

|                 | National Curriculum Statement   | All students  |   |  |
|-----------------|---|---|---|--|
|                 |   | Fluency   | Reasoning   | Problem Solving  |
| Four Operations | Perform mental calculations, including with mixed operations and large numbers. | <ul style="list-style-type: none"> <li>Work out the missing number:<br/><math>5419 + 2000 = 9836 - \underline{\quad}</math></li> <li>Work out the missing number:<br/><math>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>"<br/>Is he correct? Explain why.</li> <li>The following problem was given to the class.<br/><math>\underline{\quad} + 50 = \underline{\quad} - 25</math><br/>Shellie says "Whatever digits we put in those boxes they will always be positive numbers."<br/>Do you agree? Explain your reason.</li> <li>When multiplying whole numbers, decimals and fractions, you will always get a positive, whole number.<br/>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>  |

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| Four Operations | Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why. | <ul style="list-style-type: none"> <li>Work out the missing number:<br/> <math>3210 + 2564 = 9836 - \underline{\hspace{2cm}}</math><br/> <math>2678 + \underline{\hspace{2cm}} = 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<br/> <math>47326 - 1900 =</math><br/>                     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:<br/> <math>\underline{\hspace{2cm}} - 3291 = 5382</math><br/>                     She says "I can turn the calculation around to get the correct answer."<br/>                     She does the following:<br/> <math>5382 - 3291 =</math><br/>                     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?<br/> </li> <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?<br/> </li> <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> |

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|                 |  | Fluency   | Reasoning  | Problem Solving  |
| Four Operations | Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication. | <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.<br/><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.<br/> <math display="block">\begin{array}{r} 4629 \\ \times \quad 12 \\ \hline 108 \\ \quad 24 \\ \hline 72 \\ \underline{36} \\ 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:<br/><math>4999 \times 40 = 200000</math><br/>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><br/>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?<br/>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.<br/>The question is <math>23 \times 3 =</math><br/>  </li> <li>Is this the only way to represent this calculation? How many ways can you find?</li> </ul> |