three different people in the office who regularly received e-mails. The first received 2,350; the second received 150 more than the first and the third received double the amount received by the first and second person. How many emails were received in that week?
		Three of London's special attractions reported that they had improved on the visitors they had on the previous month. In May, the London Eye had 300,789 paying visitors but this was up by 34,986 in June. In May, the National History Museum had 549,234 visitors but this had increased by 102,129 in June In May, the Tower of London had 257,983 visitors but this was up by 69,238 in June. How many visitors were there for all three attractions in June?
		239,990 people travelled by train in July and August. 12,890 more travelled by train in July than in August. How many travelled by train in July and how travelled by train in August? How did you work this out?

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

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

Teaching Sequence

- Identify the number of steps in a problem
- Identify the operations to be used
- Solve problems and check accuracy using estimation and rounding to check reasonableness of answer

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

A shirt and tie cost £45.
A shirt and jacket cost £155, and a jacket and a tie cost £120.
What is the cost of the shirt?

Football mad Kevin wanted to buy a football kit.
He discovered that the shirt and shorts costs £37; the socks and shirt costs £35 and the socks and shorts costs £26.
Work out the cost of each of the three items and explain how you did it.

A survey was taken to show amphibians, mammals and reptiles in an area within the rainforest. The chart below shows the number of recorded sightings over a period of one week.

Creatures	Species	Number of sightings
Poison Dart Frog	Amphibian	3,021
Gorilla	Mammal	127
Anaconda	Reptile	602
Spider Monkey	Mammal	230
Gaboon Viper	Reptile	17,091
Jaguar	Mammal	321
Red-eyed Tree Frog	Amphibian	11,672
Lemur	Mammal	705

Which **species** had the largest number of recorded sightings? (Show your workings)
Which **species** had the lowest number of sightings?

Summer 1: Week 5: Working at greater depth

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

Teaching Sequence

- Identify the number of steps in a problem
- Identify the operations to be used
- Solve problems and check accuracy using estimation and rounding to check reasonableness of answer

Activities for pupils working at greater depth:

Pizza Time

- 2 cheese and tomato pizzas and one garlic bread cost £10.60.
- 1 cheese and tomato pizza and 2 garlic breads cost £6.50.

What is the total cost of 1 cheese and tomato pizza and 1 garlic bread?

Guess my number

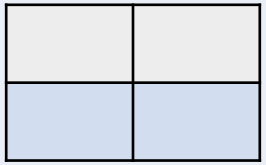
Hamid thinks of a number between 20 and 30;
He takes 10 away from it.
He then halves it.
Finally, he adds 55 to it.
His answer is 62.

What was his original number?

Make up several of these for your friends to solve.

Number Puzzle

Put any 4 numbers (0-9) into the empty spaces below and then create 4 2-digit numbers as shown below. Add the two horizontal numbers together and take away the sum of the two vertical numbers.



Example

6	2
3	8

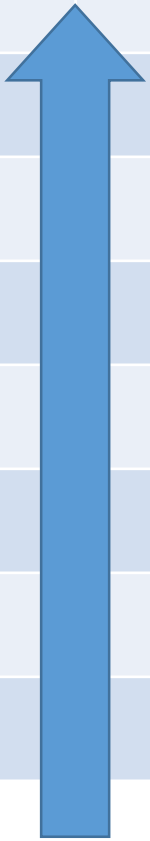
(62 + 38) – (63 + 28) = 9

Put 4 numbers in the 2 x 2 box so that you get as close as you can to 0 (in the first) and to 50 (in the second).

Summer 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.

Addition & Subtraction: Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Me	My Teacher
Can you solve a multi-step problem that requires addition and subtraction to 100,000?		
Can you solve a 2-step problem that requires addition and subtraction to 100,000?		
Can you solve a 2-step problem that requires subtraction to 100,000?		
Can you solve a 2-step problem that requires addition to 100,000?		
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 5: Summer 1

Week 6: Multiplication & Division

Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.

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	Summer 1: Week 6
Objective: Multiplication & Division	Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.

Write the square number or the cube of the number as indicated?

5^2			If the square of a number is 64 what is the original number?		
10^2			If the square of a number is 81 what is the original number?		
12^2			**3^3**		
8^2			**4^3**		
11^2			**5^3**		

Summer 1: Week 6: Practice and Consolidation

Multiplication & Division: Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know, by heart, the square of all numbers between 2 and 12. ➢ Know why a square number is called a square number by drawing squares ➢ Use the symbol ^{2} accurately. ➢ Explain the relationship between the square of a number and the square root of a number. ➢ Knowing the square of a number, use the inverse to calculate the square root. ➢ Use the symbol ^{3} accurately.	• Introduce the term squared to pupils. In effect it is a number multiplied by itself. • Get pupils to chant out all the squared numbers between 1 and 100. • Show cards to see how quickly pupils respond to knowing the square of numbers between 1 and 10. • Know the relationship between a square and a square root. (although square root is not mentioned in NC it is appropriate to mention it here as the inverse of a square number). • Move on to do similar activities with cubed numbers.	What is the square of the following numbers: 4 8 5 7 12 11 20 10 9 Which of these numbers is not a square number? 16 25 39 16 18 25 49 121 144 150 These are the square numbers for which numbers? 81 121 400 49 36 64 100 900 9 These are cubed numbers for which numbers? 343 216 27 1 125 729 1000 64 8 I am 64, which number am I related to? I am 216, which number am I related to? I am 400, which number am I related to? I am 125, which number am I related to? I am 36, which number am I related to?

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

Multiplication & Division: Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.

Teaching Sequence

- Know, by heart, the square of all numbers between 2 and 12.
- Know why a square number is called a square number by drawing squares
- Use the symbol ^{2} accurately.
- Explain the relationship between the square of a number and the square root of a number.
- Knowing the square of a number, use the inverse to calculate the square root.
- Use the symbol ^{3} accurately.

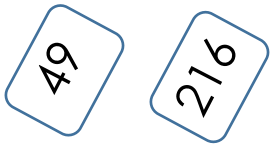
If pupils have mastered this objective they will be able to complete these activities independently:

Bingo

Make up bingo cards which contain only square and cube numbers for numbers up to 12.
Then in turns throw two dice and see if you have either the square or the cube of the sum of the dice on your bingo card.

Explain away

Have all the square and cube numbers for numbers between 1 and 12 on individual cards.
You then have 3 minutes to pick one up in turn and explain what it is, e.g. if you pick 8, you would say 8 is the cubed number for 2.



1	4	9	16	25	36
1	8	27	64	125	216

Write down the square numbers for 1 to 100 in order.
What do you notice about the sequence?

Now, write down all the cubed numbers for numbers between 1 and 10 in order. Do you notice another pattern? What is it?

Explain the pattern to your friend.

Complete:

	2	3	4	5	6
2					
3					

	7	8	9	10	12
2					
3					

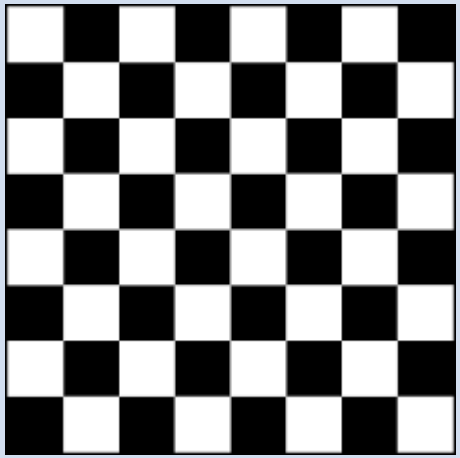
Summer 1: Week 6: Working at greater depth

Multiplication & Division: Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.

Teaching Sequence

- Know, by heart, the square of all numbers between 2 and 12.
- Know why a square number is called a square number by drawing squares
- Use the symbol ^{2} accurately.
- Explain the relationship between the square of a number and the square root of a number.
- Knowing the square of a number, use the inverse to calculate the square root.
- Use the symbol ^{3} accurately

Activities for pupils working at greater depth:



Use a chess board and put counters with numbers on all the white squares.
All the number must be a square or the cube of numbers 1 to 12.
Two or more players take in turn to throw the dice. They can then add the dice together and claim the square or the cube to the number they have.
If say they throw two 2s and there is no 16 or 64 left on the board then they cannot take anything.
The winner is the person who collects as many numbers from the board as possible. If someone does not recognise the square or cube number on the board then the next player is allowed to take the number.

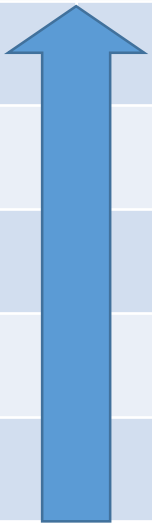
Link the numbers on the left to the number on the right.
On the left side write in a vertical line the numbers 1 to 12
On the right hand side write down all the square and cube number for numbers 1 to 12.
Now join the left hand number to the right by virtue of it being the square or the cube of the left hand number. Some numbers will join on to more than one right sided number.

Play a game with two dice.
Each player throws and they have 3 seconds to say the square of that number for 2 points and/or the cube of that number for 5 points.
Each player throws 4 times and the one with highest number of points wins the game.

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.

Multiplication & Division: Recognise and use square numbers and cube numbers, and the notation for square^2 and cubed^3.	Me	My Teacher
Can you use the symbols ($_3$) (cubed) accurately?		
Do you know the cube of all numbers between 2 and 12 by heart?		
Do you know the relationship between the square of a number and the original number?		
Can you use the symbol (^{2}) accurately?		
Do you know the square of all numbers between 2 and 12 by heart?		



YEAR 5 : SUMMER 2: Overview and Teaching Steps

WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
5 Place Value	**5 Addition & Subtraction**	**5 Fractions Decimals**	**5 Measures**	**5 Geometry**	**Consolidate and Assess**
Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000	Consolidate Addition and Subtraction using columnar addition and subtraction	Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape	Start this week by revising the learning covered in Year 5 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 5. Analyse the results and use information to help focus the intervention pre-teaching sessions, as needed, for the following year. .
➢ Round any number up to 10,000 to the nearest 10 ➢ Round any number up to 10,000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1,000 ➢ Round any number up to 100,000 to the nearest 10 ➢ Round any number up to 100,000 to the nearest 100 ➢ Round any number up to 100,000 to the nearest 1,000 ➢ Round any number up to 100,000 to the nearest 10,000 ➢ Round any number up to 1,000,000 to the nearest 10 ➢ Round any number up to 1,000,000 to the nearest 100 ➢ Round any number up to 1,000,000 to the nearest 1,000 ➢ Round any number up to 1,000,000 to the nearest 10,000 ➢ Round any number up to 1,000,000 to the nearest 100,000	Revise: ➢ Adding numbers with up to 5-digits with no exchanging ➢ Adding numbers with up to 5-digits with exchanging ➢ Subtracting numbers with up to 5-digits with no exchanging ➢ Subtracting numbers with up to 5-digits with exchanging	➢ Know what the % symbol stands for. ➢ Know that percent deals with a number or amount out of 100. ➢ Write % of amounts. ➢ Know that 50% is 50/100 = one half = ½. ➢ Know that 0.5 = 50% ➢ Know that 25% is 25/100 = one quarter = 1/4. ➢ Know that 0.25 = 25% ➢ Know the percent values of all tenths. ➢ Know the percent values of all fifths. ➢ Know the percent values of all quarters.	➢ Know the approximate number of metres in 1 mile ➢ Know the approximate relationship between inches and cm ➢ Know the approximate relationship between a pound and a gram ➢ Know the approximate relationship between a pint and a litre ➢ Carry out a range of approximate conversion calculations using above	Revise: ➢ Reflecting a shape and re-plot ➢ Translating a shape and re-plot ➢ Describing the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed ➢ Estimating, comparing and measuring angles in drawings identifying acute, obtuse and reflex angles ➢ Using a protractor to measure angles ➢ Using a protractor to draw angles	

Year 5: Summer 2

Week 1: Place Value

Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000

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 up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000

Round these numbers to the nearest 10, 100, 1000, 10,000 or 100,000

1167 to the nearest 10			77,771 to the nearest 1000		
272 to the nearest 10			159,987 to the nearest 10,000		
1145 to the nearest 100			918,756 to the nearest 10,000		
5607 to the nearest 100			391,385 to the nearest 100,000		
2134 to the nearest 1000			357,867 to the nearest 100,000		

Summer 2: Week 1: Practice and Consolidation

Place Value: Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Round any number up to 10,000 to the nearest 10 ➢ Round any number up to 10,000 to the nearest 100 ➢ Round any number up to 10,000 to the nearest 1,000 ➢ Round any number up to 100,000 to the nearest 10 ➢ Round any number up to 100,000 to the nearest 100 ➢ Round any number up to 100,000 to the nearest 1,000 ➢ Round any number up to 100,000 to the nearest 10,000 ➢ Round any number up to 1,000,000 to the nearest 10 ➢ Round any number up to 1,000,000 to the nearest 100 ➢ Round any number up to 1,000,000 to the nearest 1,000 ➢ Round any number up to 1,000,000 to the nearest 10,000 ➢ Round any number up to 1,000,000 to the nearest 100,000	• Remind pupils of the learning carried out in the previous term related to rounding decimal numbers. • Explain that the same applies to rounding larger numbers. • Provide pupils with cards that have large numbers on them and verbally get pupils to round the numbers to the nearest 10, 100 or 1000. • Move on then to round to the nearest 10,000 and 100,000.	Round these numbers to the nearest 10: 238 2458 23457 15980 23981 238942 670234 Round these numbers to the nearest 100: 478 7834 23782 15896 89981 238093 902367 Round these numbers to the nearest 1000: 2391 3829 23901 75845 30002 652891 908765 Round these numbers to the nearest 10,000: 12768 234578 123901 275845 300025 652891 Round these numbers to the nearest 100,000: 127168 234778 923901 275949 308925 659896

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

Place Value: Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000

Teaching Sequence

- Round any number up to 10,000 to the nearest 10
- Round any number up to 10,000 to the nearest 100
- Round any number up to 10,000 to the nearest 1,000
- Round any number up to 100,000 to the nearest 10
- Round any number up to 100,000 to the nearest 100
- Round any number up to 100,000 to the nearest 1,000
- Round any number up to 100,000 to the nearest 10,000
- Round any number up to 1,000,000 to the nearest 10
- Round any number up to 1,000,000 to the nearest 100
- Round any number up to 1,000,000 to the nearest 1,000
- Round any number up to 1,000,000 to the nearest 10,000
- Round any number up to 1,000,000 to the nearest 100,000

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

A number rounded to the nearest 100 is: 12800
Which of these numbers will not be 12800 when rounded?

12804; 12788; 12855; 12840

A number rounded to the nearest 1000 is: 427000
Which of these numbers will not be 427000 when rounded?

427451; 426899; 426501; 427501

Round to the nearest……

	10	100	1000	10000	100000
324987					
762389					
987642					
98245					

The following numbers have been rounded to the nearest 100.
Give two examples of what the numbers could have been in the first place:

12900 62500 123900 159800

These have been rounded to the nearest 1000. Give two examples of what the numbers could have been in the first place:

234000 152000 25000 89000

Round the following money to the nearest 10p; £1 and £10:

£23.98 £245.23
£45.65 £12.54

Round the following money to the nearest £100 and £1000:

£2456.90 £24565.99
£67129.50 £456,982.90

Summer 2: Week 1: Working at greater depth

Place Value: Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000

Teaching Sequence

- Round any number up to 10,000 to the nearest 10
- Round any number up to 10,000 to the nearest 100
- Round any number up to 10,000 to the nearest 1,000
- Round any number up to 100,000 to the nearest 10
- Round any number up to 100,000 to the nearest 100
- Round any number up to 100,000 to the nearest 1,000
- Round any number up to 100,000 to the nearest 10,000
- Round any number up to 1,000,000 to the nearest 10
- Round any number up to 1,000,000 to the nearest 100
- Round any number up to 1,000,000 to the nearest 1,000
- Round any number up to 1,000,000 to the nearest 10,000
- Round any number up to 1,000,000 to the nearest 100,000

Activities for pupils working at greater depth:

Highest and Lowest

The following numbers have been rounded to the nearest 1000.
What is the largest; second largest and the smallest number they could be?

234,000	76,000
412,000	69,000
329,000	55,000

All Possibilities

The following numbers have been rounded to the nearest 10.
For each write down all the possible numbers they could be:

450 780 340 790

These numbers have been rounded to nearest 100. Write down 5 possible numbers they could be:

7800 5400 98500 12900

Adding Rounded Numbers

Two numbers between 670 and 700 have been rounded to the nearest 10.
When adding the rounded numbers together they make 1350.
Give two sets of examples of what the numbers could have been in the first place.
Two numbers between 7000 and 7200 have been rounded to the nearest 100.
When adding the rounded numbers together they make 14100.
Give two sets of examples of what the numbers could have been in the first place.

Subtracting Rounded Numbers

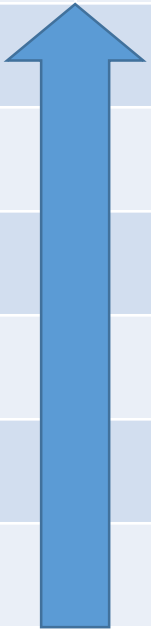
Two numbers between 850 and 870 have been rounded to the nearest 10.
When rounded their difference is 10.
Give two sets of examples of what the numbers could have been in the first place.

Two numbers between 8000 and 8400 have been rounded to the nearest 100.
When rounded their difference is 200.
Give two sets of examples of what the numbers could have been in the first place.

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 up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000	Me	My Teacher
Can you round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000, 100,000?		
Can you round any number up to 100,000 to the nearest 10, 100, 1000 or 10,000?		
Can you round any number up to 10,000 to the nearest 10 or 100 or 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 5: Summer 2

Week 2: Addition & Subtraction

Consolidate
Addition and Subtraction using columnar addition and subtraction

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: Addition & Subtraction	Consolidate Addition and Subtraction using columnar addition and subtraction

4578 6712+	2379 7628+		76389 14127-	8756 2329-	
125892 89671+	12780 13636+		94578 21854-	77685 22893-	
78239 12657+	24819 23678+		89006 25672-	96785 24366-	

Summer 2: Week 2: Practice and Consolidation

Addition & Subtraction: Consolidate: Addition and Subtraction using columnar addition and subtraction

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
Revise: ➢ Adding numbers with up to 5-digits with no exchanging ➢ Adding numbers with up to 5-digits with exchanging ➢ Subtracting numbers with up to 5-digits with no exchanging ➢ Subtracting numbers with up to 5-digits with exchanging	• This is a real chance to consolidate the learning already done in Years 4 and 5. • Ensure pupils are confident about adding and subtracting where there is exchanging. • Ensure pupils are using the columnar method and they are setting out their calculations appropriately.	Add the following using the columnar method: 23567 + 67345 76234 + 85672 96234 + 23956 12579 + 65278 23782 + 77921 89892 + 78432 77999 + 56201 34561 + 7801 34250 + 7200 Subtract the following using the columnar method: 12678 – 11352 56892 – 12779 67867 – 43329 67021 – 16820 98122 – 12090 34923 – 34892 78382 – 12455 89300 – 23999 78239 – 1245 Use the columnar method to work out the following problems. Melchester Rovers had crowds of 36,983; 38,912 and 41,889 for their last three matches. How many came to the three matches altogether? What was the difference between the highest and lowest attendance? During the Europe Song Contest 54008 voted for Spain; 67239 for Portugal; 25901 voted for the UK and 29812 voted for Sweden. By how many votes did Portugal beat Spain? If you added the UK and Sweden's votes together would they have beaten Portugal?

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

Addition & Subtraction: Consolidate: Addition and Subtraction using columnar addition and subtraction

Teaching Sequence	**If pupils have mastered this objective they will be able to complete these activities independently:**	
Revise: ➢ Adding numbers with up to 5-digits with no exchanging ➢ Adding numbers with up to 5-digits with exchanging ➢ Subtracting numbers with up to 5-digits with no exchanging ➢ Subtracting numbers with up to 5-digits with exchanging	Find the missing digits: Additions 35893 + 16□21 = 52614 56478 + 2□375 = 84853 42□19 + 16427 = 5□312 + 48709 = Now create some of your own for your friends to solve.	Find the missing digits: Subtractions 362□1 − 17423 = 42712 − 15□09 = □2715 − 32□07 = □2716 − 491□3 = Now create some of your own for your friends to solve.
	Additions: If the answer is 73786, what could the addition have been (2 numbers)? If the answer is 94527, what could the addition have been (2 numbers)? If the answer is 89347, what could the addition have been (2 numbers)? If the answer is 99432, what could the addition have been (2 numbers)?	Subtractions: If the answer is 12753, what could the addition have been (2 numbers)? If the answer is 23965, what could the addition have been (2 numbers)? If the answer is 37284, what could the addition have been (2 numbers)? If the answer is 64290, what could the addition have been (2 numbers)?

Summer 2: Week 2: Working at greater depth

Addition & Subtraction: Consolidate: Addition and Subtraction using columnar addition and subtraction

Teaching Sequence

Revise:

- Adding numbers with up to 5-digits with no exchanging
- Adding numbers with up to 5-digits with exchanging
- Subtracting numbers with up to 5-digits with no exchanging
- Subtracting numbers with up to 5-digits with exchanging

Activities for pupils working at greater depth:

Over a 3 month period, 3 famous pop groups show their sales charts. The chart below shows the number of 'downloads' sold and the total profit made. Here is the chart:

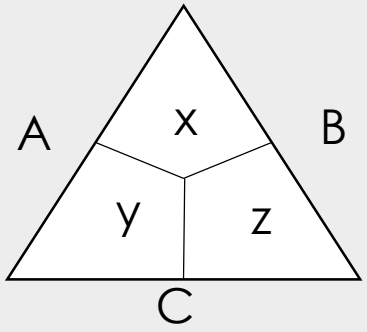
Groups	October		November		December	
	Sales	Total Profit	Sales	Total Profit	Sales	Total Profit
U-Find	123,345	£120,000	173.992	£150,000	205,678	£180,000
C-Front	238,923	£150,000	345,986	£320,000	297,776	£220,000
B-Good	209,568	£130,000	298,993	£210,000	154,896	£160,000

Which group made most profit over the three months?
How many downloads will be sold by each group over the 3 months?
What was the difference between the sales of B-Good and U-Find?
Make up 2 other questions to ask your friends.

Addition

x + y = A
x + z = B
y + z = C

x, y and z have to be 5-digit numbers



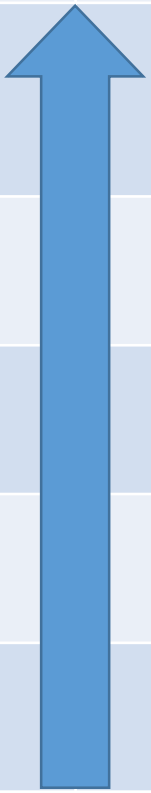
Subtraction

The difference between x and y = A
The difference between x and z = B
The difference between y and z = C
x, y and z have to be 5-digit numbers

Summer 2 Week 2 (as with 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.

Addition & Subtraction: Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction).	Me	My Teacher
Can you subtract a 5-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 5-digit number from another using columnar subtraction which requires no exchange between the units, tens, hundreds or thousands?		
Can you add 3 numbers with 5-digits using columnar addition where the units, tens or hundreds make more than 10?		
Can you add 2 numbers with 5-digits together using columnar addition, where the units, tens or hundreds when added make more than 10?		
Can you add 2 numbers with 5-digits together using columnar addition without exchange between units and tens?		



Year 5: Summer 2

Week 3: Fractions: Decimals

Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.

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: Fractions	**Decimals:** Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.

Complete the missing values

Percentage (%)	**Decimal Fraction**	**Fraction**		**Percentage (%)**	**Decimal Fraction**	**Fraction**	
50%						3/4	
25%						5/6	
33%						3/10	
	0.3					1/4	
	0.6					2/9	
	0.75					4/10	
	0.2					7/8	

Summer 2: Week 3: Practice and Consolidation

Fractions: Decimals: Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.

Teaching Sequence

- Know what the % symbol stands for.
- Know that percent deals with a number or amount out of 100.
- Write % of amounts.
- Know that 50% is 50/100 = one half = ½.
- Know that 0.5 = 50%
- Know that 25% is 25/100 = one quarter = 1/4.
- Know that 0.25 = 25%
- Know the percent values of all tenths.
- Know the percent values of all fifths.
- Know the percent values of all quarters.

Oral and Mental Activities Examples:

- Introduce pupils to the symbol '%'.
- Link the word 'cent' to 100 and mention its Roman origins if that helps them to remember.
- Link percentage with decimal fractions and proper fractions.
- Use cards with examples of each, ie, 50%; ½; 0.5.
- Ensure pupils are secure with percentage values related to tenths.
- Then ensure pupils know that 25% is a quarter and that 75% is three-quarters.

Pencil and Paper Activities Examples:

Find 10% of the following amounts:

£300	450Kg	45Litres	670 metres	£240
£345	675Kg	120Litres	855 metres	£3498

Complete the chart:

Decimal Fraction	Proper Fraction	Percentage
0.25		
	1/10th	
		30%
0.75		
	7/10th	

Find 20% of the following amounts:

£350	650Kg	145Litres	870 metres	£290
£375	675Kg	150Litres	805 metres	£3598

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

Fractions: Decimals: Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.

Teaching Sequence

- Know what the % symbol stands for.
- Know that percent deals with a number or amount out of 100.
- Write % of amounts.
- Know that 50% is 50/100 = one half = ½.
- Know that 0.5 = 50%
- Know that 25% is 25/100 = one quarter = 1/4.
- Know that 0.25 = 25%
- Know the percent values of all tenths.
- Know the percent values of all fifths.
- Know the percent values of all quarters.

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

Which is more?

20% of 200 or 25% of 180?

30% of 200 or 75% of 100?

10% of 560 or 90% of 50

Explain your reasoning.

Finding percentage of the same amounts:

	10%	20%	50%
£34			
450m			
560Kg			
£750			
50 litres			

I have 19%; how much more do I need to add to it to make it the same as 0.2?

I have 28%; how much do need to take away to make it the same as one quarter?

I have 78%; how much do I need to add to it to make the same as 4/5th?

I have 95%; how much do I need to take away to make it the same as 0.9?

Jimmy has 150 football cards.
He says he will give his best friend, Raja, 20% of them. How much will he give Raja?

Helen has 350 pence.
She gives 30% to Sally.
How much has Helen left?

Hindi lives on a farm which has 320 cows. He takes 40% of the cows to market to sell.
How many cows are left on the farm?

Summer 2: Week 3: Working at greater depth

Fractions: Decimals: Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal.

Teaching Sequence

- Know what the % symbol stands for.
- Know that percent deals with a number or amount out of 100.
- Write % of amounts.
- Know that 50% is 50/100 = one half = ½.
- Know that 0.5 = 50%
- Know that 25% is 25/100 = one quarter = 1/4.
- Know that 0.25 = 25%
- Know the percent values of all tenths.
- Know the percent values of all fifths.
- Know the percent values of all quarters.

Activities for pupils working at greater depth:

Shopping Trip

Harry and Gail went shopping.
Harry spent 20% of his money and was left with £20.
Gail spent 50% of her money and was left with £15.
Which of the two had most money in the first place?

Order!! Order!!

Put these sets of numbers in the correct order, starting with the largest.

7/10	0.73	7/100	0.073	71%
9/10	0.91	9/100	0.093	92%

Explain your thinking.

Testing Time

In a test all questions were worth the same amount of marks.
There were 25 questions altogether.

The results were as follows:

Mark 92%	Phili 72%	Hamiz 92%
Frank 88%	Jane 60%	Henry 100%
Norman 52%	Tariq 48%	Delia 76%

How many questions did each of the pupils get right?

Attendance

Here is the weekly attendance for 6 classes in school. Each class has 30 children.

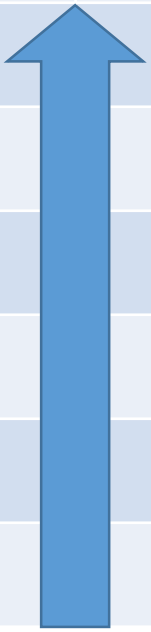
Class 1 - 96%
Class 2 - 98%
Class 3 - 90%
Class 4 - 92%
Class 5 - 88%
Class 6 - 100%

Work out how many days absence was recorded in each class.
Explain your reasoning.

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.

Fractions: Decimals: Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred, and write percentages as a fraction with denominator 100, and as a decimal.	Me	My Teacher
Do you know percentage value of all tenths; fifths; quarters and eighths?		
Do you know percentage value of all tenths; fifths; quarters and eighths?		
Do you know percentage value of all tenths; fifths; quarters and eighths?		
Do you know percentage value of all tenths; fifths; quarters and eighths?		
Do you know percentage value of all tenths; fifths; quarters and eighths?		
Do you know what the symbol % stands for?		



Year 5: Summer 2

Week 4: Measures

Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

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: Measures	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

In metric we measure in mm, cm, Metres and Km.
What do we use to measure in imperial measures?

_____ _____

_____ _____

In metric we use litres and millilitres.
What terms are used for imperial measures?

_____

_____

For weight and mass, think of the imperial measures that are used for grams and Kg.

_____

_____

Join these to the correct measure:

Pint
Pound — Weight
Yard
Stone — Length
Gallon
Inch — Capacity
Mile
ounce

Summer 2: Week 4: Practice and Consolidation

Measures: Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
➢ Know the approximate number of metres in 1 mile ➢ Know the approximate relationship between inches and cm ➢ Know the approximate relationship between a pound and a gram ➢ Know the approximate relationship between a pint and a litre ➢ Carry out a range of approximate conversion calculations using above	• Show pupils examples of coins in use in the UK in the 1960s. • Explain that as a result of decimalisation we now use metric system for money. • However, although metric weights and lengths are used we have not fully converted to the metric system. • Many still weigh themselves in stones and pounds; many still talk of a pint of milk and many still measure car journeys by the mile. • Look at a range of charts to show the values of metric v imperial.	In Britain we used to be very familiar with the terms: one shilling; half a crown and sixpence. What were these and how would we compare them with what we would say today? • If someone weighs 10 stones, approximately how many Kg would that be? Use the internet to research your answer. • If someone has run 1 mile, approximately how many metres or Km and metres would that be? Again, research your answer. • If I have a pint of milk delivered each day, how many ml is that? Again research to find the answer. Use conversion charts to work out the following. Most of your answers will be approximate.

Length		Weight		Capacity	
1 mile		2 stone		1 pint	
200 yards		10 pounds		1 gallon	
5 feet		20 ounces		10 pints	
10 inches		15 stone		1 quart	

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

Measures: Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

Teaching Sequence

- Know the approximate number of metres in 1 mile
- Know the approximate relationship between inches and cm
- Know the approximate relationship between a pound and a gram
- Know the approximate relationship between a pint and a litre
- Carry out a range of approximate conversion calculations using above

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

At a sports event the following long jumps were recorded:

Tim - 4 yards, 2 feet and 6 inches
Harry - 3 yards, 2 feet and 8 inches
Rory - 3 yards, 2 feet and 10 inches
Mary - 4 yards exactly
Kim - 2 yards, 1 foot and 11 inches

Convert these distances into metric.

At running event, James runs 1 mile in 5 minutes and 20 seconds.
Will he have run 1 Kilometre faster or slower?
Give an approximate time for him to have run 1 Kilometre at the same pace as he runs a mile.

Jemma lifts a weight of 25 Kg.
How much is this approximately in pounds and ounces?

A family has 2 pints of milk each week day and 3 pints each on a Saturday and Sunday.
How many litres do they consume in a week?

A gardener has a 2 gallon watering can.
He fills it five times and waters his plants.
How litres of water does he use to water the plants?

Put all the following terms in to the correct box: length; weight or mass and capacity.

Quart; ounces; mile; yard; furlong; pint; inch; gallon; feet; ton; pounds; stones; hundredweight (cwt);

Length	Weight/ Mass	Capacity

Summer 2: Week 4: Working at greater depth

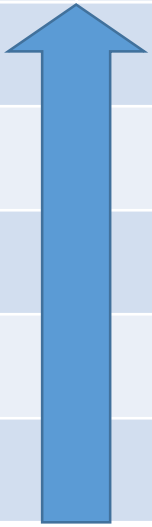
Measures: Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

Teaching Sequence	Activities for pupils working at greater depth:	
➢ Know the approximate number of metres in 1 mile ➢ Know the approximate relationship between inches and cm ➢ Know the approximate relationship between a pound and a gram ➢ Know the approximate relationship between a pint and a litre ➢ Carry out a range of approximate conversion calculations using above	**Marking an athletics track:** The school's athletics track, which is oval, used to be 400 yards for one circuit. It is now 400 metres. Does this make the track longer or shorter? The boys' champion was able to run 400 yards in 50 seconds. Approximately how much time will he take to run 400 metres? The girls' champion was able to run 400 yards 55 seconds, approximately how much time will she take to run 400 metres?	**Gardening Time** A garden centre uses 40 gallons of water each day to water their saplings. How many litres of water do they use per week to water the saplings? If they have to pay 1p for every 5 litres of water they use, how much does it cost each week to water the saplings?
	Baby Grow A newly born baby puts on one pound of weight each month. She was seven pounds exactly when she was born in April. • In grams, how much does she weigh in December? • In grams, how much does she weigh the following April? • In grams, how much will she weigh when she is two?	**Pounds, shillings and pence** Using research, find out which coins were in common use in the 1960s and what would be their value today. If an item cost five pounds, two shillings and sixpence, how would you pay that using our coins today? If an item cost ten pounds five shillings, how would you pay that today?

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.

Measures: Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Me	My Teacher
Can you carry out a range of conversion calculations based on your knowledge of metric and imperial?		
Do you know the approximate relationship between a pint and a litre?		
Do you know the approximate relationship between a pound and a gram?		
Do you know the approximate number of metres in 1 mile?		
Do you know the approximate relationship between inches and centimetres?		



Year 5: Summer 2

Week 5: Geometry

Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape

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	Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape

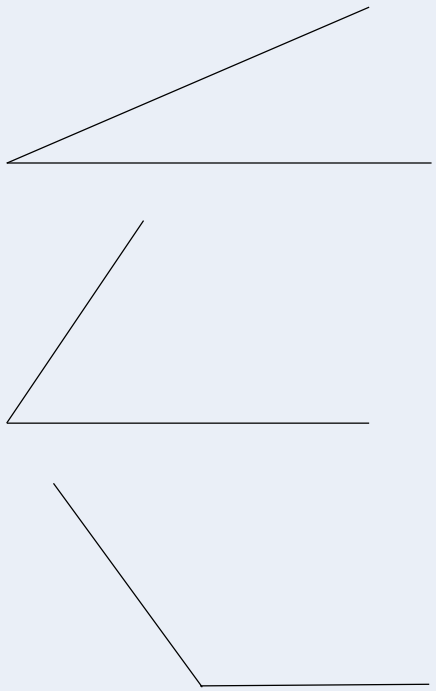
In the space below, and using a protractor, draw 3 angles

1. 45°

2. 60°

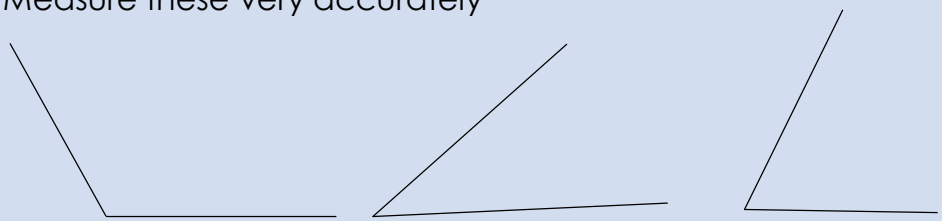
3. 105°

Measure these angles to the nearest 1°



Summer 2: Week 5: Practice and Consolidation

Geometry: Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape

Teaching Sequence	Oral and Mental Activities Examples:	Pencil and Paper Activities Examples:
Revise: ➢ Reflecting a shape and re-plot ➢ Translating a shape and re-plot ➢ Describing the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed ➢ Estimating, comparing and measuring angles in drawings identifying acute, obtuse and reflex angles ➢ Using a protractor to measure angles ➢ Using a protractor to draw angles	• Revise the learning already covered during Autumn 1 Week 4; Spring 1: Weeks 1 and 2; Spring 2: Week 2. • Focus particularly on measuring and drawing angles and on reflections and translations.	Name the quadrants: I II III IV Reflect from Quadrant I to Quadrant II a triangle, noting the coordinates and ensuring that the distance from the horizontal and vertical axes are the same. Then reflect from Quadrant II to Quadrant III and from Quadrant 1 to Quadrant IV. Now do it again using a shape of your choice. Translate a triangle from one Quadrant to another. Note the coordinates and ensure that the size and shape remain the same. Now translate a shape of your choice. Draw the following angles: 45°; 60°: 75°; 120°; 68°: 82°; 105° Measure these very accurately 

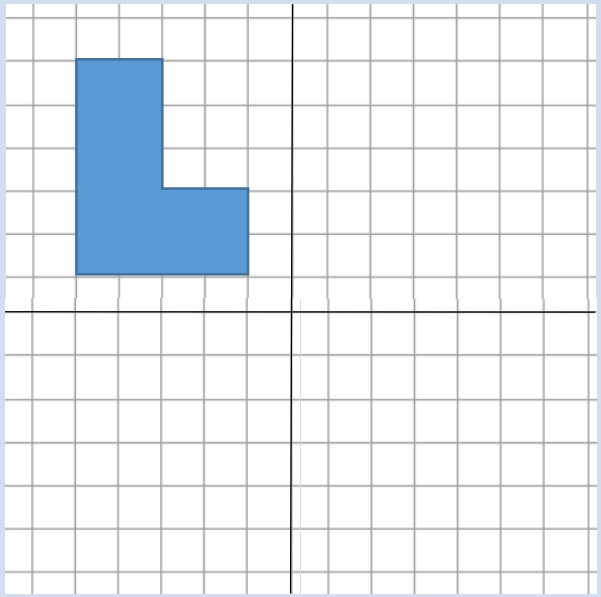
Summer 2: Week 5: Mastering this Objective – Deeper Understanding

Geometry: Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape

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

Revise:

- Reflecting a shape and re-plot
- Translating a shape and re-plot
- Describing the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed
- Estimating, comparing and measuring angles in drawings identifying acute, obtuse and reflex angles
- Using a protractor to measure angles
- Using a protractor to draw angles



Translate the L shape from the second quadrant to the first quadrant, noting the coordinates.
Then , reflect the L shape from Quadrant II to Quadrant III noting the distance from the horizontal axis.

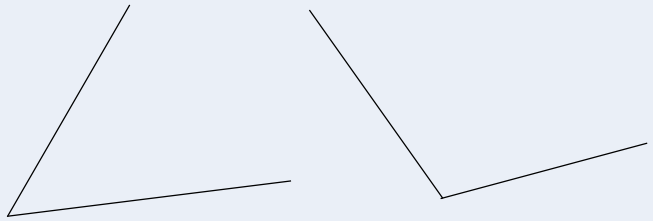
Think of the angle created between the hands of a clock:

Is the angle an acute; obtuse or a right angle at these times?

8 o'clock;	quarter past nine
twenty past seven	quarter past twelve
10 o'clock	ten past seven

Now give another 3 examples of when the hands make an acute; obtuse or a right angle.

Estimate these angles and then measure them to within 1°.



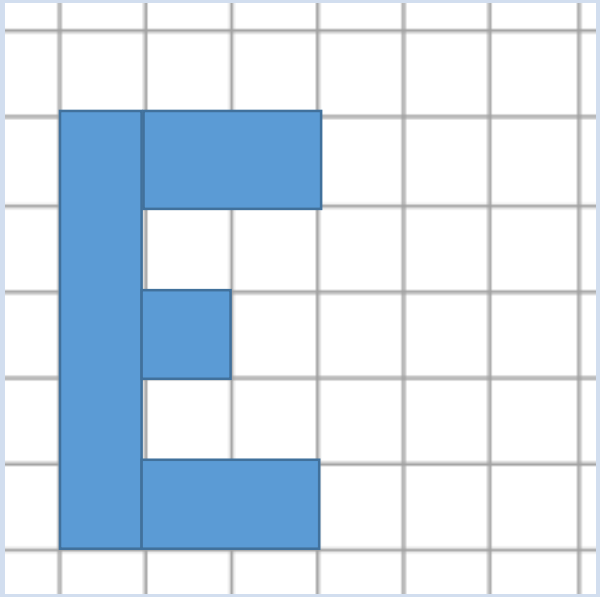
Summer 2: Week 5: Working at greater depth

Geometry: Consolidate and revise all Year 5 learning associated with geometry to include work on angles, translations and shape

Teaching Sequence	Activities for pupils working at greater depth:

Revise:

- Reflecting a shape and re-plot
- Translating a shape and re-plot
- Describing the properties of the reflected and/or translated shape – evidencing that the shape and size has not changed
- Estimating, compare and measure angles in drawings identifying acute, obtuse and reflex angles
- Using a protractor to measure angles
- Using a protractor to draw angles



Plot the letter E in the first quadrant and then reflect it into the second, third and fourth quadrants. The shape has to remain the same shape and size.
Now do the same with the letters F, H and T.

What's the time Mr Wolf?
The minute and hour hands are open at an angle of 90° The hour hand is between 8 and 10.
Think of at least two possible times it could be?
The angle between the two hands is 60° and the minute hand is at 9. Think of at least possible times it could be.

- Now make up similar problems for others to solve

Capital Angles
Draw the capital letter '**A**' where the angle at the top is 35°.

Draw the capital letter '**K**', ensuring that the angle in the centre is 40°.

Draw the capital letter '**V**' ensuring that the angle at the bottom is 38°.

Draw the capital letter '**X**' making sure that the intersecting angles are 45°.

Summer 2: Week 5 (As with Spring 1: Week 5): Assessment

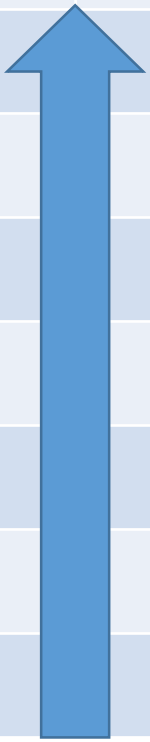
The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Geometry: Reflection & Translation: Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language and know that the shape has not changed	Me	My Teacher
Can you translate a shape from one quadrant to another ensuring that the shape and size is unchanged?		
Can you reflect a shape from one quadrant to another when the shape does not sit on the horizontal or vertical plane?		
Can you reflect a shape from one quadrant to another when the shape sits on the horizontal or vertical plane?		
Can you pinpoint a spot within a quadrant and describe by the coordinate points?		
Do you know which is the first, second, third and fourth quadrant?		
Can you create the four quadrants in the coordinate plane?		

Summer 2: Week 5 (As with 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.

Geometry: Angles: Know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. Identify: Angles at a point on a straight line & half a turn (total 180°); Angles at a point & one whole turn (total 360°); Other multiples of 90°; Draw given angles, & measure them in degrees	Me	My Teacher
Can you draw a given angle and measure them in degrees (°)?		
Can you estimate an angle and then check it?		
Do you know that you use a protractor to measure angles?		
Do you know that angles are measured in degrees which has a symbol like this (°)?		
Can you identify a reflex angle?		
Can you identify an obtuse angle?		
Can you identify an acute angle?		



Year 5: Summer 2

Week 6: Consolidate and Assess

- Start this week by revising the learning covered in Year 5 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 5.
- Analyse the results and use information to help focus the intervention and pre-teaching sessions, as needed, for the following term.

Year 5: Summer 2: Week 6

The focus of the consolidation should be the following aspects:

- Count on/back from a given number in steps of 100/1000/10,000/100,000 to a 1,000,000 and beyond
- Read, write, and order numbers to 1,000,000 and beyond
- Compare numbers to 100,000 and beyond
- Partition numbers to 1,000,000 and beyond
- Find powers of 10 more than a given number
- Read, write, partition, order and compare decimal numbers up to 3dp
- Round decimals with 1 and 2dp to the nearest whole number and to 1dp
- Multiply and divide numbers mentally drawing upon known facts
- Multiply and divide any whole and decimal number by 10, 100, 1000
- Count on/back with positive and negative numbers, including through zero
- Count on/back in fraction and decimal sequences e.g. 2.5 or 1 ½
- Round any number to 1,000,000 and beyond to the nearest 10, 100, 1000, 10,000 and 100,000
- Add mentally a 5-digit number and 4- digit numbers e.g. 15,345 + 2300
- Mentally add and subtract tenths and one-digit whole numbers and tenths
- Find complements to 100. 1000, 10,000; £1.00, £5.00 and £10.00; and to 1 using 3dp
- Find factors and factor pairs of each number to 100
- Convert units of measurement (km and m; cm and m; cm and mm; gram and km, ml and L)

- 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.