

Lesson 3

L.O: I am learning to find the mean average (1).






All	All of you must complete the fluency section.
Most	Most of you will complete the fluency and reasoning sections.
Some	Some of you will complete the fluency, reasoning, and problem-solving sections.




Try your best – it is all we can ask for! 😊

This video may help if you are stuck at any point:

<https://www.youtube.com/watch?v=x8oPXlrLMc0>

Fluency

Key vocabulary: Mean, Average, Total, Product	Your answer								
<p>Complete the stem sentence...</p> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4; display: inline-block;"> <p>To calculate the mean average, we _____ the _____ by the number of _____.</p> </div>	<p>To calculate the mean average, we divide the total by the number of items.</p>								
<p>Jane, Caleb and Asha ate some apples.</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>Total number of apples = _____ Number of children = _____ _____ ÷ _____ = _____ The mean number of apples eaten is _____.</p>	<p>Total number of apples = 15 Number of children = 3 $15 \div 3 = 5$ The mean number of apples eaten is 5.</p>								
<p>After school, Jerry read 15 pages of his reading book, Darcey read 14, Alfie read 8 and Millie read 11.</p> <p>What is the mean number of pages they read?</p> 	<p>The mean number of pages they read is 12.</p>								
<p>Ranjit went running over the bank holiday weekend.</p> <div style="display: flex; align-items: center;">  <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Day</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td>Saturday</td> <td>7</td> </tr> <tr> <td>Sunday</td> <td></td> </tr> <tr> <td>Monday</td> <td>11</td> </tr> </tbody> </table> </div> <p>If his mean running distance is 8km, how many km did he run on Sunday?</p>	Day	Distance	Saturday	7	Sunday		Monday	11	<p>Ranjit ran 6km on Sunday.</p>
Day	Distance								
Saturday	7								
Sunday									
Monday	11								

<p>5a. Calculate the mean of these numbers.</p> <table style="width: 100%; text-align: center;"> <tr> <td style="border: 1px solid black; padding: 5px;">7.3</td> <td style="border: 1px solid black; padding: 5px;">12</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">13.4</td> <td style="border: 1px solid black; padding: 5px;">8</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">6</td> <td style="border: 1px solid black; padding: 5px;">25.3</td> </tr> </table>	7.3	12	13.4	8	6	25.3	<p>12</p>
7.3	12						
13.4	8						
6	25.3						
<p>7a. True or false? The mean of these numbers is 16.</p> <table style="width: 100%; text-align: center;"> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">12.4</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">17</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">13.1</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">16.3</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">18.2</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">19</td> </tr> </table> <p></p>	12.4	17	13.1	16.3	18.2	19	<p>True</p>
12.4	17	13.1					
16.3	18.2	19					
<p>10b. Calculate the mean of these coins.</p> 	<p>76p</p>						
<p>11a. True or false? The mean of these numbers is $108\frac{1}{4}$.</p> <table style="width: 100%; text-align: center;"> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">124</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">272</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">14.7</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">37.3</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">123</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">60.5</td> </tr> </table> <p></p>	124	272	14.7	37.3	123	60.5	<p>False ($105\frac{1}{4}$) or 105.25</p>
124	272	14.7					
37.3	123	60.5					

Reasoning

Key vocabulary: Mean, Average, Total, Product

Your answer

3a. Felicia has worked out the mean of four numbers: 9, 4, 6 and 5.



To work out the mean, you must put the numbers in order first, before you divide by 4.

Do you agree with Felicia? Why?

Felicia is incorrect because it does not matter which order the numbers are put in before they are added together.

The number of school lunches ordered by each class in Anita's school is shown in the table below...



Reception	12
Year 1	15
Year 2	9
Year 3	13
Year 4	11
Year 5	14
Year 6	10

Anita says...



The mean number of school lunches per class is 14.

Do you agree with her? Explain your reasoning!

D – I do not agree with Anita.

A – The mean number of school lunches per class is not 14.

B – The total number of dinners is 84. Anita has divided this by 6 to get the mean 14 but there are 7 classes altogether. $84 \div 7 = 12$ so the mean number of school lunches per class is 12.

The mean of Marlon's video game high scores is 200.



Day	High Score
January	85
February	
March	149
April	
May	271
June	375

He says...



My high scores must have been 160 in both February and April.

Is he correct? Prove it!

D – Marlon could be correct.

A – His high scores could have been 160 in both February and April.

B – The mean score is 200 and his data covers 6 months. $200 \times 6 = 1,200$ so the high scores must come to a total of 1,200. The scores for January, March, May and June total 880 so February and April's scores must have a sum of 320 because $1,200 - 880 = 320$. This means that the high scores could have been 160 in both February and April, but they could have been any two numbers which have a sum of 320. For example, his high score could have been 100 in February and 220 in April.

Problem Solving

Key vocabulary: Mean, Average, Total, Product	Your answer
<p>4a. Lucie knows that the mean of her cards is 5.</p> <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; text-align: center;">2.5</div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> </div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; text-align: center;">9</div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; text-align: center;">6.5</div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: 40px; text-align: center;">2</div> </div> <p>She spilled paint on two of her cards. What could the missing numbers be?</p>	<p style="color: green; font-size: 1.2em;">Any two numbers with a sum of 10.</p>
<p>5a. Four friends are trying to work out their mean height. Aisha is 3cm smaller than Zain. Zain is 7cm taller than Marie. Marie is 5cm smaller than Oliver. Oliver is 185cm tall.</p> <div style="text-align: center; margin: 10px 0;"> </div> <p>What is their mean height?</p>	<p style="color: green; font-size: 1.2em;">$185 + 180 + 187 + 184 = 736\text{cm}; 736\text{cm} \div 4 = 184\text{cm}$</p>

Extension

Key vocabulary: Mean, Average, Total, Product	Your answer																																										
<p>Work out the age of each member of the family if: Mum is 48 years old. Teddy is 4 years older than Jack and 7 years older than Alex.</p> <div style="margin: 10px 0;"> <table style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">Mum</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Dad</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Teddy</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Jack</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Alex</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Eva</td> <td style="text-align: center; padding: 2px;"></td> <td style="border-left: 1px solid black; padding-left: 5px; padding: 2px 10px;"></td> <td style="padding: 2px;"></td> </tr> </table> </div> <p style="margin-left: 40px;">} Mean age of 50</p> <p style="margin-left: 40px;">} Mean age of 13</p> <p style="margin-left: 40px;">} Mean age of 6</p> <p>Calculate the mean age of the whole family.</p>	Mum				Dad				Teddy				Jack				Alex				Eva				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Mum</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">48</td> </tr> <tr> <td style="padding: 5px;">Dad</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">52</td> </tr> <tr> <td style="padding: 5px;">Teddy</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">15</td> </tr> <tr> <td style="padding: 5px;">Jack</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">11</td> </tr> <tr> <td style="padding: 5px;">Alex</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">8</td> </tr> <tr> <td style="padding: 5px;">Eva</td> <td style="text-align: center; padding: 5px;"></td> <td style="padding: 5px;">4</td> </tr> </table>	Mum		48	Dad		52	Teddy		15	Jack		11	Alex		8	Eva		4
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