

# YEAR 6

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Addition	Subtraction	Multiplication	Division
<p>Promote decision making so that pupils choose an appropriate method/strategy</p> <p>Continue the use of informal methods and number lines.</p> <p>Ensure understanding of standard written method.</p> <p>Continue ThHTU + ThHTU then calculations with any number of digits.</p> <p>Approximate using the most significant digits and a feel for the 'whole' number.</p> <p>Appropriate teaching/use of the calculator including</p>	<p>ThHTU – ThHTU then any number of digits.</p> <p>Appropriate use of a calculator including interpretation of displays.</p> <p>Money, measures and real life contexts.</p> $6467 - 2684$ $\begin{array}{r} 5\ 13\ 1 \\ \cancel{6}467 \\ - 2684 \\ \hline 3783 \end{array}$ $136 - 28 = 108$ $\begin{array}{r} 2\ 1 \\ 1\cancel{3}.6 \\ - 2.8 \\ \hline 10.8 \end{array}$	<p>ThHTU x TU and HTU x TU and including decimals.</p> <p>TU x TU</p> $\begin{array}{r} 78 \\ \times 42 \\ \hline 16\ (2 \times 8) \\ 140\ (2 \times 70) \\ 320\ (40 \times 8) \\ \hline +2800\ (40 \times 70) \\ \hline 3276 \end{array}$ <p>Compact (long)</p> $\begin{array}{r} 78 \\ \times 42 \\ \hline 156 \\ +3120 \\ \hline 3276 \end{array}$ <p>Involve decimals, money and measures through approximation and appropriate use of the calculator.</p> <p>Addition either mentally or by column addition.</p> <p>Decimals. Teach children how to use known facts to build new facts according to the place value required, e.g.</p> $3 \times 4 = 12$ $3 \times 0.4 = 1.2$ $3 \times 0.04 = 0.12$	<p>Know all multiplication facts and corresponding division facts to 12 x 12 and beyond and be able to apply them.</p> <p>Explain the effect of dividing by 1000.</p> <p>Extend methods to include Th HTU by TU.</p> <p>Continue to use the short division method when the two digit divisor is up to 12 or is a easily recognisable multiple eg 20, 25 or 50.</p> <p>Use a calculator appropriately, approximating first.</p> <p>Use of calculator for interpreting the quotient by entering a fraction to find the decimal equivalent.</p> <p>Use long division only with pupils who are secure with number sense and place value.</p> $384 \div 16$ <p>"What do I know about the divisor?"</p> <p>Record partial tables.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Long division (thinking not generally recorded)</p> <math display="block">\begin{array}{r} \underline{24} \\ 16 \ ) \ 3864 \end{array}</math> <p style="margin-left: 100px;"><i>(38 ÷ 16 = 2 r 6; 2 × 16 = 32)</i></p> <math display="block">\begin{array}{r} \underline{32} \downarrow \\ 64 \end{array}</math> <p style="margin-left: 100px;"><i>(16 into 64 = 4; 4 × 16 = 64)</i></p> <math display="block">\begin{array}{r} \underline{64} \\ 0 \end{array}</math> <p style="margin-left: 100px;"><i>(no remainder)</i></p> </div>

interpreting the display, e.g. money or measures.

Calculator display 0.37 is then interpreted as 37p in the context of money. Remind 4p = 0.04  
 Calculator display £1.4 is interpreted as £1.40

$$\begin{array}{r} 7648 \\ + 1486 \\ \hline 9134 \\ 111 \end{array}$$

Decimal points are fixed on the line with digits in the squares.

Decimals, fill 'empty columns' with zeros.

$$\begin{array}{r} 1249 + 725 \\ 12490 \\ + 725 \\ \hline 13215 \\ 11 \end{array}$$

$$\begin{array}{r} \phantom{0}^3 \phantom{0}^5 \phantom{0}^1 \\ 14.\cancel{6}0 \\ - 2.76 \\ \hline 11.84 \end{array}$$

$$3249 - 725$$

$$\begin{array}{r} 1181 \\ \cancel{324}.\cancel{9}0 \\ - 725 \\ \hline 31765 \end{array}$$

$$0.75 \times 6$$

$$0.7 \times 6 = 4.2$$

$$0.05 \times 6 = 0.3$$

$$0.75 \times 6 = 4.5$$

Grid method based upon very secure place value.

x	0.7	0.05
6		

Move on to more complex calculations when secure

$$\text{e.g. } 26 \times 0.75 = 19.5$$

$$26.00$$

$$\times 0.75$$

$$14.00 \text{ (} 20 \times 0.7 \text{)}$$

$$1.00 \text{ (} 20 \times 0.05 \text{)}$$

$$4.20 \text{ (} 6 \times 0.7 \text{)}$$

$$\underline{0.30} \text{ (} 6 \times 0.05 \text{)}$$

$$19.50$$

Mike works out that  $14 \times 12 = 168$ . What is  $14 \times 1.2$ ? How do you know?

Use a written method to calculate  $24 \times 13$ . What do you need to change to show a similar method to work out  $2.4 \times 13$ ?

Use a written method to find the area of a swimming pool which is 25 m long and 7.5 m wide.

Continue to make use of partitioning and the number line for repeated addition where appropriate.

$$944 \div 22 =$$

What do I know about the divisor?

Express the remainder as a fraction or decimal.

Overcoming Barriers L4/5

Division giving a decimal answer, e.g. Divide 9 by 5 giving your answer as a decimal.

Missing number calculations, e.g.

$$\square \div 8 = 0.04;$$

$$0.6 \times \square = 4.2$$

		<p>Complete the missing sections to work out <math>35 \times 2.1</math> :</p> <table border="1"> <tr> <td>X</td> <td><input type="text"/></td> <td>0.1</td> </tr> <tr> <td>30</td> <td>60</td> <td><input type="text"/></td> </tr> <tr> <td>5</td> <td><input type="text"/></td> <td>0.5</td> </tr> </table> <p>Which is closer to 100: <math>5.2 \times 17</math> or <math>7.2 \times 15</math>? Use written methods to prove your answer.</p>	X	<input type="text"/>	0.1	30	60	<input type="text"/>	5	<input type="text"/>	0.5																										
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<p><b>National Curriculum Statement</b></p>	<p><b>Fluency</b></p>	<p><b>Reasoning</b></p>	<p><b>Problem Solving</b></p>																																		
<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</p>	<ul style="list-style-type: none"> <li>Which is greater? Seventy six thousand, eight hundred and twenty six or 78626</li> <li>Write the following number in words: 23650118</li> <li>Put a number in the missing space below to make the sentence correct. <math>4\_236460 &gt; 46236460</math></li> </ul>	<ul style="list-style-type: none"> <li>Put a number in the missing space below to make the sentence correct. <math>4\_236460 &gt; 46236460</math> Explain why it is true.</li> <li><b>Do, then explain</b> Show the value of the digit 6 in these numbers? 6787555 95467754 Explain how you know.</li> <li>Put one number in each box so that the list of numbers is ordered largest to smallest.</li> </ul> <table border="1"> <tr> <td>1</td> <td>1</td> <td></td> <td>3</td> <td></td> </tr> <tr> <td>1</td> <td></td> <td>2</td> <td></td> <td>4</td> </tr> <tr> <td>1</td> <td>2</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td>5</td> <td></td> <td>6</td> </tr> <tr> <td>1</td> <td>3</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td>1</td> <td>5</td> <td></td> </tr> </table>	1	1		3		1		2		4	1	2	5			1		5		6	1	3	0			1		1	5		<ul style="list-style-type: none"> <li><b>Do, then explain</b> Find out the populations in five countries. Order the populations starting with the largest. Explain how you ordered the countries and their populations.</li> <li>Miss Jones, the teacher has four cards. On each card is a number:  <table border="1"> <tr> <td>42350</td> <td>43685</td> </tr> <tr> <td>56995</td> <td>56943</td> </tr> </table> <p>She gives one card to each pupil. They each look at them and say a clue. Alfie says, "My number is 57000 when rounded to the nearest 10." Ben says "My number has exactly 3 hundreds in it." Caleb says "My number is 44000 when rounded to the nearest thousand". Patrick says "My number is exactly 100 less than 57043." Can you solve who had which card and explain how you know this?</p> </li> <li>Claire is given the calculation below to estimate an answer to <math>1912 + 1888 =</math> Claire says "I will just double 1900 which is 3800". Why has Claire done that? Would you do anything differently?</li> </ul>	42350	43685	56995	56943
1	1		3																																		
1		2		4																																	
1	2	5																																			
1		5		6																																	
1	3	0																																			
1		1	5																																		
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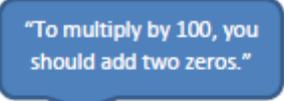
<p>Round any whole number to a required degree of accuracy.</p>	<ul style="list-style-type: none"> <li>Round the following number to the nearest tenth: 0.286</li> <li>Work out the missing number. 362.29 rounded to nearest _____ is 362</li> <li>A number rounded to the nearest 100 is 600. What is the smallest possible number it could be?</li> </ul>	<ul style="list-style-type: none"> <li>Tim says "If I round 26.63 to the nearest 10, I do not need to look at the tenths or hundredths." Do you agree? Explain your reasoning.</li> <li>Give an example of a six digit number which rounds to the same number when rounded to the nearest 10000 and 100000. Explain why this has happened.</li> <li><b>Spot the mistake!</b> Calvin rounded 215678 to the nearest ten thousand and wrote 220678. Can you explain to Calvin what mistake he has made and why he has done it?</li> </ul>	<ul style="list-style-type: none"> <li>Two numbers each with two decimal places round to 41.3 to one decimal place. The total of the numbers is 82.6. What could the numbers be? How many different ways can you find?</li> <li>Mr Langfield gives out the following four cards: <table border="1"> <tbody> <tr> <td>59.96</td> <td>59.94</td> </tr> <tr> <td>60.26</td> <td>62.32</td> </tr> </tbody> </table> <p>Four children each take a card and give a clue to what their number is:  Alice says "My number is 60 when rounded to the nearest 10."  Beth says "My number has exactly 6 tens in it."  Charlie says "My number is 59.9 to the nearest tenth."  Daniel says "My number is 60 to the nearest tenth."  Can you work out which child has which card? Explain your choices.</p> </li> <li>Two numbers when added together make 100 but when rounded one number rounds to 0 and the other rounds to 100. How many different combinations of numbers can you find?</li> </ul>	59.96	59.94	60.26	62.32																						
59.96	59.94																												
60.26	62.32																												
<p>Use negative numbers in context, and calculate intervals across zero.</p>	<ul style="list-style-type: none"> <li>Fill in the missing numbers. 152, 102, 52, 2, ____, ____</li> <li>Filip had £17.50 in bank account. He paid for a jumper that was £30. How much did he have in his bank account after?</li> <li>In a Science experiment, a class videoed a thermometer overnight. At 02:30 it read <math>-12^{\circ}\text{C}</math> and it was <math>15^{\circ}\text{C}</math> at 13:00. What was the difference in temperatures?</li> </ul>	<ul style="list-style-type: none"> <li><b>Spot the mistake:</b> <math>-75, -15, 35, 105</math> What is wrong with this sequence of numbers?</li> <li><b>True or false?</b> When I count backwards in 50s from 10 I will say <math>-150</math>. Explain how you know.</li> <li>A company decided to build offices underground as well as over ground. The manager says "If we build from 100 down to <math>-100</math> then we will have 200 floors." Was he right? Convince me.</li> </ul>	<ul style="list-style-type: none"> <li>The temperature is <math>-6^{\circ}\text{C}</math>. It gets 5 degrees warmer. True or false – it is now <math>-11^{\circ}\text{C}</math>. Explain your answer using a drawing e.g. number line.</li> <li>Here are some number cards: <table border="1"> <tbody> <tr> <td>3</td> <td>-8</td> <td>-6</td> </tr> <tr> <td>-4</td> <td>2</td> <td>-7</td> </tr> </tbody> </table> <p>Use the cards to complete the calculations below.  ____ + ____ = ____  ____ - ____ = ____</p> </li> <li><b>Connect 3</b> The first to complete a row of three is the winner. Each time a player rolls they then choose if they would like to add or subtract the numbers either way round:  ____ +/- ____ =</li> </ul> <table border="1"> <tbody> <tr> <td></td> <td>-5</td> <td>-4</td> <td>-3</td> <td>-2</td> </tr> <tr> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td></td> </tr> </tbody> </table>	3	-8	-6	-4	2	-7		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	
3	-8	-6																											
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	-5	-4	-3	-2																									
-1	0	1	2	3																									
4	5	6	7	8																									
9	10	11	12																										

<p>Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</p>	<ul style="list-style-type: none"> <li>Work out the missing number:  <math>3210 + 2564 = 9836 - \underline{\quad}</math>  <math>2678 + \underline{\quad} = 9305 - 3789</math></li> <li>The council planted 1500 new flowers on Monday. On Tuesday they doubled what they had planted the day before and on Wednesday they planted half of what they planted on Monday. How many flowers were planted altogether?</li> <li>7208 females attended a concert as well as 8963 males. There were originally 20000 seats on sale. How many empty seats were there at the concert?</li> </ul>	<ul style="list-style-type: none"> <li>Abdul says "If I add any two 4 digit numbers together is will make a 5 digit number." Do you agree? Explain why.</li> <li>Katie was given the calculation below  <math>47326 - 1900 =</math>            She said "I will just take off 2000 then subtract another 100 so my answer is 45126." Is she correct? Would you use her method? Explain your answer.</li> <li>Nancy is using the inverse operation to solve calculations. She is completing the calculation below:  <math>\underline{\quad} - 3291 = 5382</math>            She says "I can turn the calculation around to get the correct answer."            She does the following:  <math>5382 - 3291 =</math>            Is she correct? Why?</li> </ul>	<ul style="list-style-type: none"> <li>Three pandas are eating bamboo sticks. There are 51 altogether. They all eat an odd number of sticks. How many bamboo sticks did they each eat? How many different ways can you do it?</li> </ul>  <ul style="list-style-type: none"> <li>10 people from different countries meet at an international peace ceremony. Each person shakes the hand of each other person. How many handshakes are there altogether?</li> </ul>  <ul style="list-style-type: none"> <li>Javid has six white mice, three males and three females. Each of the three couples has 7 female baby mice. The each of these females has 8 babies. One night Javid's little sister Aisha leaves the mice cage open and 47 escape. How many mice does Javid have left?</li> </ul>
<p>Solve problems involving addition, subtraction, multiplication and division.</p>	<p>Jessica is rowing along the coast to Sunshine Cove. Each day she rows less because she gets more tired. On the first day she covers 38 kilometres, on the second day 35 kilometres, on the third day 32 kilometres and on the fourth day 29 kilometres. How many days will it take her to cover the distance of 203 kilometres to Sunshine Cove?</p>	<p>My way!            Give a group of four a list of sums e.g.  <math>19 \times 24</math>  <math>198 + 997</math>            Half of 57.6  <math>3841 - 665.3</math>  <math>5.2 \div 4</math>  <math>101 \times 16 \times 4</math>            Each child must work out the answers mentally but think about the strategies they are using.            After, explain their strategy and discuss why you used it.</p>	<p>Letter challenge            Can you solve these calculations by using 0,1,2,3,4,5,6,7,8 &amp; 9</p> <p>E X F = HA            I X H = D            A X B = B            J X D = IG            C X C = EC</p> <p>You have been asked to bury some bags of money on an island. The money has been divided into nine separate bags containing these amounts:            £21, £20, £19, £12, £11, £10, £3, £2, £1.            You must bury the money in a three by three grid so that each row and column, horizontal, vertical and diagonal has £33.</p>

<p>Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.</p>	<ul style="list-style-type: none"> <li>Work out <math>3678 \times 23</math></li> <li>Abby planted 573 bulbs. The packet showed each flower should have 13 petals. How many petals should there be altogether?</li> <li>What is the missing number below? Explain how you know. <math>80 \times \underline{\quad} = 560000</math></li> </ul>	<ul style="list-style-type: none"> <li>Find the mistake in the calculation below. Correct it and explain what you have done.  <math display="block">\begin{array}{r} 4629 \\ \times 12 \\ \hline 108 \\ 24 \\ \hline 72 \\ 36 \\ \hline 204 \end{array}</math> </li> <li>Amy is given the calculation <math>5413 \times 600</math>. She says "I can do this without a written method." Write down the mental steps you think Amy could do.</li> <li>Miss Brown estimates the following: <math>4999 \times 40 = 200000</math> Do you think she was right to that? Explain your reasons.</li> </ul>	<ul style="list-style-type: none"> <li>Craig says "250 ends in a zero therefore, when multiplying, I can only make 250 by multiplying by 5 or 10." Do you agree? How many ways can you find to disprove this?</li> <li><b>Countdown</b> What is the closest you can get to any given number e.g. 256 using only multiplication and a list of numbers given e.g. 10, 7, 6, 2, 25, 4? How do you know this is the closest? What strategy did you use?</li> <li>A class are solving multiplication problems using counters. One child arranges their counters like the diagram below. The question is <math>23 \times 3 =</math>  <table border="1"> <tr> <td>10</td><td>10</td><td>1</td><td>1</td><td>1</td> </tr> <tr> <td>10</td><td>10</td><td>1</td><td>1</td><td>1</td> </tr> <tr> <td>10</td><td>10</td><td>1</td><td>1</td><td>1</td> </tr> </table> </li> </ul> <p>Is this the only way to represent this calculation? How many ways can you find?</p>	10	10	1	1	1	10	10	1	1	1	10	10	1	1	1			
10	10	1	1	1																	
10	10	1	1	1																	
10	10	1	1	1																	
<p>Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, &amp; interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.</p>	<ul style="list-style-type: none"> <li>2538 people applied to be in a T.V. show audience. 14 people were invited to each show. How many shows did they make with full audiences and how many people were not invited?</li> <li>Work out <math>5834 \div 26</math></li> <li>Work out the missing number: <math>5792 \div 16 =</math></li> </ul>	<ul style="list-style-type: none"> <li>Harry says "Without doing a written method I know <math>7350 \div 7</math> will not have a remainder." Is he correct? Convince me.</li> <li>Belle divides 8541 by 8. She says "I know there will be a remainder before I start." Is she correct? Explain how you know.</li> <li>Megan divides 500 by 8 and gets the answer <math>62r4</math>. She rewrites it as <math>62r\frac{1}{2}</math>. Is she right? Explain your answer.</li> </ul>	<ul style="list-style-type: none"> <li>A class were using place value counter to complete the calculation <math>112 \div 4</math>. One child arranged her counters like this.  <table border="1"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td>4</td> </tr> </tbody> </table> </li> <li>What mistake has she made? Can you show me how to do it correctly?</li> <li>Using the number 4236, how many numbers up to 20 does it divide by without a remainder? Is there a pattern? What can you say about these numbers?</li> <li>Estimate how many people are in the picture below. At half time, a member of the crowd won £9284 in the raffle. They kindly offered to share it equally between the crowd and kept any money left over for themselves. How much would each person get from your estimate?   </li> </ul>	Hundreds	Tens	Ones	1	1	2	1	1	2	1	1	2	1	1	2			4
Hundreds	Tens	Ones																			
1	1	2																			
1	1	2																			
1	1	2																			
1	1	2																			
		4																			

<p>Use written division methods in cases where the answer has up to two decimal places.</p>	<ul style="list-style-type: none"> <li>Solve:           <math display="block">25 \div 4 =</math> <math display="block">237 \div 4 =</math> <math display="block">9462 \div 8 =</math> </li> <li>Jasper has £453 pounds. He splits his money between four different bank accounts. How much does he put in each bank account?</li> <li>Sort the divisions below into the table.           <table border="1"> <thead> <tr> <th>Answers with 1dp</th> <th>Answers with 2dp</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>   <math display="block">127 \div 2</math> <math display="block">947 \div 4</math> <math display="block">236 \div 5</math>   <math display="block">846 \div 4</math> <math display="block">236 \div 8</math> <math display="block">457 \div 5</math> </li> </ul> <p>Can you add one more division sentence to each box?</p>	Answers with 1dp	Answers with 2dp			<ul style="list-style-type: none"> <li>Stefan and Tilly are both calculating the answer to           <math display="block">147 \div 4</math>  Stefan says, "The answer is 36 remainder 3"            Tilly says, "The answer is 36.75"            Who do you agree with? Explain your answer.         </li> <li>True or False            The only number that divides to give an answer with 1 decimal place is 2.            Prove it.         </li> <li>True or False            The only numbers that divide to give an answer with 2 decimal places are 4 and 8.            Justify your answer.         </li> </ul>	<ul style="list-style-type: none"> <li>Find the smallest number that can be added to 92.7 to make it exactly divisible by 7. How about 8?</li> <li>Each division sentence can be completed using the digits below. If there is more than one digit missing from the division it must be filled with the same digit. e.g. <math>44 \div 5 = 8.8</math>      <math display="block">\square 3 \div \square = 10.33</math>   <math display="block">12 \square \div \square = 18.14</math>   <math display="block">\square 34 \div \square = 104.25</math> </li> </ul>
Answers with 1dp	Answers with 2dp						
<p>Perform mental calculations, including with mixed operations and large numbers.</p>	<ul style="list-style-type: none"> <li>Work out the missing number:           <math display="block">5419 + 2000 = 9836 - \underline{\quad}</math> </li> <li>Work out the missing number:           <math display="block">200 \times \underline{\quad} = 750 + \underline{\quad}</math> </li> <li>Alfie had 70 socks that needed putting into pairs. He bought 5 more packs that each had 6 pairs in. How many pairs of socks did he have altogether?</li> </ul>	<ul style="list-style-type: none"> <li>Anwar says "If I know all of my times tables up to <math>12 \times 12</math> then I can solve any numbers that are powers of 10 too e.g. <math>700 \times 8 =</math>"            Is he correct? Explain why.         </li> <li>The following problem was given to the class.           <math display="block">\underline{\quad} + 50 = \underline{\quad} - 25</math>  Shellie says "Whatever digits we put in those boxes they will always be positive numbers."            Do you agree? Explain your reason.         </li> <li>When multiplying whole numbers, decimals and fractions, you will always get a positive, whole number. Is the statement sometimes true, always true or never true? Explain your answer.</li> </ul>	<ul style="list-style-type: none"> <li>Brian had 15 pennies. He divided them into 4 bags. He then knew he could pay any amount of money from 1p to 15p exact without opening them. How much did he put in each bag?</li> <li>Imagine you have 25 beads. You have to make a 3 digit number on an abacus. You must use all 25 beads each time you make a number. How many different 3 digit numbers can you make?</li> <li>Peter paid £21 for 5 presents. For A and B he paid a total of £6. For B and C he paid a total of £10. For C and D he paid a total of £7. For D and E he paid a total of £9. How much did Peter pay for each present?              </li> </ul>				

<p>Identify common factors, common multiples and prime numbers.</p>	<ul style="list-style-type: none"> <li>List the first 5 multiples of 7</li> <li>Write down all the factors of 24</li> <li>What is the highest common factor of 24 and 36?</li> </ul>	<ul style="list-style-type: none"> <li>Stefi says "The only prime number between 30 and 40 is 37". Is he correct? Prove it.</li> <li>Explain why a multiple of 80 is also a multiple of 8.</li> <li>Amber works out the HCF of 6 and 8. Here is her working out: 6: 6, 12, 18, 24, 32, 40 8: 8, 16, 24, 32, 50 The HCF is 24. Is she correct? How do you know?</li> </ul>	<ul style="list-style-type: none"> <li>Nancy is double her sister's age. They are both older than 20 and younger than 50. They are both multiples of 7. How old are they?</li> <li>Clare's age is a multiple of 7 and 3 less than a multiple of 8. How old is Clare?</li> <li>Which number is the odd one out? Explain why. 12, 30, 54, 42, 32, 48</li> </ul>
<p>Use their knowledge of the order of operations to carry out calculations involving the four operations.</p>	<ul style="list-style-type: none"> <li><math>4(72 \div 9) \times (1923 - 382)</math></li> <li>Add brackets to make this calculation correct; <math>25 + 10 - 3 \times 20 - 15 = 20</math></li> <li>Sarah had 7 bags with 5 sweets in each. She added one more to each bag. Circle the calculation below that shows the correct working out.  <math>7(5 + 1) = 42</math> <math>7 \times 5 + 1 = 36</math> <math>7 \times 5 + 1 = 42</math></li> </ul>	<ul style="list-style-type: none"> <li>Choose operations to go in the boxes to make the number sentences true: <math>5 \square 3 \square 8 = 23</math>  <math>5 \square 3 \square 8 = 29</math></li> <li>Daniel completed the following calculation and got the answer 168 <math>2(30 \div 5) + 14 = 168</math>  Can you explain what he did and where he made the mistake?</li> <li>Amy says "In BODMAS you can do multiplication and division either way round. This is the same for addition and subtraction." Is she correct? Can you include a calculation to support your answer?</li> </ul>	<ul style="list-style-type: none"> <li><b>Countdown</b> Ask children to choose 1 or 2 numbers from the 'top' (25/50/75/100) and 4 or 5 numbers from the 'bottom' 1-10. Children make a target number.</li> <li>Write different number sentences using the digits 3, 4, 5 and 8 before the equals sign that use: -one operation -two operations, no brackets -two operations, brackets</li> <li>Can you write a number sentence using the digits 3, 4, 5 and 8 before the equals sign, which has the same answer as another number sentence using the digits 3, 4, 5 and 8 but which is a different sentence?</li> </ul>

<p>Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.</p>	<ul style="list-style-type: none"> <li>Circle the odd one out:  <math>345 + 452 \approx 800</math>  <math>691 + 113 \approx 800</math>  <math>368 + 482 \approx 800</math></li> <li>Hannah goes to the shop. She has got a £5.00 note. As she goes round the shop she estimates how much she has spent to make sure she has enough money. Below is a list of what Hannah bought- estimate what she has spent- has she got enough?            Chocolate bar- 79p            Can of pop- 65p            Magazine- £1.50            Crisps- 45p            Puzzle book - £1.80</li> </ul> <p>Would it be better for Hannah to overestimate or underestimate her answer? Explain why.</p>	<ul style="list-style-type: none"> <li>Do the following estimates sound about right? Explain your reasoning.           <ol style="list-style-type: none"> <li>Last month the energy costs in my lab were £560. I estimate that my energy costs per year will be £7000.</li> <li>Today I ate a 30g packet of crisps at morning break time, as I always do, so I estimate that I eat almost 11kg of crisps a year.</li> <li>My round trip to work each day is about 22 miles, but I can claim mileage from work. I estimate that I can claim for 8000 miles each year.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Play a game in pairs. Use the addition grid, the aim is to make a total as close to 1000 as possible.</li> </ul>  <p>Take turns to throw the dice and decide which of your cells to fill. This can be done in two ways: either fill in each cell as you throw the dice, or collect all your numbers and then decide where to place them. Whoever has the sum closest to 1000 wins.</p>																								
<p>Identify the value of each digit in numbers given to three decimal places and multiply numbers by 10, 100 and 1000 giving answers up to 3dp.</p>	<ul style="list-style-type: none"> <li>What is the value of the underlined digit in the following numbers?  <math>3.\underline{4}2</math>   <math>4.5\underline{6}2</math>   <math>34.6\underline{2}1</math>   <math>54.3\underline{6}</math></li> <li>Fill in the table.           <table border="1"> <thead> <tr> <th></th> <th>X10</th> <th>X100</th> <th>X1000</th> </tr> </thead> <tbody> <tr> <td>0.1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.42</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5.36</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1.872</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> </li> <li>Find the value of the ▲ in each statement.           <math display="block">0.5 \times \blacktriangle = 500</math> <math display="block">37.2 \div 100 = \blacktriangle</math> <math display="block">8.4 \div \blacktriangle = 0.084</math> </li> </ul>		X10	X100	X1000	0.1				3.42				5.36				1.872				<ul style="list-style-type: none"> <li>Ali says,   <p>Do you agree with Ali? Explain your thinking.</p> </li> <li><b>True or False?</b>            In all of the numbers below, the digit 6 is worth more than 6 hundredths.  <math>3.6</math>   <math>3.063</math>   <math>3.006</math>   <math>6.23</math>   <math>7.761</math>            If it is false, can you change some of the numbers so it is true?</li> <li>Kayleigh says,  <i>"The more decimal places a number has, the smaller the number is."</i>            Do you agree? Explain why.</li> </ul>	<ul style="list-style-type: none"> <li>Four children are thinking of four different numbers.           <table border="1"> <tbody> <tr> <td>3.454</td> <td>4.445</td> </tr> <tr> <td>4.345</td> <td>3.54</td> </tr> </tbody> </table> <p>Yvonne: "My number has four hundredths."            Alex: "My number has the same amount of ones, tenths and hundredths."            Louise: "My number has more tenths and hundredths than ones."            Emily: "My number has 2 decimal places."            Can you match each number to the correct child?</p> </li> </ul>	3.454	4.445	4.345	3.54
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Multiply one digit numbers with up to 2dp by whole numbers.

- Solve:  
 $4.32 \times 5 =$   
 $6.72 \times 8 =$   
 $9 \times 4.35 =$   
 $7 \times 5.21 =$
- Idrees has to walk 1.5km to get to school. How far will he have to walk over 4 days to get to school and back?
- Katie is saving money. Her mum says,

“Whatever you save, I will give you five times the amount.”

- If Katie saves £4.82, how much money will her mum give her?
- If Katie saves £7.73, how much money will her mum give her?

- Tanya is using the grid method to multiply decimals.

$$4.56 \times 7$$

	7
4	28
0.5	3.5
0.06	4.2

After adding up, Tanya says her answer is 35.7.

Is Tanya correct?

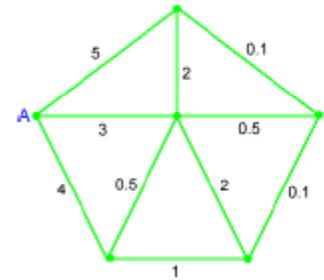
Explain your reasoning.

- True or False?

When you multiply a number with 2 decimal places by a whole number, the answer always has more than 2 decimal places.

Prove it.

- You need to travel from Point A to Point B. You can only travel through each point once.



What is the largest product you can make from A to B?  
 What is the smallest product you can make from A to B?

- Fill in the empty boxes

3	•	4	5	
0	•	3	0	
	•			
	•			
	•			

<p>Solve problems which require answers to be rounded to specified degrees of accuracy.</p>	<ul style="list-style-type: none"> <li>437 children are going on a school trip.             <ol style="list-style-type: none"> <li>1 adult is needed for every 12 children. How many adults must go on the trip?</li> <li>Each coach can seat up to 52 people. How many coaches are needed?</li> </ol> </li> <li>There are 1145 pupils at a school. Each classroom has enough desks for 32 pupils. What is the smallest number of classrooms needed for the pupils?</li> <li>Calculate and round to 1 decimal place:             <math display="block">127 \div 6</math> <math display="block">345 \div 8</math> </li> </ul>	<ul style="list-style-type: none"> <li>Yasmin and Henry are solving this problem.             <div style="border: 1px solid blue; border-radius: 15px; background-color: #4a86e8; color: white; padding: 10px; text-align: center; margin: 10px 0;"> <p>Ian is building a wall measuring 74m. He wants to divide the wall into 7 sections. How long will each section be? Give your answer to 1dp.</p> </div> <p>Yasmin has written the answer 10.5 Henry has written the answer 10.6</p> <p>Who is correct? Explain your reasoning.</p> <ul style="list-style-type: none"> <li>Would it be more accurate to give your answer to the nearest whole pound or ten pence in the question below? <math>(£34.56 + £2.24 + £54.43 + £14.67) \div 2</math></li> </ul> <p>Explain your answer. Is this always the case?</p> </li> </ul>	<ul style="list-style-type: none"> <li>245 people attend a coffee morning. 536 cups of coffee and 324 cups of tea are drunk at the coffee morning. On average, how many cups does each person drink? Round your answer to the nearest half cup.</li> <li>Each cup holds approximately 0.35 litres of liquid. How much coffee and tea is drunk in ml? Give your answer to 1 decimal place.</li> <li>At the same coffee morning, 56 chocolate cakes are cut into eighths and 37 strawberry cakes are cut into sixths.</li> </ul> <p>How many slices does each person eat to the nearest whole slice?</p> 
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