

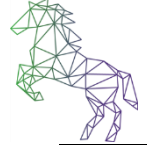


# Year 7 Maths Homework Menu: HT6

For each unit (column) you must choose one take away item for homework. The chilli rating suggests the difficulty of the task, or the challenge it might offer. Choose your homework from the menu below. The extra hot tasks will gain the most bonus points. You can earn an extra bonus point for putting in maximum effort. Your teacher will set your deadline and how you should submit your work.

				Pictograms and Bar Charts	Frequency Tables and the Mean	Data Investigations
	More advanced thinking skills 	<b>R</b> <b>E</b> <b>A</b> <b>S</b> <b>O</b> <b>N</b> <b>I</b> <b>N</b> <b>G</b>	<b>C</b> <b>6</b>	Use a Tally Chart to record the means of transport of your classmates to school. Then, in Microsoft Excel, create a frequency table that represents this data and use it to create a Bar Chart and a Pie Chart.	Write down a scenario in which the mean is <u>estimated</u> from a frequency table and draw up a frequency table that includes all the different class intervals for your scenario.	<b>CLIMATE CHANGE PROJECT</b> The presence of 'greenhouse gases' in the Earth's atmosphere stops heat from escaping and causes the planet's temperature to rise. This can melt ice caps, damage crops and affect weather systems. Activities such as travelling, generating heat and electricity by burning coal and farming on a large scale cause greenhouse gases (particularly Carbon Dioxide) to be emitted. You are going to investigate the effect of the emission of 'greenhouse gases' on the temperature of the planet. Do you think that 'human' activities are causing the planet to warm up? The data you need to use is below – use MS Excel to draw graphs and find averages and present your work neatly and clearly on a word/google document.
				Which type of chart is more suitable to represent this type of data? Justify your answer.  Give an example of a type of data that should be represented in a bar chart rather than a pie chart. Then, give an example of a type of data that should be represented in a pie chart rather than a bar chart.	b) Write down the modal class interval. c) Estimate the mean time taken by the students. d) Explain why we cannot use the table above to find the actual mean? e) Explain the advantages of representing information about the frequency against the class intervals compared to a simple frequency table.	





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2000	6600
2010	9300

Year	Global Average Temperature (°C)
1900	13.75
1910	13.5
1920	13.7
1930	13.72
1940	14
1950	13.8
1960	13.9
1970	14.1
1980	14.25
1990	14.3
2000	14.5
2010	14.6

Your report should contain

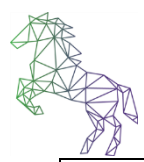
- A pie chart showing the % of total emissions made up by



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		<p style="writing-mode: vertical-rl; text-orientation: mixed;">I N G</p>	<p style="text-align: center;">a t i n g</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Malta</td> <td>20</td> <td>23</td> <td>27</td> <td>27</td> </tr> </table> <p>The table above shows the average monthly temperature (<math>^{\circ}\text{C}</math>) for the UK and Malta. Illustrate the data using a multiple bar chart. Evaluate the statement: "The increase in temperature between June and September is greater for Malta than for the UK".</p>	Malta	20	23	27	27	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td><math>60 &lt; t \leq 70</math></td> <td>12</td> <td></td> </tr> <tr> <td><math>70 &lt; t \leq 80</math></td> <td>22</td> <td></td> </tr> <tr> <td><math>80 &lt; t \leq 90</math></td> <td>23</td> <td></td> </tr> <tr> <td><math>90 &lt; t \leq 100</math></td> <td>24</td> <td></td> </tr> <tr> <td><math>100 &lt; t \leq 110</math></td> <td></td> <td></td> </tr> </table> <p>The table above provides some information about the time taken by a group of 100 students to complete an IQ test.</p> <p>a) Copy and complete the frequency table.          b) Write down the modal class interval.          c) Estimate the mean time taken by the students.          d) Explain why we cannot use the table above to find the actual mean?</p>	$60 < t \leq 70$	12		$70 < t \leq 80$	22		$80 < t \leq 90$	23		$90 < t \leq 100$	24		$100 < t \leq 110$			
Malta	20	23	27	27																					
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		<p style="writing-mode: vertical-rl; text-orientation: mixed;">P R O B L E M S I N G S O L V</p>	<p style="text-align: center;">4</p> <p>Bar Charts</p>	<p>Finding the Median from a Frequency Table</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Thumb length (mm)</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>60</td><td>1</td></tr> <tr><td>61</td><td>3</td></tr> <tr><td>62</td><td>3</td></tr> <tr><td>63</td><td>5</td></tr> <tr><td>64</td><td>7</td></tr> <tr><td>65</td><td>4</td></tr> <tr><td>66</td><td>2</td></tr> </tbody> </table>	Thumb length (mm)	Frequency	60	1	61	3	62	3	63	5	64	7	65	4	66	2	<p><a href="https://www.ncetm.org.uk/public/files/535508/What+Makes+a+Good+Resources+-+Data+Handling+Murder+Investigation.pdf">https://www.ncetm.org.uk/public/files/535508/What+Makes+a+Good+Resources+-+Data+Handling+Murder+Investigation.pdf</a></p>				
Thumb length (mm)	Frequency																								
60	1																								
61	3																								
62	3																								
63	5																								
64	7																								
65	4																								
66	2																								



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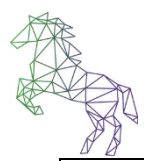
I  
N  
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67

2

The table above shows the thumb length of some 11 year-olds. Find the mean thumb length, the median thumb length and the mode thumb length.

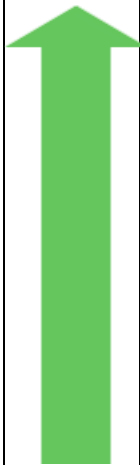
- a) What percentage of goals scored by Team B were from a penalty kick?
- b) Which team scores a higher percentage of their goals from free kicks?
- c) A newspaper report uses this bar chart to compare the method of scoring between the two teams. The report says "Team A scores more goals from open play than Team B". Explain why this may not necessarily be the



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case.  
 d) Team A scored a total of 60 goals during this season. How many of these goals were from open play?

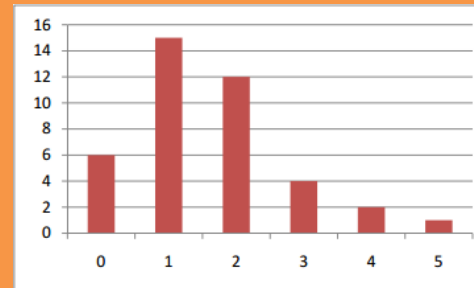
Thinking skills



P  
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3 Bar Charts

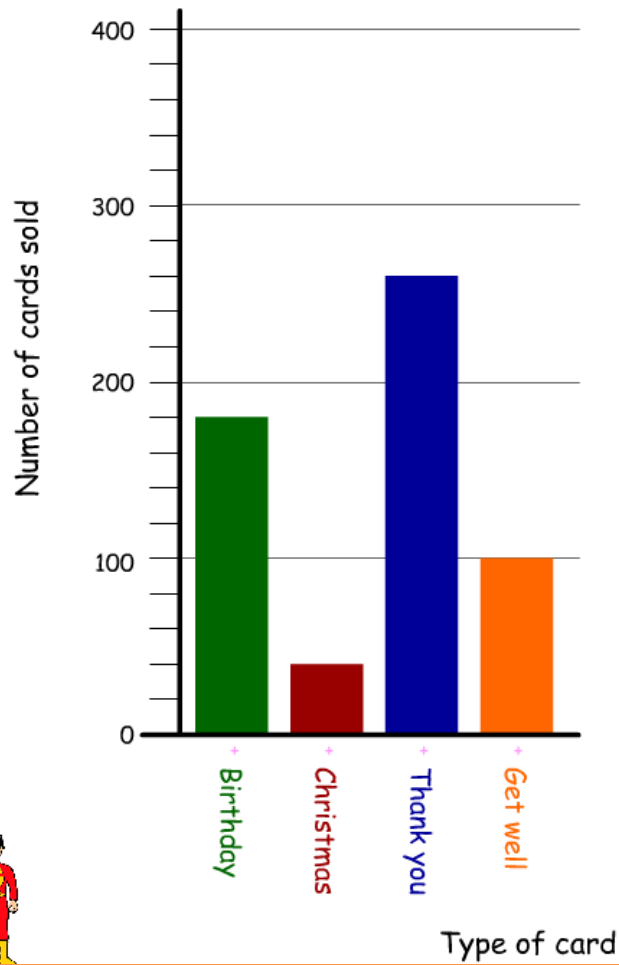
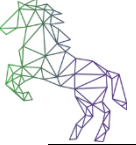
Drawing up and using a frequency table



Some students were asked how many pets they owned. The results are given in the bar chart above.

- a) Use the information above to draw up and to complete a frequency table. Then, using this table:
- b) Write down the mode

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- a) How many birthday cards were sold?
- b) How many 'Thank You' cards were sold?
- c) How many fewer 'Christmas' cards were sold than 'Birthday' cards?
- d) How many more 'Thank You' cards were sold than 'Get Well' cards?
- e) Which type of card is the mode?
- f) How many cards were sold altogether?

- c) How many students were asked altogether?
- d) How many pets are owned, in total, by all the students?
- e) Find the mean number of pets owned.

and other resources:

[http://www.lancsngfl.ac.uk/secondary/math/index.php?category\\_id=168](http://www.lancsngfl.ac.uk/secondary/math/index.php?category_id=168)



# Year 7 Maths Homework Menu: HT6



FLUENCY

Understanding

FLUENCY

Remember

**U 2** Frequency Tables and Pictograms:

Age of Children	Tally	Frequency
7		7
8		
9		13
10		10
11		6
12		
		Total = 60

There are twice as many twelve year-olds as seven year-olds. Complete the tally and the frequency columns. Construct your own pictogram to show the information.

**R 1** Frequency Tables and Pictograms:

Look at the incomplete frequency table below; some pupils in a class were asked how they got to school. Here are the results:

Method of Travel	Tally	Frequency
Walking	IIII	

**Mean and Mode from Frequency Tables**

No. of cups	Frequency
0	5
1	9
2	7
3	4
4	3
5	2

The table above shows how many cups of coffee some adults drank yesterday

- Write down the mode.
- How many adults were asked altogether?
- How many cups of coffee were drank altogether yesterday by the people asked?
- Calculate the mean number of cups of coffee drank yesterday.

**Mean, Mode, Range using Tables**

Sarah works in a post office. She recorded the number of parcels posted on each of 16 days.

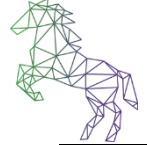
2	2	5	3	2	4	2
2	3	6	4	6	2	2
3	3					

Type of Transport	% of secondary school pupils
Walking	33.6
Bus	34.1
Car	25.43
Cycling	2.47
Train/Tube	3.06
Other	1.35
<b>Total</b>	<b>100</b>

Type of Transport	% of primary school pupils
Walking	43.31
Bus	8.05
Car	46.72
Cycling	1.17
Train/Tube	0.21
Other	0.54
<b>Total</b>	<b>100</b>

This data, collected in 2000 includes responses from secondary and primary school children in England, Wales and Northern Ireland. It shows how pupils travel to school.


Which is the most popular way of getting to school for primary pupils?  
How about for secondary



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Bike		6
Car	III	
Bus		
		Total = 20

Complete the tally and the frequency columns.  
 Draw a pictogram to represent all the  
 information. Use  to represent 2 people.

- a) Copy and complete the frequency table below to show Sarah's results.
- b) Write down the mode.
- c) Work out the range.
- d) Calculate the mean.

Number of parcels	Tally	Frequency
2		
3		
4		
5		
6		

pupils?  
 Can you think of any reasons why these might be different? Which is the most common way of travelling to school overall? Can you explain why this answer is different again?  
 What do you think the "Other" category means?  
 Conduct your own survey on how everyone gets to school, perhaps in your class or year group.  
 Present your results in a table, chart or graph and please send it in to us.  
 Compare your findings to those in the table (you might want to look just at the primary or secondary data, depending on how old you are).  
 How are your results different? Are there any similarities? Can you think of any reasons why your findings might be different or similar?