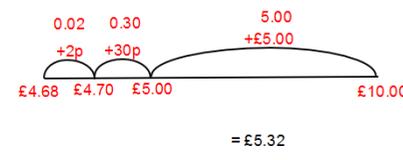
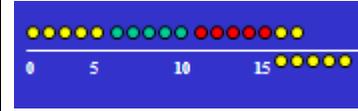


YEAR 5

YEAR 5												
Addition	Subtraction	Multiplication	Division									
<p>Add with increasingly large numbers using the compact method.</p> <p>Extend methods to include decimals to two decimal places.</p> <div style="text-align: center; margin: 10px 0;"> $\begin{array}{r} \text{£}576.75 \\ \text{£}67.67 \\ + \text{£}644.42 \\ \hline 1111 \end{array}$ </div>	<p>Subtract with increasingly large numbers using the compact method.</p> <p>Extend methods to include decimals to two decimal places.</p> <div style="text-align: center; margin: 10px 0;"> $\begin{array}{r} \text{£}56.74 \\ - \text{£}18.52 \\ \hline \text{£}38.22 \end{array}$ </div> <p>Problems that require a lot of exchanges e.g. multiples of 100 can be solved more efficiently using a number line.</p> <div style="text-align: center; margin: 10px 0;"> <p>I had £10 in my pocket. I spent £4.68 in the shop. How much change did I have left over?</p>  </div>	<p>Know multiplication facts corresponding to tables up to 12 x 12 and be able to apply them.</p> <p>Th HTU , HTU , TU x TU and U</p> <p>28 x 27</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr><td>x</td><td>20</td><td>8</td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td></tr> </table> <p>Addition to be done mentally or across followed by column addition</p> <p style="margin-left: 20px;">28</p> <p style="margin-left: 20px;"><u>x 27</u></p> <p style="margin-left: 40px;">56 (7x8)</p> <p style="margin-left: 40px;">140 (7 x20)</p> <p style="margin-left: 40px;">160 (20x8)</p> <p style="margin-left: 40px;"><u>400 (20x20)</u></p> <p style="margin-left: 40px;"><u>756</u></p> <p>28 X 27 = 756</p>	x	20	8	20			7			<p>Know division facts corresponding to tables up to 12 x 12 and be able to apply them.</p> <p>Use the relationship between multiplication and division.</p> <p>Extend chunking method to include ThHTU by U, with an integer remainder.</p> <p>Dividing up to 10,000 by 10/100.</p> <p>Use the number line to find remainders and express the quotient as a fraction or decimal.</p> <p>Use the number line to find remainders and express the quotient as a fraction or decimal.</p> <p style="color: blue; text-decoration: underline;">DIVISION WITH REMAINDERS PPT</p> <p>(example given below)</p> <p>17 ÷ 5</p> <p><i>"What do I know? 17 is not a multiple of 5".</i></p>   <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> $3 \frac{2}{5}$ </div> <div style="text-align: center;"> $3 \frac{2}{5}$ </div> </div>
x	20	8										
20												
7												

Multiply in different contexts

$$£2.73 \times 3$$

$$£2.73 \times 3 = 273p \times 3$$

x	200	70	3
3			

Followed by appropriate addition calculation.

$$273p \times 3 = 819p$$

$$= £8.19$$

x	4000	300	40	6
8				

$$4346 \times 8 = 34768$$

$$32000$$

$$2400$$

$$320$$

$$+ \quad 48$$

$$\underline{\quad 34768}$$

$$4346$$

$$\underline{\quad x \quad 8}$$

$$48 \text{ (} 8 \times 6 \text{)}$$

$$320 \text{ (} 8 \times 40 \text{)}$$

$$2400 \text{ (} 8 \times 300 \text{)}$$

$$\underline{\quad 32000 \text{ (} 8 \times 4000 \text{)}$$

$$\underline{\quad 34768}$$

$$3 \underline{2} = 3.4$$

5

From knowledge of decimal/fraction equivalents or by converting 2 into 4.

$$5 \quad 10$$

Short division with 'bus stop' notation

$$7 \overline{) 483} \quad 17 \overline{) 578}$$

483 divided by 7.

"4 hundreds cannot be shared equally between 7, so exchange the 100s for 40 tens. I now have 48 tens which shared equally between 7 is 6 with a remainder of 6 tens. Exchange the 6 tens for 60 units, we now have 63 units.

63 divided equally between 7 equals 9. The answer is 69."

Use Diennes or place value equipment to model.

Decision making

([OVERCOMING BARRIERS](#) Level 4 to Level 5 – Questions.)

Word problems, e.g. 200 people attended a concert. $\frac{1}{5}$ of the people had complimentary tickets. The rest paid £7.50 each. How much money was collected from selling tickets?

Money and measures, e.g. Which is longer: $\frac{3}{4}$ of an hour or 2500 seconds

(Continue to use ITP multiplication)

http://www.taw.org.uk/lic/itp/multi_grid.html

Decision making

Children investigate statements and solve word problems using appropriate methods.

Children investigate alternative methods such as compensation strategies and doubling and halving and discuss when these might be most appropriate and efficient.

Examples:

24x99 could be done using the grid method, but could also be calculated by x100 and subtracting 24x1.

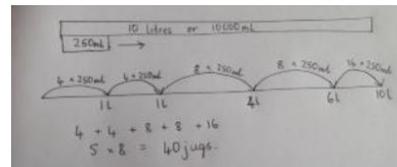
24 x25 could be done using the grid method, but could also be calculated by 24x100, halving to find x50 and halving again to find x 25.

or using doubling and halving,

$$24 \times 25 = 12 \times 50$$

$$= 6 \times 100$$

How many jugs with a capacity of 250ml could you fill with 10litres of water?



([OVERCOMING BARRIERS](#) Level 4 to Level 5 typical questions)

Work out $575 \div 25$, explaining your method.

Peter says that, if you want to divide a number by 12, you can divide it by 4 then by 3. Is he right? Explain how you know. Work out $768 \div 12$ using Peter's method and using another method. Do you get the same answer?

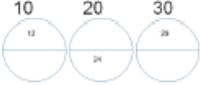
How many 35p packets of stickers can I buy with £5? Explain how you know.

Coaches have 56 seats for passengers. How many coaches are needed to take 275 people on a trip?

Complete this calculation: $943 \div 41 = 2 \square$

Work out whether or not 29 is a factor of 811.

National Curriculum Statement	Fluency	Reasoning	Problem Solving																																																																																																																									
<p>Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.</p>	<ul style="list-style-type: none"> How can we describe 580500? It has __ hundred thousands. It has __ ten thousands. It has __ hundreds. It is made of 580000 and ____ together. Say 358923 aloud, can you write this number in words? Order the following numbers in ascending order: 362354, 362000, 362453, 359999, 363010 	<ul style="list-style-type: none"> Hannah says, 'Using the digits 0-9 I can make any number up to 1000000' Is she correct? Convince me. Oscar says the number 345050 is three hundred and forty five thousand and five. Can you explain why he is wrong? Simon says he can order the following numbers by only looking at the first three digits. Is he correct? Explain your answer. 125161, 128324, 126743, 125382, 127942 	<ul style="list-style-type: none"> Using the digits 0-9 make the largest number possible and the smallest possible. How do you know these are the largest and smallest numbers? Harriet has made five numbers, using the digits 1, 2, 3 and 4. She has changed each number into a letter and has written three clues to help people work out her numbers. <i>'Number 1 is the largest. Number 4's digits add up to 12. Number 3 is the smallest number.'</i> <ol style="list-style-type: none"> aabdc acdbc dcaba cdadc bdaab 																																																																																																																									
<p>Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.</p>	<ul style="list-style-type: none"> Finish the sequence: 1000, 2000, 3000, _____ _____ 340, _____, _____ 11800, 11900, _____, _____ Fill in the missing numbers: <table border="1"> <tr><td>4523</td><td></td><td></td><td></td></tr> <tr><td>9000</td><td></td><td></td><td>6000</td></tr> <tr><td>13,490</td><td>12,490</td><td></td><td></td></tr> <tr><td>102,342</td><td></td><td>100,342</td><td></td></tr> </table> Spot the error: 289636, 299636, 300636, 301636, 302636 	4523				9000			6000	13,490	12,490			102,342		100,342		<ul style="list-style-type: none"> Can you spot the mistake? 18700, 18800, 18900, 19100 Correct the mistake and explain your working. True or False? When I count in 10's I will say the number 12300. What are the next three number sentences in the sequence? 345000-1000= 344000 344000-1000=343000 343000-1000=342000 Could you use the same numbers to write different number sentences? 	<ul style="list-style-type: none"> Temperature falls by about 1°C for every 100 metres height gain. Abigail is standing on top of a mountain at 900 metres above sea level. The temperature is -3°C. Abigail walks down the mountain to sea level. What should she expect the temperature to be? Can you count back in 30's to find the trail through the grid? <table border="1"> <tr><td>START</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>394,632</td><td>394,912</td><td>394,585</td><td>394,705</td><td>394,505</td><td>394,805</td><td>394,905</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>394,118</td><td>394,402</td><td>394,372</td><td>394,625</td><td>394,957</td><td>394,891</td><td>394,635</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>394,292</td><td>394,313</td><td>394,342</td><td>394,302</td><td>394,645</td><td>394,665</td><td>394,232</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>394,888</td><td>394,282</td><td>394,485</td><td>394,499</td><td>394,680</td><td>394,685</td><td>394,605</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>394,578</td><td>394,252</td><td>394,222</td><td>394,192</td><td>394,102</td><td>394,072</td><td>394,042</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>393,565</td><td>393,798</td><td>393,411</td><td>393,162</td><td>393,132</td><td>393,082</td><td>394,012</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>393,565</td><td>393,164</td><td>393,374</td><td>393,641</td><td>393,445</td><td>393,052</td><td>393,022</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td>FINISH</td></tr> </table> 	START							394,632	394,912	394,585	394,705	394,505	394,805	394,905								394,118	394,402	394,372	394,625	394,957	394,891	394,635								394,292	394,313	394,342	394,302	394,645	394,665	394,232								394,888	394,282	394,485	394,499	394,680	394,685	394,605								394,578	394,252	394,222	394,192	394,102	394,072	394,042								393,565	393,798	393,411	393,162	393,132	393,082	394,012								393,565	393,164	393,374	393,641	393,445	393,052	393,022							FINISH
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<p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.</p>	<ul style="list-style-type: none"> Find the missing numbers in the sequences: 5, 4, 3, 2, 1, 0, <u> </u>, -2, <u> </u> 8, 6, 4, 2, 0, <u> </u>, -4, <u> </u> Charlie recorded the temperature at 7am each morning in a table. Which was the warmest/ coldest day? What was the difference between the warmest and coldest day? Order the temperatures from coldest to warmest. <table border="1"> <thead> <tr> <th>Day</th> <th>Temp</th> </tr> </thead> <tbody> <tr> <td>Mon</td> <td>-1</td> </tr> <tr> <td>Tues</td> <td>2</td> </tr> <tr> <td>Wed</td> <td>0</td> </tr> <tr> <td>Thurs</td> <td>-3</td> </tr> <tr> <td>Fri</td> <td>-4</td> </tr> <tr> <td>Sat</td> <td>-2</td> </tr> <tr> <td>Sun</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Katie looked at the thermometer. She said '3 hours ago it was 5°C warmer.' What was the temperature earlier in the day? 	Day	Temp	Mon	-1	Tues	2	Wed	0	Thurs	-3	Fri	-4	Sat	-2	Sun	1	<ul style="list-style-type: none"> Anna is counting down from 11 in fives. Does she say -11? Explain your reasoning. Harris is finding the missing numbers in this sequence. <u> </u>, <u> </u>, 5, <u> </u>, <u> </u>, -5 He writes down: 15, 10, 5, 0, -0, -5 Explain the mistake Harris has made. Sam counted down in 3's until he reached -18. He started at 21. What was the tenth number he said? 	<ul style="list-style-type: none"> Fred is a police officer. He is chasing a suspect on Floor 5 of an office block. The suspect jumps into the lift and presses -1. Fred has to run down the stairs, how many flights must he run down?  Use the picture below to answer the following questions. Can they make up their own questions? What number should be where the light shines from the lighthouse? How far is it down from the (head of the) seagull to the (mouth of the) yellow fish? There's a little brown sea-horse to the right of the lighthouse support. How far from the surface is it? 
Day	Temp																		
Mon	-1																		
Tues	2																		
Wed	0																		
Thurs	-3																		
Fri	-4																		
Sat	-2																		
Sun	1																		
<p>Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000</p>	<ul style="list-style-type: none"> Round the following numbers to the nearest a) 10 b)100 c) 1000 4821, 69243, 2781 In 2013, there were 778803 births in the UK. What is this to the nearest 1000? Nearest 10000? Nearest 100000? In July 2015, the population of the UK was estimated to be 64881609. What is this rounded to the nearest million? 	<ul style="list-style-type: none"> A number rounded to the nearest 1000 is 54000. What is the largest possible number this could be? Round the number 259996 to the nearest 1000. Round it to the nearest 10000. What do you notice about the answers? Can you think of 3 more numbers where the same thing would happen? True or False? All numbers with a five in the tens column will round up when rounded to the nearest 100 and 1000. 	<ul style="list-style-type: none"> Nathan thinks of a number. He says 'My number rounded to the nearest 10 is 1150, rounded to the nearest 100 is 1200 and rounded to the nearest 1000 is 1000.' What could Nathan's number be? Roll five dice; make as many 5 digit numbers as you can from them. Round each number to the nearest 10, 100, 1000 and 10,000. From your numbers, how many round to the same 10, 100, 1000 or 10,000? In pairs, take it in turns to roll (if rounding to 10) two 0-9 dice. Create a number from it and choose where it rounds to. Record on a sheet like below. When the circle is filled, whoever filled it, gets a point. 																

<p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p>	<ul style="list-style-type: none"> • Translate these Roman Numerals: 1. MD 2. MCD 3. CXVI 4. DCLX • Write the numbers in Roman Numerals: 1. 35 4. 283 2. 100 5. 570 3. 99 • Complete these calculations: 1. CD + DC= 2. VI + IV= 3. CX + XC 	<ul style="list-style-type: none"> • Count in hundreds and fill in the pattern: C, CC, __ __, D, __ __, __ __ • Explain what each letter means and write the translation below each letter. • Arrange the numbers in size order: XXXV, XL, XXX, LX, LV, L, XLV, LXV • Explain how you ordered the numbers. • Complete the calculations. Show how you translated the roman numerals and added them. 1. XI + IX= 2. XL + LX= 3. CM + MC= 	<ul style="list-style-type: none"> • What is the longest number between 1 and 1000 when depicted in Roman Numerals? • Find 2 words that are also numbers in Roman Numerals (one is very short). • Work out the year of your birth in Roman Numerals. Work out the current year in Roman Numerals. Can you find the difference?
<p>Add and subtract numbers mentally with increasingly large numbers.</p>	<ul style="list-style-type: none"> • Work out this missing numbers: ___ - 92 = 145 740 + ___ = 1039 ___ = 580 - 401 • Peter bought boxes of crisps when they were on offer. After 12 weeks, his family had eaten 513 packets and there were 714 left. How many did he buy? • Children follow a series of instructions to find a mystery number. Eg Start with 100. Add 5000. Take away 400. Add 20. Subtract 750. What number have you got? 	<ul style="list-style-type: none"> • Rachel has £10. She spends £6.49 at the shop. Would you use columnar subtraction to work out the answer? Explain why. • True or False? Are these number sentences true or false? $8.7 + 0.4 = 8.11$ $6.1 - 0.9 = 5.2$ Give your reasons. • Which of the following questions are easy and which ones are hard? $213323 - 10 =$ $512893 + 300 =$ $819354 - 200 =$ $319954 + 100 =$ Explain why you think the hard questions are hard. 	<ul style="list-style-type: none"> • If 2541 is the answer, what's the question? - Can you create three addition calculations? - Can you create three subtraction calculations? - Did you use a strategy? • Using 0-9 dice roll 3 at the same time to create a number. Your partner needs to do the same. - Who can add them together correctly first? - Who can subtract the smallest from the largest correctly first? Use a calculator to check. • Kangchenjunga is the third highest mountain in the world at 28,169 feet above sea level. Lhotse is the fourth highest at 27,960 feet above sea level. Find the difference in heights mentally.

<p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p>	<ul style="list-style-type: none"> Calculate: $1638 + 2517$ $4023 - 2918$ Julie has 1578 stamps, Heidi has 2456 stamps. How many stamps do they have altogether? Show how you can check your answer using the inverse. Adam earns £37,566 pounds a year. His wife, Sarah, earns £22,819 a year. How much do they earn altogether? They have to pay £7887 income tax per year, how much are they left with after this is taken off? 	<ul style="list-style-type: none"> There are mistakes in the following calculations. Explain the mistake and then make a correction to find the correct answer. $\begin{array}{r} 2451 \\ +562 \\ \hline 8071 \end{array}$ $\begin{array}{r} 782 \\ -435 \\ \hline 353 \end{array}$ $\square + 3475 = 6\square24$ What numbers go in the boxes? What different answers are there? Convince me. A five digit number and a four digit number have a difference of 4365. Give me three possible pairs of numbers. 	<ul style="list-style-type: none"> Find the missing numbers in these calculations. $\begin{array}{r} 34\square1\square \\ - \square482 \\ \hline 292\square4 \end{array}$ $\begin{array}{r} 6\square02\square \\ + \square5\square51 \\ \hline \square9180 \end{array}$ My answer is 5398, what's the question? - Create of 3 addition calculations. - Create 3 subtraction questions. - Did you use a strategy? Explain it.
<p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p>	<ul style="list-style-type: none"> A car showroom reduces the price of a car from £18750 to £14999. By how much was the price of the car reduced? Circle the most sensible answer: $£3249$, $£4001$, $£3751$ A games console costs £245. Mike pays for this in 5 equal payments. To the nearest ten pounds, how much does he pay per payment? A coach holds 78 people. 960 fans are going to a gig on the coaches. How many coaches are needed to transport the fans? 	<ul style="list-style-type: none"> Which of these number sentences have an answer that is between 0.6 and 0.7? $11.48 - 10.86 =$ $53.3 - 52.75 =$ Always, sometimes, never When you add up four even numbers, the answer is divisible by four. Martin is measuring his room for a new carpet. It has a width of 2.3m and a length of 5.1m. He rounds his measurements to the nearest metre. Will he have the right amount of carpet? Explain your reasoning. 	<ul style="list-style-type: none"> True or false. $4999 - 1999 = 5000 - 2000$ Explain how you know using a written method. There are 1231 people on an aeroplane. 378 people have not ordered an inflight meal. How many people have ordered the inflight meal? Give your answer to the nearest hundred. The inflight meal costs £1.99 per person. The cabin crew have collected £1100 pounds so far. How much more money do they need to collect? Round your answer to the nearest pound.

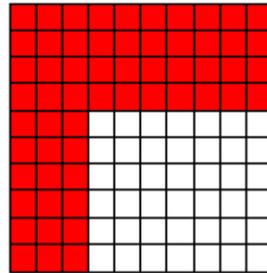
<p>Multiply and divide numbers mentally drawing upon known facts.</p>	<ul style="list-style-type: none"> • $8 \times 6 = 48$. Use this to help you find the answers to the number sentences: $48 \div 6 =$ $6 \times 80 =$ • Write down five multiplication and division facts that use the number 48. • If I know $8 \times 36 = 288$, I also know $8 \times 12 \times 3 = 288$ and $8 \times 6 \times 6 = 288$. If you know $9 \times 24 = 216$, what else do you know? 	<ul style="list-style-type: none"> • How can you use 10×7 to help you find the 9th multiple of 7? • Find the answer: $2 \times 11 =$ $4 \times 11 =$ $2 \times 12 =$ $4 \times 12 =$ $2 \times 13 =$ $4 \times 13 =$ <p>What is the connection between the results for the two times table and the four times table?</p> <p>If $2 \times 144 = 288$, what is 4 times 144?</p> <ul style="list-style-type: none"> • To multiply a number by 25 you multiply by 100 and then divide by 4. Use this strategy to solve. 84×25 28×25 5.6×25 	<ul style="list-style-type: none"> • 40 cupcakes cost £3.60, how much do 20 cupcakes cost? How much do 80 cupcakes cost? How much do 10 cupcakes cost? • If $8 \times 24 = 192$, how many other pairs of numbers can you write that have the product of 192? • 10 times a number is 4350, what is 9 times the same number? Explain your working.
<p>Multiply and divide whole numbers by 10, 100 and 1000.</p>	<ul style="list-style-type: none"> • Solve: $345 \times 10 =$ $345 \times 100 =$ • Fill the gaps: $3790 \times \square = 379000$ $3790 \div \square = 379$ $\square \times 1000 = 497200$ • Harry has £20, he wants to save 10 times this amount. How much more does he need to save? 	<ul style="list-style-type: none"> • Claire says 'When you multiply a number by 10 you just add a nought and when you multiply by 100 you add two noughts.' Do you agree? Explain your answer. • Apples weigh about 160g each. How many apples would you expect to get in a 2kg bag? Explain your reasoning. • $6 \times 7 = 42$ <p>How can you use this fact to solve the following calculations? $4200 \div 70 =$ $0.6 \times 0.7 =$</p>	<ul style="list-style-type: none"> • Here are the answers to the questions. Can you write three different questions that could make these numbers by multiplying and dividing by 10, 100 or 1000? 5890, 40, 67000, 2000 • David has £35700 in his bank. He divides the amount by 100 and takes that much money out of the bank. Using the money he has taken out he spends £268 on furniture for his new house. How much money does David have left from the money he took out? Show your working.

<p>Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers.</p>	<ul style="list-style-type: none"> Solve the calculations: <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td> </td><td>3</td><td>4</td><td>6</td></tr> <tr><td>x</td><td> </td><td>2</td><td>7</td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td> </td><td>4</td><td>9</td><td>2</td><td>3</td></tr> <tr><td>x</td><td> </td><td>3</td><td>1</td><td>4</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> Calculate: 5612×4 654×34 Mo Farah runs 135 miles a week. How far does he run each year? 		3	4	6	x		2	7						4	9	2	3	x		3	1	4						<ul style="list-style-type: none"> Spot the mistake and make a correction. $\begin{array}{r} 527 \\ \times 42 \\ \hline 10540 \\ \underline{2018} \\ 12648 \end{array}$ Laura thinks that a 4 should be placed in the empty box. Do you agree? <table border="1" style="margin-left: 40px;"> <tr><td> </td><td>4</td><td>7</td><td> </td></tr> <tr><td>x</td><td> </td><td>2</td><td>3</td></tr> <tr><td> </td><td>1</td><td>0</td><td>9</td><td>0</td><td>2</td></tr> </table> What goes in the missing box? $12 \square 2 \div 6 = 212$ $14 \square 4 \div 7 = 212$ <p>Prove your answer.</p> 		4	7		x		2	3		1	0	9	0	2	<ul style="list-style-type: none"> Using the digits 1, 2, 3 and 4 in any order in the bottom row of the number pyramid, how many different totals can you make? What is the smallest/ largest total?  Find the missing digits: <table border="1" style="margin-left: 40px;"> <tr><td> </td><td>5</td><td>2</td><td> </td></tr> <tr><td>x</td><td> </td><td> </td><td>7</td></tr> <tr><td>1</td><td>5</td><td>3</td><td>0</td></tr> <tr><td> </td><td>3</td><td>6</td><td>4</td><td>7</td></tr> <tr><td>1</td><td> </td><td>2</td><td>7</td><td>7</td></tr> </table> Start with 0; choose a path through the maze. Which path has the highest/ lowest total? <table border="1" style="margin-left: 40px;"> <tr><td>S</td><td>+6</td><td>X5</td><td>X2</td><td>-4</td></tr> <tr><td>+7</td><td>X8</td><td>+9</td><td>X7</td><td>X6</td></tr> <tr><td>X6</td><td>+3</td><td>X4</td><td>+9</td><td>E</td></tr> </table> 		5	2		x			7	1	5	3	0		3	6	4	7	1		2	7	7	S	+6	X5	X2	-4	+7	X8	+9	X7	X6	X6	+3	X4	+9	E
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<p>Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context.</p>	<ul style="list-style-type: none"> Calculate $68 \div 4 =$ $1248 \div 3 =$ Find the missing numbers: $\square \times 5 = 475$ $3 \times \square = 726$ 194 pupils are going on a school trip. One adult is needed for every 9 pupils. How many adults are needed? 	<ul style="list-style-type: none"> What number goes in the box? $323 \times \square 1 = 13243$ Prove it. Correct the errors in the calculation below. Explain the error. $266 \div 5 = 73.1$ <table border="1" style="margin-left: 40px;"> <tr><td> </td><td>7</td><td>3</td><td>r1</td></tr> <tr><td>5</td><td> </td><td>2</td><td>36</td><td>16</td></tr> </table> Andrew says that the answer to 166 divided by 4 can be written as '46 remainder 2' or as '46.5'. Do you agree? Explain your reasoning. 		7	3	r1	5		2	36	16	<ul style="list-style-type: none"> The answer to the division has no remainders. Find the missing numbers. <table border="1" style="margin-left: 40px;"> <tr><td> </td><td>8</td><td> </td><td>2</td></tr> <tr><td>7</td><td>5</td><td>8</td><td>9</td><td> </td></tr> </table> I am thinking of a number. When it is divided by 9, the remainder is 3. When it is divided by 2, the remainder is 1. When it is divided by 5, the remainder is 4. What is my number? When 59 is divided by 5, the remainder is 4 When 59 is divided by 4, the remainder is 3 When 59 is divided by 3, the remainder is 2 When 59 is divided by 2, the remainder is 1 Can you find the smallest number with the property that when it is divided by each of the numbers 2 to 10, the remainder is always one less than the number it is has been divided by? 		8		2	7	5	8	9																																																													
	7	3	r1																																																																														
5		2	36	16																																																																													
	8		2																																																																														
7	5	8	9																																																																														

<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p>	<p>Write down:</p> <ul style="list-style-type: none"> The first 5 multiples of 8. All the factors of 20. Find a common factor of 36 and 12. 	<ul style="list-style-type: none"> Rob and James are talking about multiples and factors. Rob says '0 is a multiple of every whole number.' James says '0 is a factor of every whole number.' Who is correct? Explain why 6 is a common factor of 18 and 24. Tom says 'Factors come in pairs, so all numbers have an even number of factors.' Do you agree? Explain your reasoning. 	<ul style="list-style-type: none"> Polly is planting potatoes in her garden. She has 24 potatoes to plant and she will arrange them in a rectangular array. List all the different ways that Polly can plant her potatoes. Sally is thinking of a number. She says 'My number is a multiple of 3. It is also 3 less than a multiple of 4.' Find three different numbers that could be Sally's number. Clare's age is a multiple of 7 and 3 less than a multiple of 8. How old is Clare? 																								
<p>Recognise and use square numbers and cube numbers</p>	<ul style="list-style-type: none"> Work out: $6^2 =$ $3^3 =$ 4 squared = 8 cubed = Fill in the missing answers from the grid below: <table border="1"> <tbody> <tr> <td>4^2</td> <td>4 x 4 x 4</td> <td>64</td> </tr> <tr> <td>7^2</td> <td>7 x 7</td> <td></td> </tr> <tr> <td>2^7</td> <td>2 x 2 x 2 x 2 x 2 x 2</td> <td></td> </tr> <tr> <td>5^3</td> <td></td> <td></td> </tr> <tr> <td>3^3</td> <td></td> <td></td> </tr> <tr> <td></td> <td>4 x 4 x 4 x 4</td> <td></td> </tr> <tr> <td></td> <td></td> <td>8</td> </tr> <tr> <td>6^3</td> <td></td> <td></td> </tr> </tbody> </table>	4^2	4 x 4 x 4	64	7^2	7 x 7		2^7	2 x 2 x 2 x 2 x 2 x 2		5^3			3^3				4 x 4 x 4 x 4				8	6^3			<ul style="list-style-type: none"> Julian thinks that 4^4 is 16. Do you agree? Convince me. Always, Sometimes, Never. A square number has an even number of factors. Always, Sometimes, Never. Square and Cubed numbers are always positive. 	<ul style="list-style-type: none"> Last year my age was a square number. Next year it will be a cube number. How old am I? How long must I wait until my age is both a square number and a cube? The answer to a cubed number is 216. What's the root number?
4^2	4 x 4 x 4	64																									
7^2	7 x 7																										
2^7	2 x 2 x 2 x 2 x 2 x 2																										
5^3																											
3^3																											
	4 x 4 x 4 x 4																										
		8																									
6^3																											

Read, write, order and compare numbers with up to three decimal places.

- Write the decimal number that is illustrated below:



- Write five and ninety-one tenths as a decimal number.
- Insert < or > to make the statement below true.

$$0.06 \square 0.006$$

- Prove that 8.9 is smaller than 9.8
- What number is halfway between 2.7 and 3.4? Explain how you worked it out.
- Which of the following is false?
 - $1.009 < 1.09$
 - $1.249 > 1.25$
 - $1.35 > 1.053$
- Convince me!
- Which of these numbers is closest in value to 0.2?

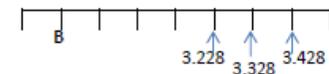
- 0.02
- 0.15
- 0.22
- 0.3
- 0.19

Explain why.

- Put a digit in each box so that the numbers are in order from smallest to largest.

6.1
.02
 6.2
 6. 2
 6. 2

- Here are two number lines.



Find the difference between the letters A and B.

- 2 numbers have the difference of 1.427 and one of the numbers is 3.665. What is the other number? Are these the only possible numbers?

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

- What does the 3 represent in 14.253?
- Put the following numbers in ascending order:

six thousandths

0.5

$$\frac{7}{1000}$$

1 tenth

- Fill in the missing box:

$$2.645 =$$

$$2 + 0.6 + 0.04 + \square$$

- Sophie thinks 1.007 is bigger than 1.01 because 7 is bigger than 1. Do you agree? Explain why.

$$1.007 > 1.01$$

- Convince me that $\frac{1}{8}$ is bigger than $\frac{1}{80}$

- Use all five cards below:



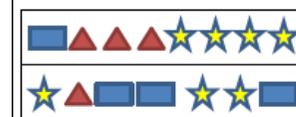
What is the smallest number you can make?
 What is the largest number you can make?
 How many numbers can you make that are less than 0.5?

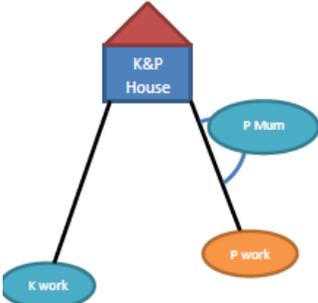
- In this problem decimal numbers have been replaced with symbols. What is the value in each box if:

$$\frac{1}{10} = \star$$

$$\frac{1}{100} = \triangle$$

$$\frac{1}{1000} = \square$$



<p>Round decimals with two decimal places to the nearest whole number and to one decimal place.</p>	<ul style="list-style-type: none"> Fill in the boxes: 18.5 rounded to <input type="text"/> is 19 12.34 rounded to the nearest whole number is <input type="text"/> <input type="text"/> rounded to the nearest tenth is 14.4 Round each of these to the nearest tenth: 4.38 2.72 10.04 The sales for a supermarket increased by 82.78% during December. Round this to the nearest tenth. 	<ul style="list-style-type: none"> Simon is measuring a box of chocolates with a ruler that measures in centimetres and millimetres.  He measures it to the nearest cm and writes the answer 28cm. What is the smallest length the box of chocolates could be? A decimal number between 11 and 20 rounds to the same number when rounded to the nearest tenth and the nearest whole number? What could this be? Is there more than one option? Explain why. 	<ul style="list-style-type: none"> Rounded to the nearest 0.1, A is 3.5 and B is 3.0. What is the smallest possible difference between A and B? What is the largest possible difference? Explain your strategy to a partner. Use 3 10-sided dice (0-9) to create a decimal number to 2 decimal places.  Round this number to the nearest tenth. Are there any other decimal numbers you can make from these 3 digits? Do they round to the same tenth? What 3 numbers could you roll where more than 1 of the numbers would round to the same tenth? Why does this work? What number with two or three decimal places round to 3.0 when rounded to the nearest tenth? Is the only option? 								
<p>Solve problems involving number up to three decimal places.</p>	<ul style="list-style-type: none"> Barney jumped 3.842 metres in a long jump competition. Sophie jumped 1.319 metres further. How far did Sophie jump? Caroline took £20 to the shop. She spent £8.64. How much change did she have? Naomi and her friends completed a 30 mile walk for charity over 3 days. On the first day, they walked 12.87 miles, on the second day they walked 16.55 miles. How many miles did they walk on the final day? 	<ul style="list-style-type: none"> If $3.985 - 1.999 = 1.986$ Explain why these are true or false. $2.985 - 0.999 = 0.986$ $4.985 - 0.999 = 1.986$ $3.885 + 2.099 = 5.986$ Explain how to use the column method to work out whole numbers subtract decimal numbers e.g. $7 - 2.89 =$ Charges for a bag of sweets are 3p per sweet and 15p for a bag. If I spent £3.75 on a bag of sweets, how many sweets did I buy? Explain your strategy to a partner. Did they use the same strategy? Which is easier? 	<ul style="list-style-type: none"> Kevin and Peter leave for work from the same house each day. Kevin travels 11.36 miles to get to work and Peter travels 10.29 miles every morning except Monday and Friday when he goes to his mum's house on his way. This adds an extra 3.4 miles to his journey. Who travels the most in a week?  Use these digit cards to make the smallest and largest decimal number possible. Find the difference between them. e.g. $3.408 - 1.596 =$ <table border="1"> <tr> <td>1</td> <td>0</td> <td>5</td> <td>3</td> <td>4</td> <td>9</td> <td>6</td> <td>8</td> </tr> </table> 	1	0	5	3	4	9	6	8
1	0	5	3	4	9	6	8				

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

- Complete the grid:

	$\times 100$	$\div 1000$	$\times 10$
365			
2669			
12			

- Fill in the boxes:

$\times 100 = 38$

56 $= 5.6$

$0.8 \times 1000 =$

- Some facts have been cut up. Work with a partner to put them back together.
e.g. $74 \div 10 = 7.4$

100 31

3100 $\div 1000$ $\times 100$

$\div 100$ $= 0.031$

31 $= 1$

- True or false?**
When you multiply whole and decimal numbers by 10, 100 or 1000, you just add noughts on to the end.

- If $5 \times 4 = 20$

Explain why these facts are true without working them out:

$0.5 \times 4 = 2$

$200 \div 4 = 50$

$0.4 \times 0.5 = 0.2$

- Put these calculations in order from smallest to biggest:

100 x 540

5.4 x 1000

5400 ÷ 10

5400 ÷ 1000

540 ÷ 10

- Using a number from column A, an operation from B and a number from C, how many ways can you find to make 70? (There are more than 4 ways!)

A	B	C
7	\times	1
70		10
700	\div	100
7000		1000

Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.

- What is special about these numbers?

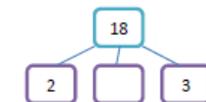
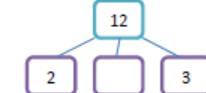
7 17 37 47

- Put these numbers into 2 groups. Label the groups.

11 10 21 31

9 13 47 35

- Find the missing prime factors.



- Explain why 1 isn't a prime number.

- Katie says,

All prime numbers have to be odd.

Do you agree? Convince me.

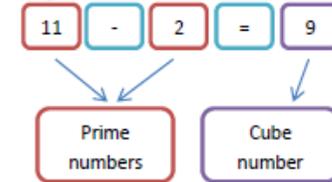
Her friend, Abdul, says,

That means 9, 27 and 45 are prime numbers.

Explain Abdul's mistake and correct it.

- Always, sometimes, never
When you add 2 prime numbers together the answer will be even.

- How many cube numbers can you make by either adding two prime numbers together or by subtracting one prime number from another e.g.



- Investigate how many prime numbers are between 2 consecutive multiples of 10. Include 0 and 10. Is there a pattern?

Establish whether a number up to 100 is a prime number and recall prime numbers to 19

- Fill in the missing prime numbers

2	3		7	9	
---	---	--	---	---	--

19		13		9	7
----	--	----	--	---	---

- Find all the prime numbers between 60 and 80.
- What is the 16th prime number?

- Fill in the missing numbers so that the calculation creates a prime number.

$$19 - \square = \square$$

Is this the only option?

Andy says,

I subtracted an odd number to find a prime number.

Is this possible? How many ways could he have done this?

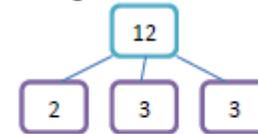
Explain your answer.

- What number am I?
I am a prime number. I am a 2 digit number.
Both my digits are the same.

Explain why there is only one option.

- On a set of flashcards, write a different number on each. Ask a partner to do the same. Shuffle them and take half each. Take turns to turn them over. Say either 'prime' or 'not prime' when a number is turned over. Whoever ends with the most cards, wins.

- Prime factors are the prime numbers that multiply together to make a number e.g.



Is it possible to make every number by multiplying prime numbers together?