Year 3

Maths Overview

ST. MARY'S ACADEMY TRUST

MathsHUBS White Rose

Year 3 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
Autumn	Number: Place Value		Number: Addition and Subtraction			Number: Multiplication and Division			Geometry: Properties of shapes		Measures: Time		Statistics	Opportunity to consolidate, revisit and reinforce	
Spring	Measures: Length & height Mass/weight		Number: Addition & Subtraction		Number: Multiplication & Division	Number: Fractions				Statistics					
Summer	Measures: Time		Measures: Volume & capacity, Money		Number: Fractions				Number: Addition & Subtraction Multiplication & division		Geometry : Properties of shapes		Opportunity to consolidate, revisit and reinforce		

Please note: The length of each unit has been given as a guide only. Use professional judgement to either extend or shorten units in line with the needs of pupils. The 'spare' weeks at the end of each term have been planned in to allow for this flexibility or give the opportunity to consolidate, revisit and reinforce.
Where units revisit objectives, use assessment data to inform planning.

AUTUMN TERM														
Wk 1	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Wk 12**	**Wk 13**	**Wk 14**	**Wk 15**
<u>Number: Place value</u> Count from 0 in multiples of 50 and 100 Count for 0 in multiples of 4 Count from 0 in multiples of 8 Find 10 or 100 more or less than a given number Recognise the place value of each digit in a three digit number (hundreds, tens, ones). Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations. Read and write numbers up to 1000 in numerals. Read and write numbers up to 1000 in words Solve number problems and practical problems involving place value.		<u>Number: Addition & subtraction</u> Add numbers mentally: • a three-digit number and ones Subtract numbers mentally: • a three-digit number and ones Add numbers mentally: • a three-digit number and tens Subtract numbers mentally: • a three-digit number and tens Add numbers mentally: • a three digit number and hundreds. Subtract numbers mentally: • a three digit number and hundreds. Add numbers with up to three digits, using formal written methods of columnar addition. Subtract numbers with up to three digits, using formal written methods of columnar subtraction. Estimate the answer to a calculation Use inverse operations to check answers			<u>Number: Multiplication & division</u> Count from 0 in multiplies of 50 and 100. (Number: Place value) Recall and use multiplication and division facts for the 3 multiplication tables. Count from 0 in multiplies of 4 and 8. (Number: Place value) Recall and use multiplication and division facts for the 4 multiplication tables. Recall and use multiplication and division facts for the 8 multiplication tables. Write and calculate mathematical statements for multiplication using multiplication tables that they know, including for 2 digit numbers times 1 digit numbers, using mental and progressing to formal written methods Write and calculate mathematical statements for division using multiplication tables that they know, including for 2 digit numbers divided by 1 digit numbers, using mental and progressing to formal written methods				<u>Measures: Time</u> Tell and write the time from an analogue clock, including using Roman numerals. Tell and write 12-hour digital time Tell and write 24-hour digital time Estimate and read time with increasing accuracy to the nearest minute. Record and compose time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events (for example calculate the time taken by particular events or tasks)		<u>Statistics</u> Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions (e.g. 'How many more? How many fewer?') using information presented in scaled bar charts and pictograms and tables.	Opportunity to consolidate, revisit and reinforce	

SPRING TERM									
Wk 1	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**
<u>Measures: Length & height</u> <u>Mass/weight</u> Measure, compare, add and subtract: lengths (m/cm/mm) Measure the perimeter of simple 2D shapes. Measure, compare, add and subtract: mass (kg/g)		<u>Number: Addition & subtraction</u> Add numbers mentally: • a three-digit number and ones Subtract numbers mentally: • a three-digit number and ones Add numbers mentally: • a three-digit number and tens Subtract numbers mentally: • a three-digit number and tens Add numbers mentally: • a three digit number and hundreds. Subtract numbers mentally: • a three digit number and hundreds. Add numbers with up to three digits, using formal written methods of columnar addition. Subtract numbers with up to three digits, using formal written methods of columnar subtraction. Estimate the answer to a calculation Use inverse operations to check answers Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.		<u>Number: Multiplication & division</u> Count from 0 in multiplies of 50 and 100. (Number: Place value) Recall and use multiplication and division facts for the 3 multiplication tables. Count from 0 in multiplies of 4 and 8. (Number: Place value) Recall and use multiplication and division facts for the 4 multiplication tables. Recall and use multiplication and division facts for the 8 multiplication tables. Write and calculate mathematical statements for multiplication using multiplication tables that they know, including for 2 digit numbers times 1 digit numbers, using mental and progressing to formal written methods Write and calculate mathematical statements for division using multiplication tables that they know, including for 2 digit numbers divided by 1 digit numbers, using mental and progressing to formal written methods Solve problems missing number problems involving multiplication and division Solve positive integer scaling problems Solve correspondence problems in which *n* objects are connected to *m* objects.		<u>Number: Fractions</u> Count up and down in tenths. Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise, find and write fractions of a discrete set of objects, unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators.		<u>Statistics</u> Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions (e.g. 'How many more? How many fewer?') using information presented in scaled bar charts and pictograms and tables.

SUMMER													
Wk 1	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Wk 12**	**Wk 13**	**Wk 14**
<u>Measures: Time</u> Tell and write the time from an analogue clock, including using Roman numerals. Tell and write 12-hour digital time Tell and write 24-hour digital time Estimate and read time with increasing accuracy to the nearest minute. Record and compose time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events (for example calculate the time taken by particular events or tasks)		<u>Measures: Volume & capacity, Money</u> Measure, compare, add and subtract: volume/capacity (l/ml). Add amounts of money (including mixed units), using both £ and p in practical contexts. Subtract amounts of money (including mixed units) to give change, using both £ and p in practical contexts.		<u>Number: Fractions</u> Recognise and show, using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7). Subtract fractions with the same denominator within one whole (e.g. 6/7 – 2/7 = 4/7). Compare and order unit fractions, and fractions with the same denominators. Solve problems that involve fractions objectives from Year 3				<u>Number: Addition, subtraction, multiplication & division</u> Add numbers with up to three digits, using formal written methods of columnar addition. Subtract numbers with up to three digits, using formal written methods of columnar subtraction. Estimate the answer to a calculation Use inverse operations to check answers Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Count from 0 in multiplies of 4 and 8. (Number: Place value) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication using multiplication tables that they know, including for 2 digit numbers times 1 digit numbers, using mental and progressing to formal written methods Write and calculate mathematical statements for division using multiplication tables that they know, including for 2 digit numbers divided by 1 digit numbers, using mental and progressing to formal written methods Solve problems missing number problems involving multiplication and division Solve positive integer scaling problems Solve correspondence problems in which *n* objects are connected to *m* objectives.			<u>Geometry: Properties of shapes</u> Draw 2-D shapes Recognise 3-D shapes in different orientations and describe them. Recognise angles as a property of shape or a description of a turn. Identify right angles. Identify whether angles are greater than or less than a right angle Recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.		Opportunity to consolidate ,revisit and reinforce

Number: Place Value

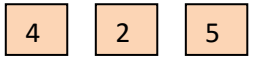
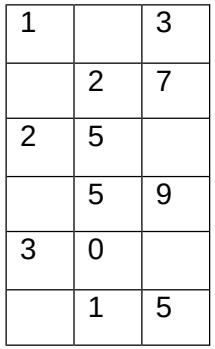
	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
	Count from 0 in multiples of 50 and 100	• Continue the pattern, 50, 100, 150, 200 100, 200, 300, 400 •Fill in the missing numbers 50 | 150 | 200 | 300 | | 100 | | 300 | 400 | | • Count in 10s from 0. Whenever you get to a multiple of 50 say Fizz, when you get to multiples of 100 say Buzz. If it is a multiple of both say Fizzbuzz.	• **Circle the odd one out.** 100, 150, 200, 215, 300 Explain your answer. • **True or False.** If I count in 100's from 0, all the numbers will be even. Convince me. • **Always, sometimes, never** All multiples of 50 are multiples of 100 therefore all multiples of 100 are multiples of 50.	• Use the number cards to make a sequence. Can you make more than one sequence? 200 | | 400 | 300 | • Hannah and Zara are counting. One of them is counting in 50's, one of them is counting in 100's. When they say a number that the other person has said they clap. From their claps (x) can you work out who is saying which pattern? H | X | | X | Z | | X | | X • Al's money is arranged in stacks. Each stack contains 50p. How much money does Al have? 

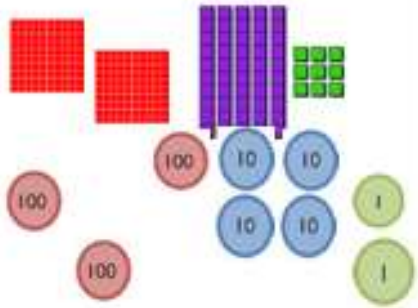
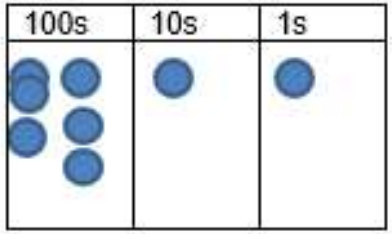
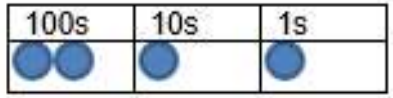
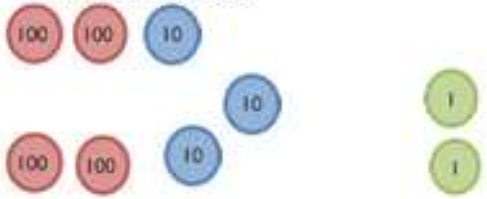
Number: Place Value

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
	Find 10 or 100 more or less than a given number.	• Find 10 more and less than the following numbers: 23, 65, 96 146, 192, 374 • What is 100 more or less than these numbers? 283, 591, 1392, 2901, 1892 • Fill in the missing numbers: 10 less / Starting number / 10 more 325 674 892 1001	• Emily has made the number: 3 0 5 Write down the number that is 10 less than 305. _____ Now write down the number that is 10 less than this new number. _____ Explain what is happening to the number each time. • **What comes next?** 536-10=526 526-10=516 516-10=506 • **True or False** When I add 100 to any number, I only need to change the hundreds digit.	• 10 more than my number is 100 less than 320. What is my number? • Using number cards 0-9 can you make the answers to the questions below: 10 less than 8 + 7: 10 more than 3 x 10: 100 less than 336: 100 more than 691: 10 less than 3 x 6: • I think of a number. I add 10 and then take away 100. My answer is 350. What was my number?

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Number: Place Value	Recognise the place value of each digit in a three digit number (hundreds, tens, ones).	• Write the value of each underlined digit. 3<u>1</u>8, 9<u>2</u>, <u>9</u>21 • 512 is made of ___ hundreds, ___ ten and ____ ones. • Find the value of ▲ in each of these statements. ▲ = 500 + 70 + 4 628 = ▲ + 20 + 8 703 = 700 + ▲ + 3	• Explain the value of 4 in the following numbers: 546, 473, 894 • 543 is made of 5 hundreds, 4 tens and 3 ones. It is also made of 54 tens and 3 ones. It is also made of 543 ones. Can you express 627 in the same way? • What is the same about these numbers and what is different? 375 357	• Henry thought of a number. He thought of a two-digit number less than 50. The sum of its digits was 12. Their difference was 4. What number did Henry think of? • Use the clues to find the missing digits:  The hundreds digit is double the tens digit. The tens digit is 5 less than 2 x 8. The ones digit is 2 less than the hundreds digit. • Claire, Libby and Katie are holding three digit numbers. Claire and Libby have given clues below: Claire- My number has the smallest amount of ones. Libby- The tens in my number are 2 less Claire and Katie's added together. 345 247 368 Can you work out which number is which?

Number: Place Value

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
	Compare and order numbers up to 1000	• Harry puts the following numbers in order. 345, 278, 301, 287, 368. Which number would be third? • Using 3 counters, like shown in the place value grid below, make all the numbers possible. Order from smallest to largest.  • Here are three digit cards. Write all the three digit numbers that you can make and order them from smallest to largest.  	• Write the following numbers from largest to smallest. Explain how you ordered them. 445, 378, 601, 387, 468 • Put one digit in each box to make the list of numbers in order from smallest to largest.  • **True or False**: You must look at the highest place value column first when ordering any numbers.	• In pairs, each child has to make a 3 digit number. They pick a 0-9 number card and decide where to write the number. Do this until they have created a 3 digit number. In each game they change the criteria they have to meet to win. Eg Make the smallest number. Make the largest number. Make a number between 300 and 500. • I am thinking of a number. My number is between 300 and 500. The digits add up to 14. The difference between the largest and the smallest digit is 2. What could my number be? Order all the possible numbers from smallest to largest. • Deena has ordered 5 numbers. The largest number is 845, the smallest number is 800. The other numbers all have digit totals of 12. What could the other numbers be?

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Place Value	Identify, represent and estimate numbers up to 1000 using different representations.	• What number is represented in each set?  • Use place value counters or base 10 to represent the following numbers 382, 560, 905 • Show 450 on the number line.  0 1000	• Place 725 on each of the number lines below.  0 1000 700 800 720 730 • Alice says 'The number in the place value grid is the largest number you can make with 8 counters.' Do you agree? Prove your answer.  100s 10s 1s • Henry has one counter and a place value grid. He says he can make a one, two, three and four digit number. Is he correct? Show this on a place value grid.	• Using four counters and the place value grid below, how many different numbers can you make? Eg 211  100s 10s 1s • Simon was making a three digit number using place value counters. He has dropped three of his counters on the floor. What could his number be?  • If the number on the number line is 780, what could the start and end point of the number line be? 

Number: Place Value

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
	Read and write numbers up to 1000 in numerals. Read and write numbers up to 1000 in words.	• Fill in the blanks 	Numbers in words	Numerals
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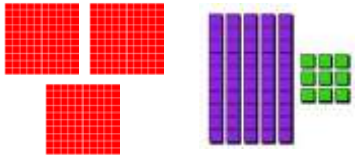
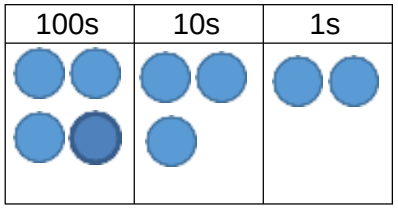
Four hundred and two	
	560
Three hundred and sixty six	
	132 | • What number is represented by the Base 10? Write it in numerals and words.  • 352 children were on time for school this morning. Write this number in words. Five hundred and seventy people went to the school fair. Write this number in numerals.	• What number is represented in the place value grid?  Using the same number of counters, how many different numbers can you make? Convince me you have found them all. • Tim was asked to write the number four hundred and forty. He wrote 400 40. Do you agree with Tim? Explain why. • Hannah has written the number five hundred and thirteen as 530. Explain the mistake that Hannah has made.	• Match the number in words to the number in numerals. Fill in the missing numbers. |	
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Four hundred and sixty two	
Four hundred and twenty six	
Six hundred and forty two	
Two hundred and sixty four	| |		
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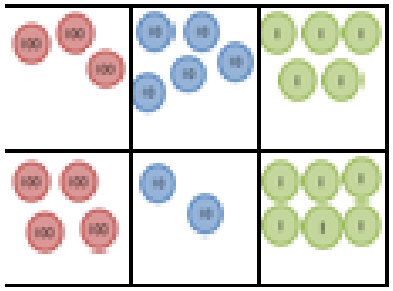
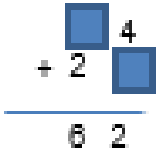
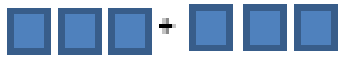
4		
	4	
		4
		6	 • There are 3 cards with a digit on each. Find every 3 digit number that could be made from the cards. Write out the largest, smallest and middle number in words.  • Work out the missing word: **A number between 450 and 460.** Four hundred and_____six. Repeat this with different clues and number

Addition and Subtraction

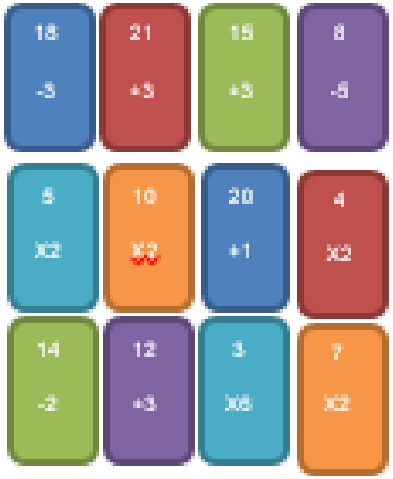
National Curriculum Statement	All students		
	Fluency	**Reasoning**	**Problem Solving**
Add numbers mentally, including • a three-digit number and ones; • a three-digit number and tens; • a three digit number and hundreds. Subtract numbers mentally, including • a three-digit number and ones; • a three-digit number and tens; • a three digit number and hundreds.	• **Calculate:** 153 + 6 153 + 60 153 + 600 • **Calculate:** 356 – 9 356 – 90 356 – 200 • **Fill in the missing numbers** Start | Add 5 | Add 50 | Add 100 | Add 500 342 | | | | | | 322 | | | | | | 246 | | |	• **Are these number sentences true or false?** 396 + 6 = 412 504 – 70 = 444 556 + 150 = 706 Justify your answers. • **Always, Sometimes, Never** When you add 7 to a number ending in 8 your answer ends with 5. Explain your answer. • **Which questions are easy, which are hard?** 453 + 10 = 930 – 100 = 493 + 10 = 910 – 120 = Why are some easy and some hard? Explain your reasons.	• **Always, Sometimes, Never** - 2 odd numbers add up to make an even number. - 3 odd numbers add up to make an even number. - Adding 8 to a number ending in 2 makes a multiple of 10. • Three pandas ate 25 bamboo sticks. Each of them ate a different odd number of bamboo sticks. How many bamboo sticks did they each eat? Find as many ways as you can to do it. • A magician is performing a card trick. He has eight cards with the digits 1-8 on them. He chooses four cards and the numbers on them add up to 20. How many different combinations could he have chosen?

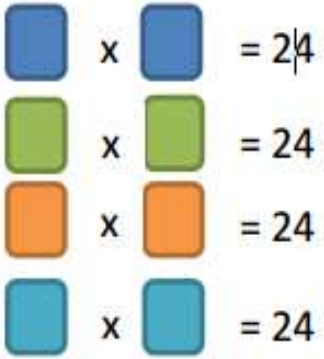
Addition and Subtraction

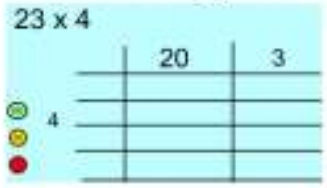
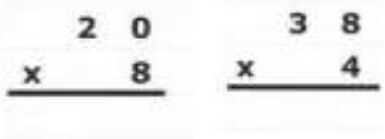
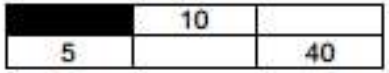
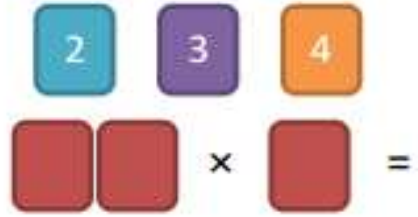
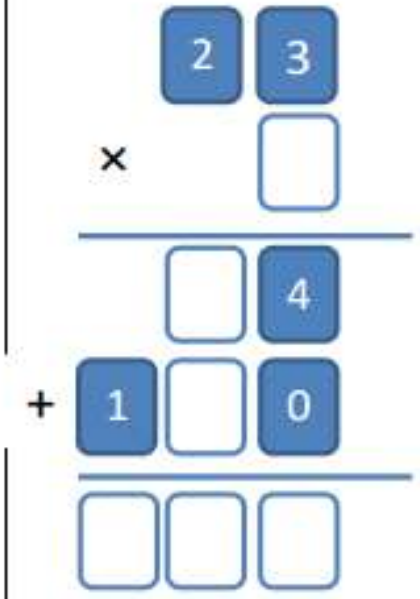
	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Addition and Subtraction	Add numbers with up to three digits, using formal written methods of columnar addition. Subtract numbers with up to three digits, using formal written methods of columnar subtraction.	• Use the grid to solve the calculation below. 355 +426  • Write down three numbers that add up to make 247. __+ + = 247 Write down a different set of numbers that add up to 247. • Harry has 357 stickers, John has 263. How many do they have altogether? If Harry gives John 83 stickers, how many do they have each now?	• Find the missing numbers in the addition.  • Dan saved £342 in his bank account. He spent £282. Does the subtraction below show how much he has left? Explain your answer. 282 -342 140 • Find the errors in the calculations and correct them to find the right answer. Calculation: 256 + 347 = 2907 Error: Correct solution: Calculation: 63 - 38 = 35 Error: Correct solution:	• The answer to the addition is 201. All the digits used are either 1 or 9. Fill in the boxes.  Can this be done more than one way? Convince me. • Roll a 1-6 die, fill in each of the boxes and try to make the smallest total possible. Repeat and try to find different answers. Could you have placed the digits in a different place to make a lower total?  • Molly went swimming every day for 5 days. She swam 80 lengths during the 5 days. Each day she swam 4 less lengths than the day before, how many lengths did she swim each day?

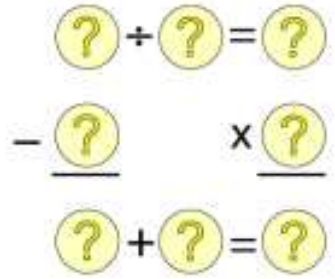
	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Addition and Subtraction	Estimate the answer to a calculation Use inverse operations to check answers.	• **Make an estimate:** Which of the following number sentences have an answer between 50 and 60? 274 - 219 533 – 476 132 - 71 • 34 + 45 = 79 Use a subtraction to check the answer to the addition. • Hannah has baked 45 cakes for a bun sale. She sells 18 cakes. How many does she have left? Double check your answer by using an addition.	• Niamh estimates the answer to 489 + 109 as shown: 489 + 109 ≈ 500 Do you agree with Niamh? Explain your answer. • Leonie says ' 353- 26 = 333 because 300 – 0 = 300, 50 – 20= 30, 6 – 3= 3 so 353-26 = 333' Do you agree with her answer? Prove your answer by using an addition calculation. • Colin says 'If I add two numbers together I can check my answer by taking them away afterwards. So to check 3 + 4, I can do 4 -3. 'Is he right? Explain Colin's thinking.	• **Is it magic?** Think of a number. Multiply it by 5. Double it. Add 2. Subtract 2. Halve it. Divide it by 5. Have you got back to your original number? Is this magic? Can you work out what has happened? • Using the idea above (Is it magic?). Create your own set of instructions where you think of a number and end up back at the original number. • I think of a number. I divide by 2 and add 98. My answer is 100. What was my number?

Multiplication and Division

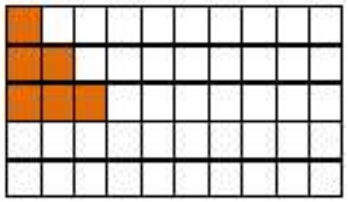
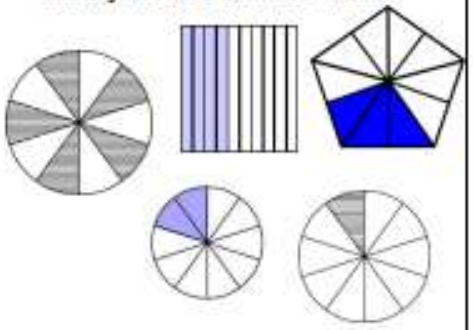
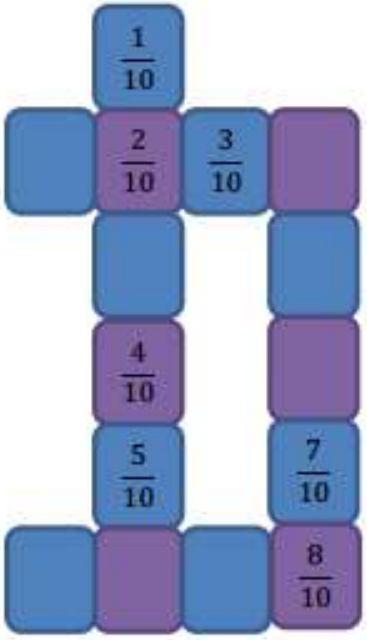
	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
	Recall and use multiplication and division facts for the 3 multiplication tables. Recall and use multiplication and division facts for the 4 multiplication tables. Recall and use multiplication and division facts for the 3 multiplication tables.	• Calculate: 3 x 4 = 4 x 7 = 8 x 3= • If I know 3 x 8= 24. What other multiplication and division facts do I know? • Fill in the gaps 3 x ___ = 24 ___ = 56 ÷ 8 6 x 4 = 8 x ___	• Tom says 'I can use my 4 times table to help me work out my 8 times table'. Is he correct? Convince me. • What pair of numbers could be written in the boxes? □ X □ = 24 • Start this rhythm, clap, clap, click, clap, clap, click.  Carry on the rhythm, what will you be doing on the 15th beat? How do you know? What will you be doing on the20th beat? Explain and prove your answer.	• A group of aliens live on Planet Xert. Tinions have three legs, Quinions have four legs. The group has 22 legs altogether. How many Tinions and Quinions might there be? Is there more than one solution? • Sally has baked some buns. She counted her buns in 4's and had 3 left over. She counted them in fives and had four left over. How many buns has Sally got? • Can you sort the cards below so that they would follow round in a loop? The number at the top is the answer, then follow the instruction at the bottom to get the next answer. 

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Multiplication and Division	Recall and use multiplication and division facts for the 3 multiplication tables. Recall and use multiplication and division facts for the 4 multiplication tables. Recall and use multiplication and division facts for the 3 multiplication tables.	• Solve: 3 x 4 = 4 x 3 = 12 ÷ 3 = 24 ÷ 8 = • Fill in the boxes: 3 × □ = 21 □ × 8 = 32 40 ÷ □ = 8 • Shakira buys 8 boxes of cupcakes. There are 4 cupcakes in each box. How many cupcakes does she buy altogether?	• Use the array to complete the number sentences below:  3 × □ = □ □ × 3 = □ □ ÷ 3 = □ □ ÷ □ = 3 • What is wrong with this division sentence? 4 ÷ 10 = 40 Can you correct it?	• Fill in the boxes below using 8 **different** whole numbers.  • Mia has 17 pounds. She wants to buy some cakes and chocolates. Cakes cost £3 and chocolates cost £4. How many different combinations of cakes and chocolates could she buy?

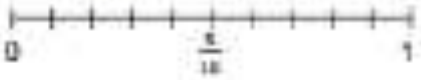
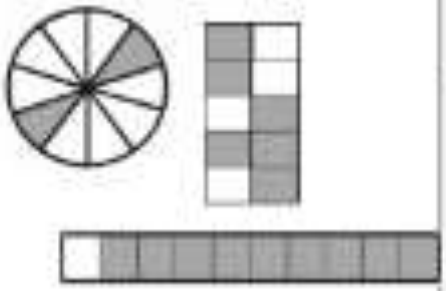
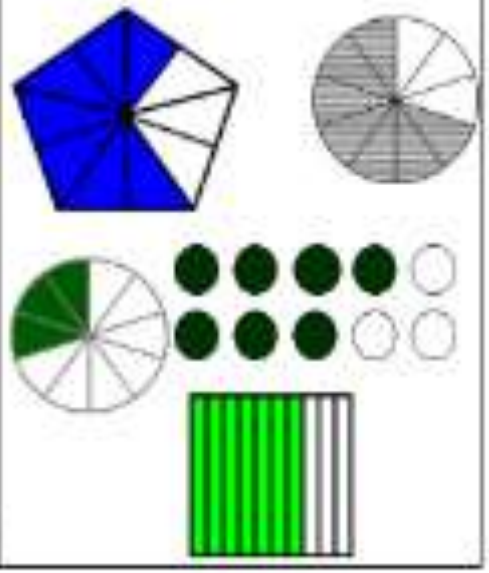
	National Curriculum Statement	All Students		
		Fluency	**Reasoning**	**Problem Solving**
Multiplication and Division	Write and calculate mathematical statements for multiplication using multiplication tables that they know, including for 2 digit numbers times 1 digit numbers, using mental and progressing to formal written methods Write and calculate mathematical statements for division using multiplication tables that they know, including for 2 digit numbers divided by 1 digit numbers, using mental and progressing to formal written methods	• Use place value counters to multiply a two digit number and one digit number together.  23 x 4= Set up a grid with 4 rows as we are finding 4 lots of 23. Make 23 in each row using the place value counters. Add up each column, starting with the ones to find out your answer. • 3 × 5 = Complete this statement and use this to solve the multiplication below: 3 × 50 = 30 × 5 = 5 × 3 = • Solve: 	• **Always, sometimes, never** A two digit number multiplied by a one digit number makes a two digit answer. • Fill in the missing boxes.  Explain your answer. • Hassan is calculating 32 x 5. He writes his answer 15010. Can you work out Hassan's mistake and write an explanation of how he could do it correctly?	• Using the digit cards in the multiplication below how close can you get to 100?  • Fill in the missing digits in the multiplication below: 

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Multiplication and Division	Solve problems missing number problems involving multiplication and division Solve positive integer scaling problems Solve correspondence problems in which *n* objects are connected to *m* objectives.	• Fill in the boxes: 5 x ☐ = 15 ☐ X 4 = 32 48 ÷ ☐ = 8 • Jemima has a toy car measuring 8cm. Aisha has a toy train that is 8 times as long as the car. How long is the train? • Kainat is making buns. For every 40g of flour she needs 1 egg. If she uses 5 eggs, how many grams of flour does she use? If she uses 400g of flour, how many eggs does she need?	• 12 buns are shared between 3 boys. 16 buns are shared between 4 girls. Who gets more buns, boys or girls? Explain your answer. • For every 3 boys in class there are 2 girls. Which of the combinations of boys and girls could be correct? 18 boys and 12 girls 15 boys and 10 girls 21 boys and 9 girls 12 boys and 8 girls Show your thinking using a picture. • How many different combinations of numbers can you find that would fit in the empty boxes? 5 x ☐ = 10 x ☐	• Use the numbers 1 - 8 to fill the circles below:  • Lottie is counting the number of legs in her house. People and cats live in Lottie's house. People have 2 legs, cats have 4 legs. If there are 26 legs altogether, how many cats and people might there be? • William has 3 t-shirts and 4 pairs of trousers, how many different outfits can he make?

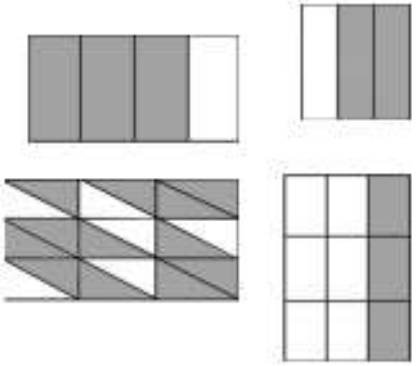
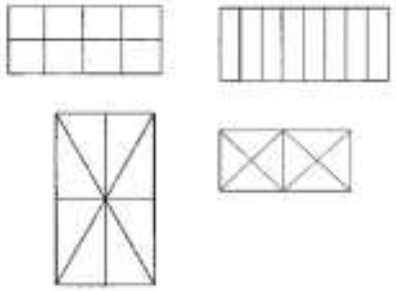
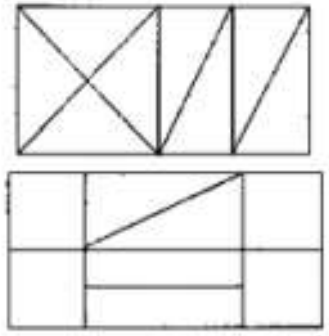
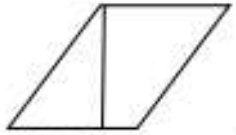
Fractions

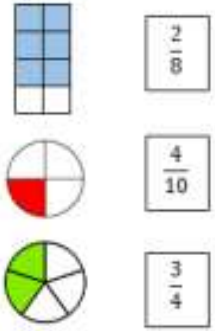
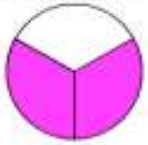
National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Count up and down in tenths.	• Shade the diagram to continue the pattern.  • Finish the sequences: $\frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \_\_\_, \_\_\_, \_\_\_$ $\frac{10}{10}, \frac{9}{10}, \frac{8}{10}, \_\_\_, \_\_\_, \_\_\_$ • What comes next? Five tenths, six tenths, seven tenths, _____ Four tenths, three tenths, two tenths, _____ Nine tenths, eight tenths, seven tenths, _____	• Circle and explain the mistakes in the sequences below. • $\frac{1}{10}, \frac{2}{10}, \frac{4}{10}, \frac{5}{10}, \frac{6}{10}$ • $\frac{9}{10}, \frac{8}{10}, \frac{8}{10}, \frac{7}{10}, \frac{6}{10}$ • Jack is counting in tenths aloud. Five tens, six tens, seven tens, eight tens. Jasmine tells Harry that he's made a mistake but she can't explain what he's done wrong. Can you finish Jasmine's sentence to help her explain to Jack what he has done wrong and why? 'You have made a mistake because.....	• Order the diagrams and describe how you have ordered them.  • Fill in the missing fractions 

Fractions

National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one digit numbers or quantities by 10	• Here is a number line from 0 - 1. Can you fill in the missing fractions on the number line?  • Write the fraction of the shape that is shaded.  • Draw and shade shapes to show the following fractions. $\frac{1}{10}$ $\frac{6}{10}$ $\frac{9}{10}$	• What do you notice in the number sentences below? $\frac{1}{10}$ of 10 = 1 $\frac{2}{10}$ of 10 = 2 $\frac{3}{10}$ of 10 = 3 Can you continue the pattern up to $\frac{10}{10}$? • What do you notice in the number sentences below? $\frac{1}{10}$ of 20 = 2 $\frac{2}{10}$ of 20 = 4 $\frac{3}{10}$ of 20 = 6 Can you continue the pattern up to $\frac{10}{10}$? • Three pizzas are shared equally between ten children. If each pizza is cut into 10 pieces, how many pieces will each child get? Prove it using a picture or diagram.	• Lara has 30 cherries. On Monday she gives $\frac{1}{10}$ of the cherries to her mum and then eats 7. On Tuesday she eats $\frac{2}{10}$ of the cherries and gives 6 to her mum. On Wednesday she eats $\frac{3}{10}$ of the cherries. How many cherries does she have left? • What do all the diagrams below have in common? 

Fractions

National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	• Write the fractions shaded in the shapes below.  • Find ½ of 16. Find ¼ of 16. Find $\frac{1}{8}$ of 16. • Shade in $\frac{3}{8}$ of each of the diagrams below. 	• These shapes are divided into eight equal parts. Do you agree? Explain your thinking.  • Susie ate ¼ of a cake, Dinah ate ½ of what was left. Amarah ate the rest of the cake. Draw a diagram to show how much each of the girls ate. • **True or False** This shape is split into two equal halves  Explain your reasoning.	• Can you shade this diagram in different ways to show $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{6}$ and $\frac{1}{9}$  • How can you cut a doughnut into eight equal pieces with only three cuts of a knife? • On Sam's ninth birthday he gets a cake that has the numbers 0 - 9 round the edge instead of candles. Starting from the centre, Sam cuts the cake with three cuts into three pieces so that the numbers on each piece add up to the same total. What total does each piece make? What fraction of the whole cake is each piece? 

	National Curriculum Statement	All Students		
		Fluency	**Reasoning**	**Problem Solving**
Fractions	Recognise and show, using diagrams, equivalent fractions with small denominators	• Complete the statements: $\frac{1}{2} = \frac{\quad}{6}$ $\frac{1}{2} = \frac{\quad}{4} = \frac{\quad}{8}$ • Draw diagrams to show fractions that are equivalent to $\frac{1}{2}, \frac{1}{3}, \frac{2}{5}$ • Match the diagram to the equivalent fraction.  $\frac{2}{8}$ $\frac{4}{10}$ $\frac{3}{4}$	• What's the same? What's different? $\frac{1}{4}, \frac{2}{8}, \frac{3}{12}$ • Here is a diagram that has some sections shaded.  Ailish says, "I am thinking of an equivalent fraction to this where the numerator is 5." Is this possible? Explain why. • Explain how this diagram shows both $\frac{2}{3}$ and $\frac{4}{6}$ 	• Can you work out the missing values? $\frac{1}{2} = \frac{4 - \bigstar}{\bigstar \times 2}$ $\frac{3}{\bigstar} = \frac{5+1}{3+5}$ Can you create your own for a friend to complete? • Play pairs. Create a set of cards that have different diagrams and fractions on. Children turn 2 over in their go. If they are equal fractions then they keep the pair. If not, they turn them back over and it is the other players turn. The player who has the most pairs at the end wins.

Fractions

Add fractions with the same denominator within one whole

Subtract fractions with the same denominator within one whole

- Complete the statements:

$$\frac{1}{5} + \frac{3}{5} =$$

$$\frac{6}{8} - \frac{3}{8} =$$

$$\frac{2}{10} + \frac{3}{10} + \frac{4}{10} =$$

- Write these statements using numbers:

1 sixth + 3 sixths = ▢ Sixths

5 eighths - 3 eighths = ▢ Eighths

- Find the sum of:

$$\frac{2}{12}, \frac{4}{12} \text{ and } \frac{5}{12}$$

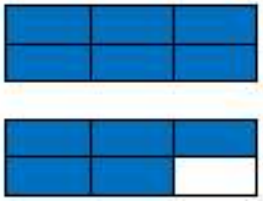
- Explain why only the numerator changes in this calculation

$$\frac{2}{5} + \frac{9}{5} =$$

- Rick is stuck on the calculation

$$\frac{11}{6} - \frac{3}{6} =$$

His friend, Susie, draws him the following model to help.



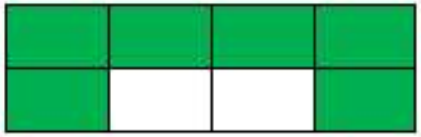
Susie says, "Now take $\frac{3}{6}$ away".

Rick is confused because he thinks the diagram shows $\frac{11}{12}$.

Explain the diagram to Rick and work out the answer.

- Use some of the cards below to make a fraction sentence. Can you make more than 1?

- How many fraction addition and subtractions can you make from this model?



Do your additions and subtractions always have to be 1 part add 1 part or subtract only 1 part? Can there be more than 2 parts?

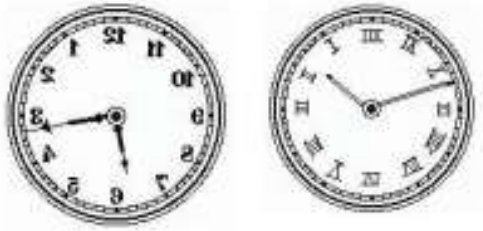
Fractions	Compare and order unit fractions, and fractions with the same denominators.	• Order from smallest to largest $\frac{3}{9}, \frac{1}{9}, \frac{8}{9}, \frac{5}{9}, \frac{9}{9}$ • Use <, > or = to complete the statements below $\frac{4}{9}$ ● $\frac{2}{9}$ $\frac{1}{7}$ ● $\frac{1}{5}$ $\frac{2+2}{8}$ ● $\frac{3+1}{8}$ • Which is greater? 1 ninth or 1 tenth	• Gifty thinks $\frac{1}{8}$ is greater than $\frac{1}{4}$ because 8 is greater than 4. Do you agree? Convince me. • Rob thinks $\frac{1}{4}$ is always the same but his teacher has asked him to find a quarter of both these amounts. a)  b)  Explain to Rob why it is not the same and create a rule with a partner.	• Using equal sized strips of paper ask children to fold them into different amounts (e.g. quarters, sixths etc) and shade one part and write the fraction on each of them. Ask them to order them and explain to each other what they can see. Create a rule as a class: the bigger the denominator, the smaller the fraction. • Using equal sized strips of paper ask children to fold them into equal parts and shade one part. With another piece of paper do the same amount of equal parts but shade 2 of them and so on. Ask them to order them and explain to each other what they can see. Create a rule as a class: when the denominator is the same, the bigger the numerator, the bigger the fraction.

Fractions	Solve problems that involve all of the above.	• Use different concrete objects and pictorial representations to make $\frac{3}{6}$ • Phil baked a chocolate and banana loaf. He ate $\frac{3}{6}$ of it. Rich ate $\frac{2}{6}$ of it. What amount of loaf was left? • Fill in the missing boxes $\frac{1}{5} + \frac{2}{5} + \frac{2}{5} = \square$ $\frac{4}{7} - \frac{\square}{7} = \frac{5}{7} - \frac{5}{7}$ $\frac{1}{4} + \frac{2}{3} + \frac{\square}{\square} + \frac{1}{3} = 2$	• Raja has a number card. 40 He says, "Three eighths of my number is 20." Is he correct? Explain why. • Kate has a number card. ? She says, "Three quarters of my number is 18." Her friend, Sally, says, "Six eighths of the same number is also 18." What is the number on the card? Who is correct? Sally or Kate.	• Three pandas shared 1 bamboo stick. They split it into equal parts and each had an odd number of parts. What are the possible fraction amounts that each panda had? Can you use a strategy or a method? 

Measures: Time

National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Tell and write the time from an analogue clock, including using Roman numerals. Tell and write 12-hour digital time Tell and write 24-hour digital time	• What time is shown on the analogue clocks below?  • Draw the times on the blank analogue clocks. a) Five past four b) Twenty five to ten c) Half past seven  • Match the times on the digital clocks to the analogue clocks. 	• The clock only has one hand. What time could the clock show? Explain your choice carefully.  • Kim is explaining how to tell the time on a 24 - hour clock. 'Look at the hour number and minus 12' Do you agree with Kim? Prove your answer by showing examples. • Leila is telling the time from an analogue clock. 'The hour hand is pointing to XI the minute hand is pointing to XII' What time is it?	• What is different about the clock below? Can you still use it to tell the time?  • On a digital clock, there are certain times when the numbers are in consecutive order, in counting order, either forwards or backwards eg 1:23 or 5:43 How many times during a day does this happen? • Fill in the gaps in the story with the digital time. Lucy gets up at quarter past eight in the morning _____. She has her breakfast at twenty to nine _____. Lucy goes shopping at quarter to eleven _____ and returns home at twenty past one in the afternoon _____. Can you write your own story about your day?

Measures: Time

	National Curriculum Statement	All Students		
		Fluency	**Reasoning**	**Problem Solving**
	Estimate and read time with increasing accuracy to the nearest minute.	• Write the time on the clocks to the nearest minute.  • Draw the hands on the clock to show the time below.  **23 minutes to 9** • Fill in the gap.  _____ minutes past 4	• Look at the clock face below. Can you explain why there are two sets of numbers on it? What do they mean?  • Farah is telling the time. She says this clock says it is ten past one. Is Farah correct? Prove it. 	• These clocks have been reflected in a mirror. Can you work out what time they show?  • Simon gets up at half past nine. Can you order the times he sees on the clocks during the day until he goes to bed at 22:45?  • At twelve o'clock both the minute hand and hour hand are pointing in exactly the same direction. At what other times during the day does this happen? Can you write down all the times and draw them on an analogue clock?

Measures: Time

National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Record and compare time in terms of seconds, minutes and hours.	• Use a stopwatch to record the following events: a) Time taken to run all the way around the playground. b) Time taken to complete 10 mental maths questions. c) Time taken to do 20 star jumps. How long did each event take? Which took the longest? Would you record your time in seconds or minutes? • In 1913 the world record for the quickest mile run by a man was 4 minutes 14 seconds. The world record is currently is 3 minutes 43 seconds. What is the difference in times? Can you find and compare other world records? How long do you think it would take you to run mile?	• Dan takes 153 seconds to skip around the playground. Tilly takes 2 minutes 23 seconds. Who is the quickest? Explain how you know. • Cut up the cards below and turn them over. Try to find a matching pair of an activity and the length of time you think it takes. Does everyone agree with the time it takes? How can you prove it? Time taken to count from 1 to 10 — 10 seconds Time taken to brush your teeth — 90 minutes Time taken to run 100m — 3 minutes Time taken to travel to Spain. — 5 seconds Time taken to watch a football match. — 2 hours	• Saira goes to three different activities a week. They all start at 6 o'clock but are different distances away. Can you match the day and time she leaves with the activity she is going to? Tuesday 17:35 — Ballet 42 minutes away Wednesday 17:18 — Football 35 minutes away Thursday 5:25pm — Swimming 25 minutes away One day, Saira is 13 minutes late for swimming. What time did she leave her house that day? Saira changes to a later ballet class that starts at 6:40. What time will she have to leave her house now?

Measures: Time

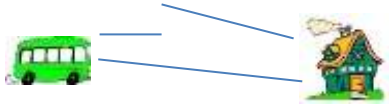
National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight.	• Sort the times below into am and pm. 5 o'clock in the morning. 3 o'clock in the afternoon. 08:45 16:43 Can you write one more time to join each group? • Use the vocabulary cards below to fill in the gaps about Sita's day. Sita's alarm went off at seven _____ in the _____. She set off to school at eight _____. She arrived at 8:35 ___. After her _____ lessons, she had lunch at _____. In the _____ she learnt about the Victorians. School finished at 3:25___ . Sita went to bed at seven _____ but woke up five hours later at _____ when it was very dark. noon a.m. p.m. morning afternoon o'clock midnight	• Caroline says: "Any time that it is dark is pm and any time that it is light is am." Do you agree? Explain your thinking. • Can you complete the sentence below in 2 different ways? 12 o'clock in the _____ can also be called _____. Explain the difference in the two sentences.	• Match the words to their meanings. o'clock — Time between midnight and noon morning — Time from noon to evening am — 12 o'clock at night afternoon — Post meridiem- after noon pm — Middle of the day midnight — Ante meridiem- before midday noon — Used to specify the hour

Measures: Time

National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Know the number of seconds in a minute and the number of days in each month, year and leap year.	• Cut up the cards below and play a matching game with a friend. When you get a pair you keep it. The player with the most pairs wins! 1 hour / 60 minutes / 60 seconds / 1 minute 7 days / 1 week / 1 month / about 4 weeks 12 months / 1 year / 24 hours / 1 day • Fill in the missing numbers in the rhyme. ___ days have September, April, June and November. All the rest have _____, except for February alone. Which has ____ each year and _____ in a leap year. • Can you use the picture below to tell me how many days are in each month? 	• Rehan says 'When I add the number of days in 2 different months up, it always makes an odd number.' Do you agree? Explain your reasoning. • Daniel says "The number of days in the last two years add up to make an odd number. I now know that next year is not a leap year." Is Daniel correct? Can he be sure? • **True or False** To check if a year is a leap year, I only need to check the number of days in one month. Explain your answer.	• The months of February to May have fallen out of my calendar. Can you work out which calendar pages below match to which month? M T W T F S S / M T W T F S S 1 2 3 4 / 1 2 5 6 7 8 9 10 11 / 3 4 5 6 7 8 9 12 13 14 15 16 17 18 / 10 11 12 13 14 15 16 19 20 21 22 23 24 25 / 17 18 19 20 21 22 23 26 27 28 29 30 31 / 24 25 26 27 28 29 30 31 M T W T F S S / M T W T F S S 1 2 3 4 5 6 / 1 2 7 8 9 10 11 12 13 / 3 4 5 6 7 8 9 14 15 16 17 18 19 20 / 10 11 12 13 14 15 16 21 22 23 24 25 26 27 / 17 18 19 20 21 22 23 28 29 30 / 24 25 26 27 28 • Dan is thinking of a month. He gives two clues to help his friends guess. 1. When I add the number of days in my month and the month before it equals 62 days. 2. When I add the number of days in my month and next month it equals 60. What month is Dan thinking of?

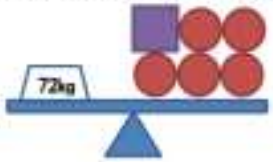
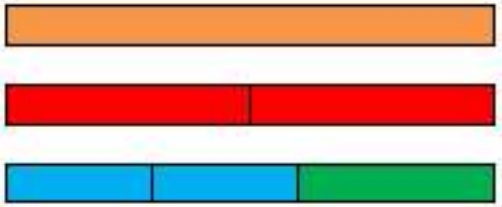
Measures: Times

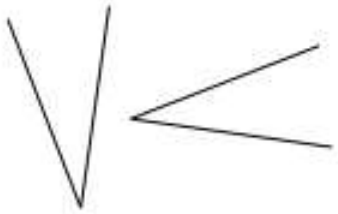
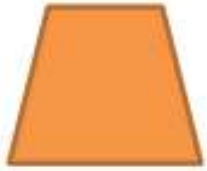
National Curriculum Statement	All Students		
	Fluency	**Reasoning**	**Problem Solving**
Compare durations of events [for example to calculate the time taken by particular events or tasks].	• A TV programme starts at 5:20 and finishes at 6:05. How long does the programme last for? • Kieran is learning his times tables. On Monday it takes him 1 minute and 12 seconds to complete 10 questions. By Friday he can complete 10 questions in 42 seconds. How much quicker is he by Friday? • Look at the two clocks below. How much time has passed between the first and the second clock?  	• Henry measures the time it takes for three of his friends to do 30 star jumps. He wants to find out who is the quickest. Henry says: The person with the highest time is the winner because the highest score always wins! Is Henry correct? Explain your reasoning. • Order the times below from shortest time to longest time. 83 seconds 1 minute 12 seconds 56 seconds 2 minutes 2 seconds 1 minute 87 seconds 143 seconds Explain your reasoning.	• Ashrita Furman is famous for holding the most world records at the same time, 131! Below is a list of world records he has broken travelling one mile on different equipment. Estimate and order the records from the one you think is quickest to the one you think took the longest. (Remove information in brackets until after activity) 1. **Pool Cue balancing on finger (6min 55s)** 2. On a Space Hopper (13 min) 3. Sack Race (16min 41s) 4. Pogo stick whilst juggling (23min 28s) 5. Hula hooping whilst balancing a milk bottle on head (13min 37s) 6. Pushing an orange with your nose. (22min 41s) 7. Playing tiddlywinks (23min 22s) How long do you think it would take you? See how long it takes you to complete some of the challenges over 100min.

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Measures	Measure, compare, add and subtract: lengths (m/cm/mm). Measure, compare, add and subtract: mass (kg/g) Measure, compare, add and subtract: volume/capacity (l/ml)	• How long is the pencil?  • Find the length from A – B, find the length from B-C. Which is longer? How much longer?  • Insert < and > into the number sentences. 13cm ☐ 140mm 1m ☐ 90cm	• If I have 3m of ribbon and cut it into 50cm lengths, how many lengths can I cut? Convince me. • Abigail's ruler has broken. How could she still use it to measure things?  • Harry is measuring the length of this pencil. Explain what he is doing wrong. 	• A coach is three times as long as a car. A train is 6.5m longer than a coach. The train is 36.5m long. How long is the car? • Which of the following statements could be true? Check them and correct the false ones by using measuring equipment. - A chair is about 120mm tall. - A sensible portion of pasta is about 40m. - A ruler is about 300mm long. • The length of a swimming pool is 50m, Miss Jones swims 200m every morning. How many lengths is this?

Measures	Measure, compare, add and subtract: lengths (m/cm/mm). Measure, compare, add and subtract: mass (kg/g) Measure, compare, add and subtract: volume/capacity (l/ml)	• Use <, > or = to complete the statements below 750g ◯ 0.8kg 500ml ◯ Half a litre 17mm ◯ 2cm – 5mm • Penny bought 3 tins of beans from the shop. They each weighed 418g each. The bag weighed 5 grams. How heavy was the bag? • A pack of strawberries weighing 226g and 2 jars of coffee, each weighing 480g, are put on the scale.  Draw an arrow to show the weight of the 3 items.	• Adam makes 2.5 litres of lemonade for a charity event. He pours it into 600ml glasses to sell. He thinks he can sell 7 glasses. Is he correct? Prove it. • Here is a blue strip of paper.  An orange strip is 7 times longer.  The strips are joined end to end.  How long is the blue strip? How long is the orange strip? Show your working.	• In groups, children turn over a flashcard to reveal a length (e.g. 20cm). They use Play Do to create a stick of the length given. They do this through estimate then check by measuring. What is the difference between the smallest and largest Play Do stick? • Using only 3 objects each time, try to get as close to 2kg as possible. Explain why you chose those objects. Work out how much more or how much less is needed to make it 2kg. • Erik is making buns for 12 people. He follows this recipe for 6 people. 65g caster sugar 70g butter 60g self-raising flour 1 egg Sugar, butter and flour are all sold in 200g packs. Work out how much he will have left over of each. Does he have enough to make 6 more buns? 4 buns? 2 buns? 

	National Curriculum Statement	All students		
		Fluency	**Reasoning**	**Problem Solving**
Measures	Measure the perimeter of simple 2D shapes.	• What is the perimeter of the rectangle? 4cm  2cm • A square has sides of 3cm. What is the perimeter of the square? • Measure the perimeter of the triangle. 	• A square has sides that are in whole cm. Which of the following measurements could be its perimeter? 18cm, 8cm, 25cm, 24cm Explain your thinking. • Tick the correct statement about the shapes below.  Shape A Shape B - Shape A has a bigger perimeter than shape B. - Shape B has a bigger perimeter than shape A. - Shape A has the same perimeter as shape B. Explain how you know.	• This shape is made from identical squares. The perimeter of the whole shape is 24cm. Find the perimeter of the central square. Explain how you found the solution.  • How many different rectangles can you draw with a perimeter of 20cm? • A rectangle has sides where the length is double the width. If the perimeter is 12cm, what are the length and the width of the rectangle?

Measures	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	• Fill in the missing boxes 0.5l + 250ml = 1500ml – ☐ 0.25l × ☐ = 2l + 500ml • 3m – ☐ + 750cm = 2m 3.5kg + ☐ - 1.5kg = 3.5kg 0.2l + 0.8l - ☐ = 0.9l • Adam, Danny and JoJo have 7kg worth of marbles to share. Adam receives double the amount Danny receives. Danny receives double the amount JoJo receives. How many kg of marbles do they each receive?	**What's the pattern?** • 2kg – ☐ + 250g = 1kg 3kg – ☐ + 1.25kg = 1kg 4kg – ☐ + 2.25kg = 1kg • **What's the rule?** There is 480ml in a container. How much needs to be added to make 1l? How much needs to be added to make 2l? How much needs to be added to make 10l? • Here is a balance.  Here is another balance.  Work out the value of 	• Simon runs 4 times further than Emma. Kelly runs 3.6m further than Simon. Kelly ran 48.6m. How far did Emma run?  • Here are three blocks.  Each red block is 8cm long. A green block is 6cm long. How long is a blue block?

Properties of shape	Recognise angles as a property of shape or a description of a turn.	• Stick the words North, East, South and West on four walls. Ask children to face north then turn to west. How many quarter turns have you made? • Has this angle turned 90° to the left or the right?  • Tick all the angles in this shape. 	• **True or false?** Some shapes have no angles. • **True or false?** The amount of angles a shape has is equal to the amount of sides it has.	• Which of these could be angles? 90° -75° 90°c Explain your choices to a partner. • How many angles can you identify in this picture? 

Properties of shape

Identify right angles.

Identify whether angles are greater than or less than a right angle.

Recognise that two right angles make a half-turn, three make three quarters of a turn and four make a complete turn.

- How many right angles does this circle have?

- Tick the angles that are less than a right angle

- Using 2 sticks or straws, can you make 1, 2 and 4 right angles?

- **True or false?**
  You can make a right angle with curved lines.

- Sahil says,

> A complete turn equals 360° therefore a shape cannot have more than 360° when their angles are added together.

Do you agree?

- Draw different stick men with two arms and two legs. How many different ways can you do where the arms and legs are different sized angles (including greater than and less than a right angle)?

For each drawing write how many greater and/or less than angles there are e.g.
2 angles less than a right angle
2 angles greater than a right angle

- Create a group freeze frame showing lots of different angles and draw this afterwards.
  Can you turn 45° to the left? How has your angle changed?

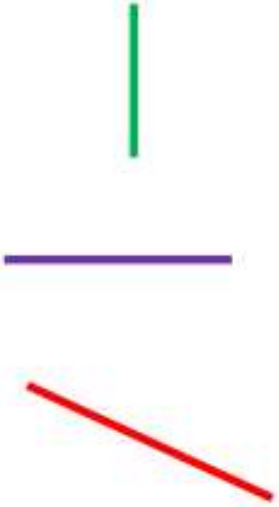
Properties of shape

Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

- Draw a line so that it is perpendicular to the one given

- Draw a line that is parallel to the one given

- Circle the horizontal line



- **True or false?**
  Perpendicular lines have to touch.

- **Always, sometimes, never.**
  When two straight lines cross, there will be 4 right angles made.

- **True or false?**
  Parallel lines never touch.

- **Odd one out.**
  Explain which is different to the others.

a)

b)

c)

- Identify all the horizontal and vertical lines. Identify the pairs of perpendicular and parallel lines

- Draw your own picture using all four types of lines.
  Can your partner identify and label the different lines?

- Look at these flags.
  Can you identify and label the different lines and angles?

Properties of shape	Draw 2D shapes Make 3D shapes using modelling materials	• Draw a 2D shape with a pair of parallel lines. Did your friend draw the same or something different? • Use these shapes to create a repeating pattern. Leave a space where you have missed out a shape – can your partner guess what the shape should be?  • Label the angles in your shapes – are they greater than or less than 90°	• **True or false?** You can cut out lots of equal squares and make a 3D shape from them. • Explain why all the triangles need to be the same size for the net of pyramid. • **True or false?** With an unlimited amount of straight sticks, you can make any 2D or 3D shape.	• Look through a magazine/newspaper and identify the shapes you see. Organise them into different groups. Do some shapes fit into more than one group? Why? • Using Play-doh, ask children to make a 3D shape. Ask them to make a different one to their partner. Write down the similarities and differences between them. Discuss what the properties are.

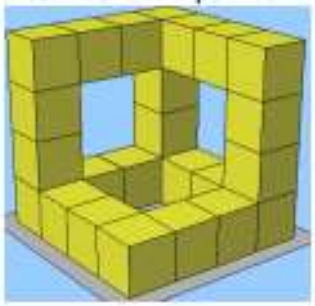
Properties of shape

Recognise 3-D shapes in different orientations and describe them.

- What is this shape made up of?

Does your partner agree? Can they see anything different?

- Can you build this shape?
What does it look like when you half turn it?
Describe it to a partner.



- 3D shape hunt.
Find the shapes hidden in the classroom. Group them together with others.

- **Odd one out.**

Explain why it is the odd one out using the correct vocabulary for its properties.

- **True or false.**
A wizard's hat will be able to be turned upside down and still stand upright on its own.

- Use 6 cubes. How many different shapes can you make?
Can you try and draw them?
Dotted paper may help.

- Pick a 3D object in the classroom. Visualise it being rotated by 180°
Describe it to a partner. Can they guess it?

Statistics

Interpret and present data using bar charts, pictograms and tables.

- Transfer the following information into a table.

Year	Amount of children = 4
1	
2	+3
3	+3
4	
5	
6	+3

- Look at the above pictogram.
  True or false?
  Year 2 has double the amount of children Year 3 has.

- Which would be most suitable for this information?
  A bar chart or pictogram.
  Explain why.

Charity	Amount raised in a year (£).
Donkey Rescue	2790
Save the Rhinos	5650
Money for Meerkats	3000
Collecting for cats	4430

- What's the same and what's different about a bar chart and a pictogram?

- 62 people are going to a football game. They can travel in a car, minibus or coach.

  A car can hold 5 people.
  A minibus can hold 7 people.
  A coach can hold 15 people.

  Each vehicle they take is full.

  Decide how many of each vehicle is taken to the match.
  Choose a table to represent this information.
  Is this the only option?

  (If this is completed in a pictogram then the images can be printed out for children to move around.)

  It costs £150 to hire the coach.
  It costs £84 to hire a minibus.
  It costs £55 for the petrol in a car.

  What would the cheapest option be for the whole group?

Statistics

Solve one-step and two-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.

Day	People at park ● = 3
Mo	●
Tu	● ● ● +3
We	+2
Th	● ● ● ● ● ●
Fr	● ● ● ●
Sa	● ● ● ● ● +3
Su	● ● +2

- How many more people went to the park on Sunday than Monday?
- How many fewer went to the park on Wednesday than the day after?
- How many people attended in the week if all the people were different?
- The next week 12 more people went on Saturday. How many went?

- **True or false?**
  At the park there 4 double swings and 6 single swings.
  Look at the table on the left.
  There weren't enough swings for the people at the park on Thursday.

- **Always, sometimes, never.**
  Pictograms can only have data where each row is a multiple of the key given.
  e.g. If the key equals 3 then only multiples of 3 can be in the pictogram.

- How many questions can you create for your partner for this set of data?

Day	Amount of hours shop open
Monday	6
Tuesday	8
Wednesday	8.5
Thursday	7
Friday	10
Saturday	12

- Look at the table above.
  The shop closes for 45 minutes each day so the workers can have their lunch. How many hours are the workers there in a week?

- Work in a group to work out how many hours you each spend sleeping a week.
  Consider what will be the best way to record these results so they can all be displayed in one graph.