

## Year 6 maths – Summer 2 Week beginning: 8.6.20

Theme	Graphs and averages (Lesson 1 of 12) Understanding averages	Graphs and averages (Lesson 2 of 12) Calculating the Mean	Graphs and averages (Lesson 3 of 12) Calculating the Mean	Graphs and averages (Lesson 4 of 12) Solving Problems Involving the Mean	Graphs and averages (Lesson 5 of 12) Showing Information on Graphs
Factual fluency (to aid fluency)	<a href="#">Division activity</a> Division facts to 12	<a href="#">Division activity</a> Division facts to 12	<a href="#">Division activity</a> Division by 1-digit numbers	<a href="#">Division activity</a> Division by 1-digit numbers	<a href="#">Reading a table activity</a> Reading tables
<p><b>Problem/activity of the day</b></p> <p style="color: red;"><b>Remember, just like in class, you can still show the depth of your knowledge</b></p> <p><a href="#">LINK</a></p>	<p><b>(Lesson 1 resources below)</b> <b>MAKING LINKS:</b> In spring term we looked at graphs. Today we are starting to work on averages.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? Five friends and I had pizza for lunch. Although we ate different amounts, we would like to know how much pizza per child that is. Can you help find an answer that is just one number? Our problem is on <a href="#">textbook</a> page 214. Look at it now.</p> <p><b>SEE: (model below)</b> Look at the different ways to solve the problem on pages 215 and 217 of your textbook. Watch the lesson videos <a href="#">part 1</a> and <a href="#">part 2</a>.</p> <p><b>DO:</b> Use what you have learnt today to solve: <b>Part 1: questions 1, 2 and 3</b> from textbook page 217 and 218. Check your answers before moving onto: <b>Part 2:</b> Workbook, Chapter 14, Worksheet 1, pages 153-154</p>	<p><b>(Lesson 2 resources below)</b> <b>MAKING LINKS:</b> Yesterday we looked at averages. Today we are starting to work on calculating the mean.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? Various amounts of goals were scored in different groups of teams in a football tournament. Can you help find a number that represents the goals scored by the teams in each group? Our problem is on <a href="#">textbook</a> page 219. Look at it now.</p> <p><b>SEE: (model below)</b> Look at the different ways to solve the problem are shown on pages 220 and 221 of your textbook and watch the lesson video <a href="#">here</a>.</p> <p><b>DO:</b> Use what you have learnt today to solve: <b>Part 1: questions 1 and 2</b> from textbook page 222. Check your answers before moving onto: <b>Part 2:</b> Workbook, Chapter 14, Worksheet 2, pages 155-156</p>	<p><b>(Lesson 3 resources below)</b> <b>MAKING LINKS:</b> Yesterday we started work on calculating the mean. Today we are going to continue with that.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? I'd like to find the ages of each person in a group of people. All I know is that the mean age of the group is 12 years old and there are five people in the group. Our problem is on <a href="#">textbook</a> page 223. Look at it now.</p> <p><b>SEE: (model below)</b> Look at the different ways to solve the problem are shown on pages 223 and 224 of your textbook.</p> <p><b>DO:</b> Use what you have learnt today to solve: <b>Part 1: questions 1 and 2</b> from textbook page 225. Check your answers before moving onto: <b>Part 2:</b> Workbook, Chapter 14, Worksheet 3, pages 157-158</p>	<p><b>(Lesson 4 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked on calculating the mean. Today we are going to solve problems involving the mean.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? My friend played 6 games in a basketball tournament. For 4 games her mean score was 13, but for all 6 games her mean score was 14. How many points did she score in the last 2 games? Our problem is on <a href="#">textbook</a> page 226. Look at it now.</p> <p><b>SEE: (model below)</b> Look at the different ways to solve the problem are shown on pages 226 and 227 of your textbook and see <a href="#">this video</a> of solving problems involving the mean.</p> <p><b>DO:</b> Use what you have learnt today to solve: <b>Part 1: questions 1 and 2</b> from textbook page 227. Check your answers before moving onto: <b>Part 2:</b> Workbook, Chapter 14, Worksheet 4, pages 159-160</p>	<p><b>(Lesson 5 resources below)</b> <b>MAKING LINKS:</b> Yesterday we worked on solving problems involving the mean. Today we are going to show information on graphs.</p> <p><b>THINK: (support below)</b> Can you help me with this problem? The children in my class voted on their favourite colour t-shirt. There were 24 children and they voted on blue, red, yellow or green. How can you represent the information in different ways? Our problem is on <a href="#">textbook</a> page 228. Look at it now.</p> <p><b>SEE: (model below)</b> Look at the different ways to solve the problem are shown on pages 228 to 231 of your textbook.</p> <p><b>DO:</b> Use what you have learnt today to solve: <b>Part 1: questions 2</b> from textbook page 232. Check your answers before moving onto: <b>Part 2:</b> Workbook, Chapter 14, Worksheet 5, pages 161-162</p>
Methods, tips, clues & checks	Day 1 resources and answers (below)	Day 2 resources and answers (below)	Day 3 resources and answers (below)	Day 4 resources and answers (below)	Day 5 resources and answers (below)

**See below for resources to support you to THINK-SEE-DO**

## DAY 1 RESOURCES:

**THINK:** Our problem is on textbook page 214.

Me and five friends had pizza for lunch. Although we ate different amounts we would like to know how much pizza per child that is. Can you help find an answer that is just one number?

This video ([link](#)) may support your understanding.

### DO:

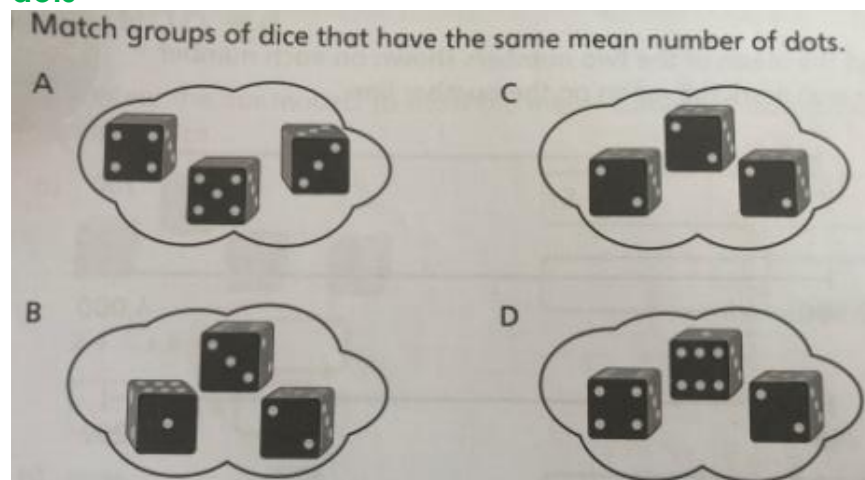
Part 1: **questions 1, 2 and 3** from textbook page 217 and 218. For help with question 3 on page 218, [watch this video](#).

Check your answers before moving onto:

Part 2: Find the mean. Workbook, Chapter 14, Worksheet 1, pages 153-154.

### DEEPENING:

Match groups of dice that have the same average number of dots



**SEE:** Look at the different ways to solve the problem on pages 215 and 217 of your textbook. Or watch the [video link \(part 1\) here](#).

You could use pieces of pasta or post-it notes to represent each piece of pizza.

**Mean:** What number do we get when we add up all the amounts and then share that total out? Once we divide the total by the number of amounts we had we reach the mean.  
 $2 + 2 + 2 + 4 + 5 = 15$  divided between  $5 = 3$

The number we reached is 3 after we **added the amounts** up to make 15 and **then divided** by the number of amounts (there are 5 amounts) so we say the **mean** is 3.

**Median:** Which number is in the middle when we put all the amounts in order from the least to the most? The middle amount is the median.  
2, 2, 2, 4, 5

The **middle** number is 2 so we say 2 is the **median**.

**Mode:** which amount occurs most often? That's the mode.  
2, 2, 2, 4 and 5

The number that is listed **the most** is 2 so we say the **mode** is 2.

### Note:

There are different ways to calculate average but most people associate average with the mean.

## DAY 2 RESOURCES:

**THINK:** Our problem is on textbook page 219.  
Various amounts of goals were scored in different groups of teams in a football tournament. Can you help find a number that represents the goals scored by the teams in each group?

Which 'average' are we trying to find?

**Mean:** The number we reach after we **add all the amounts** and **then divide** by the number of amounts is the **mean**

**Median:** Once we have listed the amounts in order from least to most the **middle** amount is the **median**.

**Mode:** The number that occurs **the most** is the **mode**.

This website ([link](#)) may support your understanding.

### **DO:**

Part 1: **questions 1 and 2** from textbook page 222.

Check your answers before moving onto:

Part 2: Workbook, Chapter 14, Worksheet 2, pages 155-156

### **DEEPENING:**

**Describe 3 ways to find the average of these numbers: 4, 5, 6**

**SEE:** Look at the different ways to solve the problem shown on pages 220 and 221 of your textbook.

Remember we are finding the mean for each group.

If we add up all the goals scored by all the teams in group D.

We have  $4 + 4 + 2 + 2 = 12$

Then we divide that total by the number of teams to reach the mean:

12 goals divided by 4 teams is an average of 3 goals each team .

See lesson video with other examples [here](#).

### **DAY 3 RESOURCES:**

**THINK:** Our problem is on textbook page 223  
I'd like to find the ages of each person in a group of people. All I know is that the mean age of the group is 12 years old and there are five people in the group.

Can you find different solutions?

Challenge yourself to find the oldest and youngest possible ages.

Remember:

**Mean:** The number we reach after we **add all the amounts** and **then divide** by the number of amounts is the **mean**

Tip: If we are trying to find the age of each person with the mean age would it help if we started by finding the total of their ages?

**DO:**

Part 1: **questions 1 and 2** from textbook page 225.

Check your answers before moving onto:

Part 2: Workbook, Chapter 14, Worksheet 3, pages 157-158

**DEEPENING:**

**Mrs Brown works 3 days per week and earns £228**

**Mrs Kapoor works 4 days per week and earns £301**

**Who earns more on average per day? Explain your reasoning.**

**SEE:** Look at the different ways to solve the problem shown on pages 223 and 224 of your textbook.

To start with we can use the mean age (12 years old) as the age for every person in the group.

$$12 + 12 + 12 + 12 + 12 = 60$$

Then we can think of five different amounts that would make a total of 60. Each of these amounts would be one persons' age.

What five amounts can you think of to make a total of 60?

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = 60$$

## DAY 4 RESOURCES:

**THINK:** Our problem is on [textbook](#) page 226.

My friend played 6 games in a basketball tournament. For 4 games her mean score was 13, but for all 6 games her mean score was 14. How many points did she score in the last 2 games?

Remember:

For 4 games the mean was 13 but for 6 games the mean was 14 so the scores in games 5 and 6 made the mean increase.

**DO:**

Part 1: **questions 1 and 2** from textbook page 227.

Check your answers before moving onto:

Part 2: Workbook, Chapter 14, Worksheet 4, pages 159-160

**DEEPENING:**

**Find a solution to each set of clues**

1. **Two even numbers with a mean of 5.**
2. **Three odd numbers with a mean of 5.**
3. **A set of 4 numbers. The difference between the greatest and the smallest is 10. The mean is 4.**
4. **A set of numbers that are not whole but the mean is a whole number.**

**SEE:** Look at the different ways to solve the problem shown on pages 226 and 227 of your textbook.

If the mean score for 4 games was 13 we would have a total score of 52 points.

$$13 + 13 + 13 + 13 = 52$$

If the mean score of 6 games was 14 we would have a total score of 84 points.

$$14 + 14 + 14 + 14 + 14 + 14 = 84$$

The difference between 4 games and 6 games is 32.

$$84 - 52 = 32$$

So my friend scored 32 points in the last two games!

See this [video](#) for an example of solving problems involving the mean.

## DAY 5 RESOURCES:

**THINK:** Our problem is on textbook page 228. The children in my class voted on their favourite colour t-shirt. There were 24 children and they voted on blue, red, yellow or green. How can you represent the information in different ways?

Try to present you data in 3 different ways.

**Remember:**

You can present data in bar graphs, pictograms, line graphs, pie charts and tables.

Think about the kind of data you are presenting before deciding on how you will present it.

**DO:**

Part 1: **questions 2** from textbook page 232.

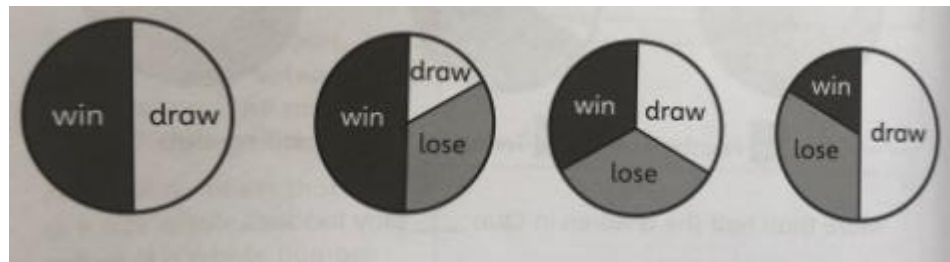
Check your answers before moving onto:

Part 2: Workbook, Chapter 14, Worksheet 5, pages 161-162

**DEEPENING:**

**Match the pie charts to the correct team's set of results**

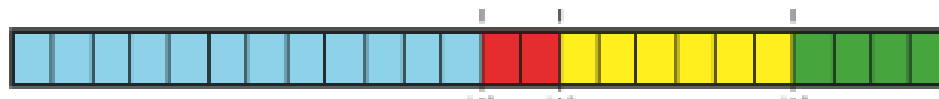
	WON	LOST	DRAW
Team A	15	10	5
Team B	5	10	15
Team C	10	10	10
Team D	15	0	15



**SEE:** Look at the different ways to solve the problem shown on pages 228 to 231 of your textbook.

The method on page 231 uses a strip of paper divided into 24 parts to create a pie chart.

This is the number of coloured t-shirts we have.



1 part in the strip of paper represents 1 t-shirt.

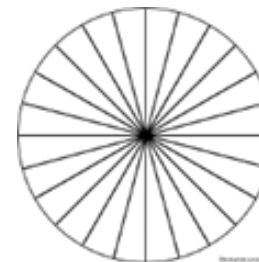
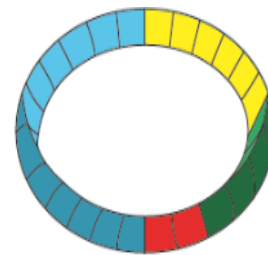
12 out of 24 t-shirts are blue.  $12/24$  or  $1/2$ . Half the t-shirts are blue.

2 out of 24 are red.  $2/24$  or  $1/12$  are red.


6 out of 24 are yellow.  $6/24$  or  $1/4$  are yellow. A quarter of the t-shirts are yellow.

4 out of 24 are green.  $4/24$  or  $1/6$  are green.

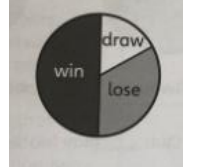
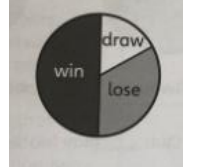
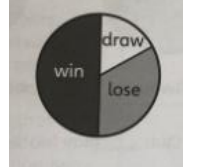
We can create a circle with our strip of paper that shows how much of our pie chart (a circle) should be shaded for each t-shirt colour. If we cut our circle (pie chart) into 24 pieces we can shade-in the correct amounts.

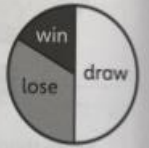



## ANSWERS – part 1:

<u>Day 1</u>	<u>Day 2</u>	<u>Day 3</u>	<u>Day 4</u>	<u>Day 5</u>
<p>Part 1:</p> <p>Q.1: average of 6 children</p> <p>Q.2: average 3.5 cupcakes</p> <p>Q.3: average £1.28</p>	<p>Part 1:</p> <p>Q.1:</p> <p>A = 2</p> <p>B = 1</p> <p>C = 1 and 1/3</p> <p>D = 1/3</p> <p>Q.2:</p> <p>Group A</p>	<p>Part 1:</p> <p>Q.1:</p> <p>Mean age for group of 3 is 13</p> <p>Mean age for group of 4 is 12</p> <p>Q.2:</p> <p>A = yes</p> <p>B = yes</p> <p>C = no</p> <p>D = yes</p>	<p>Part 1:</p> <p>Q.1:</p> <p>The eldest sibling is 13</p> <p>Q.2:</p> <p><math>79 \times 5 = 395</math></p> <p><math>395 = 70 + 76 + 89 + 88 + ?</math></p> <p><math>395 - 70 - 76 - 89 - 88 = 72</math></p> <p>The lowest score for test 3 is 72</p>	<p>Part 1:</p> <p>Q.2:</p> <p>Football is shown ins red</p> <p>Basketball is shown in yellow</p> <p>Badminton is shown in blue</p> <p>Hockey is shown in grey</p> <p>Rugby is shown in white</p> 

## ANSWERS – part 2 and deepening:

<u>Day 1</u>	<u>Day 2</u>	<u>Day 3</u>	<u>Day 4</u>	<u>Day 5</u>		
<p>Part 2: Workbook,</p> <p>Q.1: average 7 stars</p> <p>Q.2: average 7.4 pupils</p> <p>Q.3: average 9 books</p> <p><b>DEEPENING:</b></p> <p>A and D have the same average number of dots.</p> <p>B and C have the same average number of dots.</p>	<p>Part 2: Workbook,</p> <p>Q.1:</p> <p>A = 1.6875</p> <p>B = 6.75</p> <p>Q.2: 8.2</p> <p>Q.3:</p> <p>Hannah = 7, Ravi = 7, Lulu = 8.7, Elliott = 9</p> <p>Hannah and Ravi both have a mean score of 7.</p> <p><b>DEEPENING:</b></p> <p>Add the numbers together and divide by the number of groups e.g. <math>(4 + 5 + 6) \div 3 = 5</math></p> <p>4 is one less than 5 and 6 is one more than 5. Taking one away from 6 and adding it to 4 makes equal groups of 5.</p>	<p>Part 2: Workbook,</p> <p>Q.1:</p> <p>The Smiths = 23.5</p> <p>The Joneses = 25.8</p> <p>The Taylors = 12</p> <p>The Joneses have the highest mean age.</p> <p>Q.2:</p> <p>A = 150g</p> <p>B = Yes, all the oranges could have a mass of 150g</p> <p>C = Yes, as long as the overall mass of the 3 oranges total 450g</p> <p>D = No, the mass of the new oranges will be over 300g meaning at least one orange will have a mass over 150g</p> <p><b>Deepening:</b></p> <p>Mrs Brown earns £76 per day on average (<math>228 \div 3 = 76</math>)</p> <p>Mrs Kapoor earns £75.25 per day on average (<math>301 \div 4 =</math></p>	<p>Part 2: Workbook,</p> <p>Q.1: 162.6cm</p> <p>Q.2: 13.5</p> <p>Q.3: average 9 books</p> <p>A = 95</p> <p>B = Highest = 100</p> <p>Lowest = 90</p> <p><b>DEEPENING:</b></p> <ol style="list-style-type: none"> <li>any two even numbers that add up to 10 (4 and 6, 2 and 8, 0 and 10)</li> <li>any 3 odd numbers that add up to 15 e.g. 1, 3 and 11 or 9, 1 and 5</li> <li>4 numbers must add up to 16 and the difference between greatest and smallest must be 10 e.g. 0, 10, 1 and 5 or 0, 10, 3 and 3 or 1, 11, 2 and 2 or 2, 12, 1 and 1...</li> <li>Answers will vary e.g. 1.5, 0.5 or 2.2, 1.4, 2.4</li> </ol>	<p>Part 2: Workbook,</p> <p>Q.1:</p> <p>3 parts are shaded blue.</p> <p>5 parts are shaded red.</p> <p>1 part is shaded green.</p> <p>1 part is shaded yellow.</p> <p>2 parts are shaded grey.</p> <p>Q.2:</p> <p>5 parts are chocolate chip.</p> <p>4 parts are vanilla.</p> <p>1 part is oatmeal.</p> <p>2 parts are strawberry.</p> <p><b>Deepening:</b></p> <table border="1" data-bbox="1758 1149 2083 1332"> <tr> <td>Team A</td> <td>  </td> </tr> </table>	Team A	
Team A						

		<p>75.25) Mrs Brown earns more on average per day.</p>		Team B	
				Team C	
				Team D	