Stewards Academy

Maths Summer 2

Year 8

Blended Learning Booklet

Name:

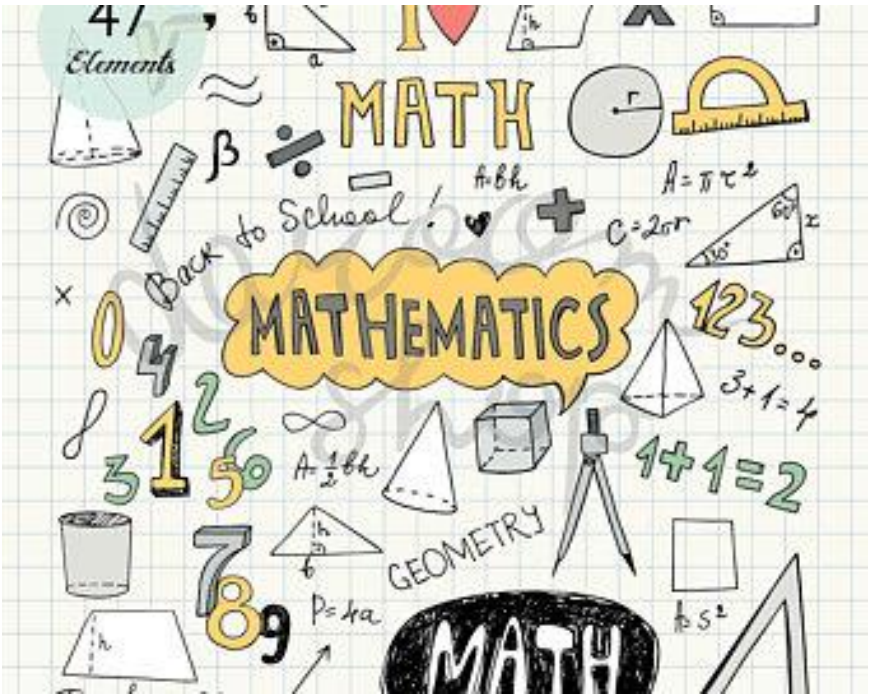
Form:

Each week covers topics you would complete in your 3 Maths lessons that week. Write out the title and LI and then complete the tasks.

All video links are online using the ClassCharts link.

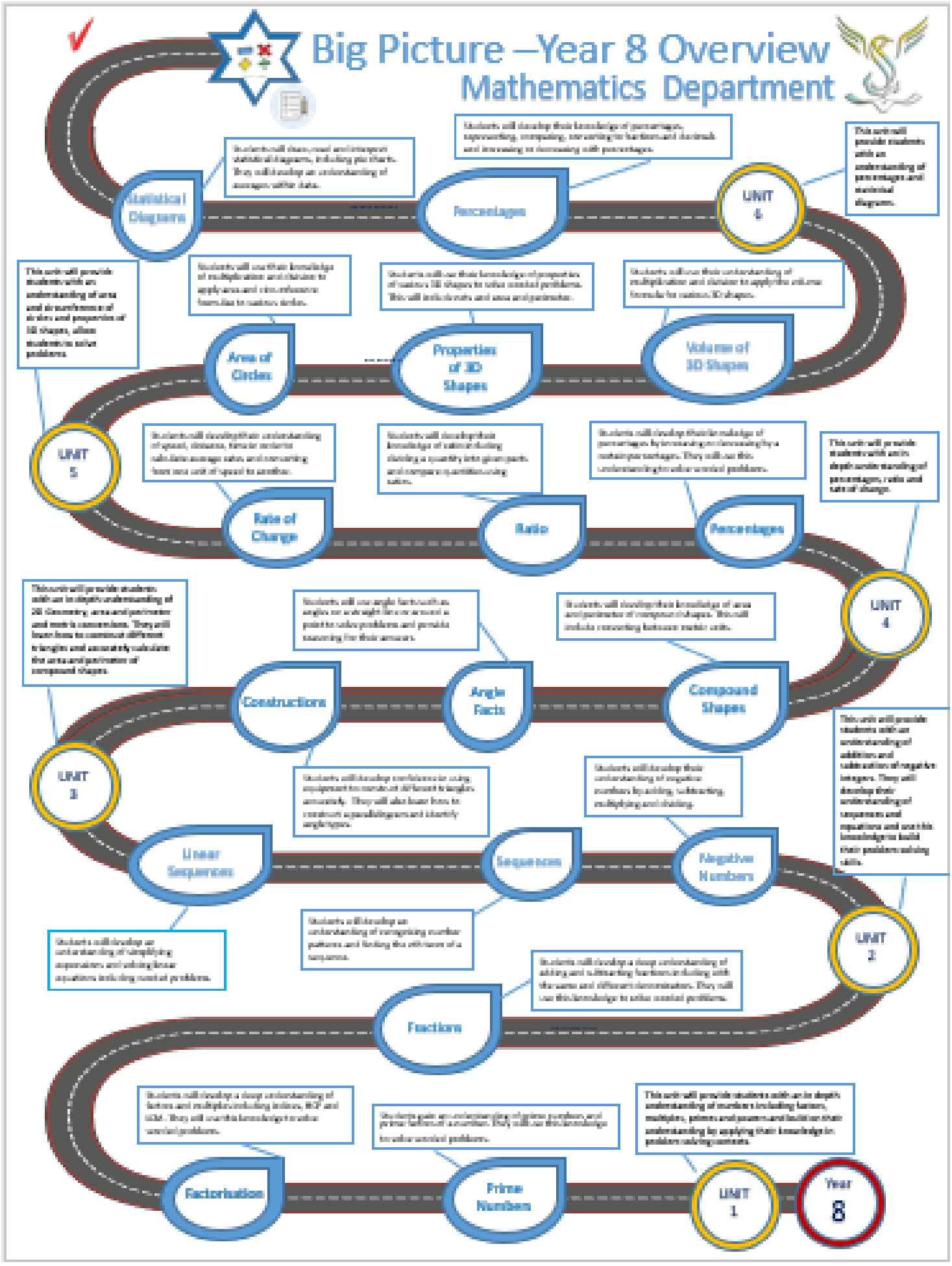
The Knowledge Organiser on page 4 has further practice questions and page numbers linking to your pocket revision guides for all the key information and examples to help you with this unit.

Upload all work onto ClassCharts for feedback.



Contents

Stewards Academy



Year 8 Unit 6

Statistics

Stewards Academy

Revision guide reference pages

Pages 85,92, 93, 94,96 and 97.

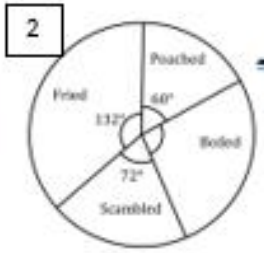
1

1) A meal for 4 costs £12 per person. As it is one of the diners birthday, the other 3 decided pay for his meal now much do each of the 3 friends need to pay?

2) The mean of 8 numbers is 15. If one number is removed, the average of the remaining numbers is 13. What is the number that was removed?

3) Alex drove for 3 hours at an average speed of 60 miles per hour and for 2 hours at 85 miles per hour. What is his average speed for the whole journey?

2

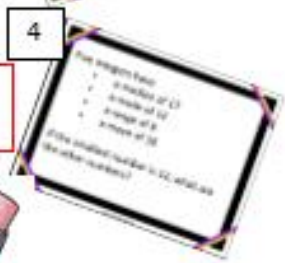


5 people like poached eggs

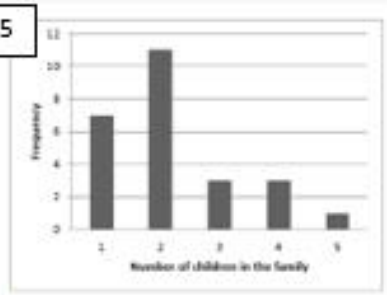
Work out how many people like boiled eggs.

3

4



5



How many students are in the group?

What is the range in the number of children in the family for these students?

Calculate the mean number of children in the family for these students.

6

Find the mode

1) 2, 3, 4, 4, 7

2) 2, 5, 5, 7, 8

3) 1, 2, 3, 7, 7, 8

4) 1, 2, 4, 1, 6, 5, 1

5) 2, 5, 7, 1, 2, 1, 2

6) 4, 7, 2, 7, 3, 4, 7

7) 1, 0, 3, 0, 5, 4, 2

8) -2, 0, 1, -1, -2

7

Find the value of x

1) Median = 10
3, 5, 9, x, 12, 13

2) Mean = 7
4, 8, 11, x

3) Mean = 3
-4, 5, 8, 2, x

4) Median = 10
2, 4, x, 3x, 18,20

5) Mean = 5
2, x, 5, 2x, 3

6) Mean = 10
x, 2x, 3x, 4x

8

Design a questionnaire to find out how much people spend on their lunches.

9

Calculate the median

1) 1, 3, 5, 5, 6

2) 3, 4, 10, 2, 1

3) 4, 5, 7, 11

4) 1, 2, 1, 6

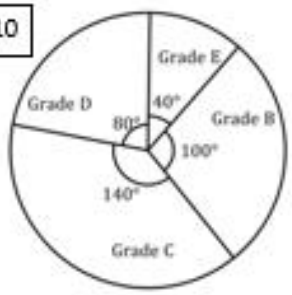
5) 3, 2, 7, 3, 2, 5

6) 1, 7, 4, 7, 6, 2

7) 2, 2, 3, 7, 6, 8

8) 2, 3, 1, 14, 17, 18

10

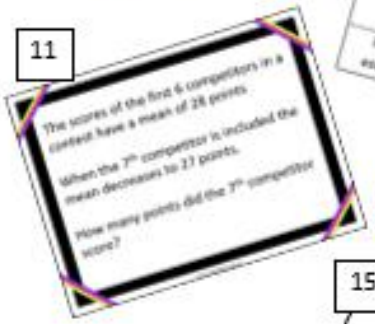


Which grade was the mode?

What fraction of the students got grade B?

8 of the students got grade E,
how many students took the exam?

11



12

Match the data collection method to the situations.

Situation
Obtain opinions on school lunches
Collect data on pulse rate after exercise
Record the number of people entering and leaving a building

Data collection method
Observation
Experiment
Questionnaire

13

Calculate the mean

1) 1, 2, 3, 2

2) 4, 3, 2, 4, 2

3) 5, 4, 5, 1

4) 2, 3, 1, 4, 7, 4

5) 10,11, 9, 12, 8

6) 1, 2, 3, 4, -2, 1, -2

7) 4, -2, 3, -3, 3

8) 4, 5.5, 3, 5.5

14

How much do you spend on sweets?

☐ £1 - £5 ☐ £5 - £10 ☐ £10 - £15

Write down **two** things that are wrong with this question.

15

Calculate the mean:

x	frequency
14	9
15	5
16	2
17	2
18	1

x	frequency
15	4
16	10
17	16
18	12
19	8

x	frequency
20 < x ≤ 25	25
25 < x ≤ 30	10
30 < x ≤ 35	1
35 < x ≤ 40	2
40 < x ≤ 45	2

16

Calculate the:

1) Mean
1, 2, 3, 6, 4, 2

2) Median
2, 5, 4, 2, 2, 9

3) Mean
2.5, 4.5, 3.5

4) Median
5, -4, 3, -2, -3, 7

5) Mean
-3, 5, 4, -2, -5, 1

6) Mean
12, 15, 22, 5

Stewards Academy

Week 1:

- **LI: I can find the mean, median, mode and range from raw datasets**

Demonstration Videos: https://corbettmaths.com/2013/12/21/the-mode-video56/
https://corbettmaths.com/2012/08/02/the-range-video/

Tasks:

Question 1: Work out the mode for the each of the following

(a) 5, 6, 6, 7, 8, 10 (b) 1, 1, 1, 4, 6, 8, 12 (c) 5, 5, 7, 7, 7, 8, 8, 9

(d) 5, 7, 3, 5, 8, 9, 10, 2 (e) 8, 3, 3, 4, 6, 8, 13, 3, 18 (f) 12, 14, 15, 17, 15

(g) 2.3, 2.6, 2.8, 2.7, 2.8, 2.7, 2.4, 2.3, 2.1, 2.3 (h) −2, −1, 5, 8, −2, 2, −1, 9, −1, 1, 2, −1

Question 2: The bar chart shows the shoe sizes of a group of students.

(a) How many students in total are there?

(b) What is the modal shoe size?

Question 3: Work out the mode for the each of the following

(a) 8, 1, 1, 7, 2, 1, 5, 9, 4, 1, 5, 5, 9, 6, 4, 3, 2, 3, 1, 1, 9, 8, 7, 3, 2, 4, 5, 1, 1, 9, 1

(b) 8, 9, 7, 3, 4, 7, 9, 3, 4, 5, 1, 2, 2, 1, 3, 0, 0, 8, 1, 4, 7, 8, 6, 6, 3, 3, 3, 1, 3, 3, 5

Question 3: Work out the mode for the each of the following

(a) 8, 1, 1, 7, 2, 1, 5, 9, 4, 1, 5, 5, 9, 6, 4, 3, 2, 3, 1, 1, 9, 8, 7, 3, 2, 4, 5, 1, 1, 9, 1

(b) 8, 9, 7, 3, 4, 7, 9, 3, 4, 5, 1, 2, 2, 1, 3, 0, 0, 8, 1, 4, 7, 8, 6, 6, 3, 3, 3, 1, 3, 3, 5

Question 4: The tally chart shows the favourite sport of the students in a class.

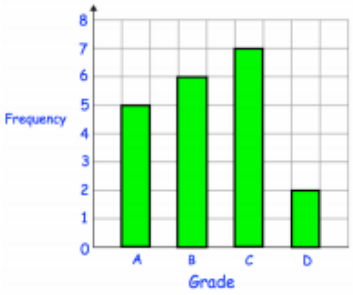
(a) What is the modal sport?

(b) How many students are in the class?

(c) How many more students liked football than rugby?

Sport	Tally
Rugby	𝍸
Football	𝍸 𝍸 |
Hockey	𝍸 𝍸 ||
Cricket	|||

Question 5: Mrs Green gives her class a test. The results are shown in the bar chart below.



(a) What is the modal grade?

(b) How many students sat the test?

A grade C or above is a "pass."

(c) What fraction of the students passed the test?

Question 1: Find the range for each of the following

(a) 5, 9, 1, 5, 7, 4, 3 (b) 6, 7, 10, 8, 9, 9 (c) 21, 15, 19, 24, 30, 26

(d) 210, 250, 260, 180, 240 (e) 6.2, 7.3, 8.8, 1.5, 4.1 (f) 3, 1, 2, 1, 3, 4, 5, 0, 1

(g) −5, 1, 3, 6, −8, 1 (h) −6, −10, −2, −9 (i) 0, 7, 9, −21, 10, −4

(j) 7, 9, −2, 13, 9, 8, 20, −8, 1 (k) −10, −6, −15, −9, −8, −7, 8, −3

Question 2: The range for a list of numbers is 7. The smallest value is 4.
What is the largest value in the list?

Question 3: The range for a list of numbers is 8. The largest value is 13.
What is the smallest value in the list?

Question 4: The range for a list of numbers is 1. The largest value is 4.
What is the smallest value in the list?

Question 5: The range for a list of numbers is 27. The smallest value is 87.
What is the largest value in the list?

Question 6: The number of points that Randalstown Rugby Club scored in eight matches are 24, 17, 19, 35, 9, 43, 15, 30.

(a) Work out the range of the number of points scored.

(b) Work out the median of the number of points scored.

Question 7: The table shows the midday temperature over five days.
Each temperature is in degrees celsius.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	-4	1	-6	1	-2

(a) Work out the range of the temperatures.

(b) Work out the mean temperature.

Week 1:

- LI: I can find the mean, median, mode and range from raw datasets

Demonstration Videos: https://corbettmaths.com/2012/08/02/the-mean/

Tasks:

Question 1: Find the mean for each of the sets of data below

(a) 4, 9, 7, 10, 5 (b) 2, 8, 6, 3, 12, 7, 4 (c) 3, 2, 1, 3, 2, 2, 1, 3, 1, 2, 3, 2, 1

(d) 1, 8, 7, 5, 6, 4, 7, 6 (e) 20, 30, 24, 32 (f) 12, 8, 14, 5, 1, 3, 0, 8, 10, 11

(g) 9, −3, −6, 5, 0 (h) 1.4, 2.8, 2.4, 2.5, 2.8, 3.1, 1.1

Question 2: A basketball team plays 8 matches.
The number of points they score in each match are:

62, 68, 67, 79, 82, 50, 74, 62

(a) Work out the mean number of points scored

(b) Write down the modal number of points scored

(c) Write down the median number of points scored

Question 3: Mr Holland gives his class a test. The results are:
34%, 44%, 75%, 21%, 98%, 86%, 71%, 76%, 63%, 55%

(a) Work out the mean mark

(b) Work out the median mark

(c) How many students scored above the mean mark?

Question 4: Five houses on a street are sold in 2016. They sell for
£175,000 £184,000 £150,000 £201,000 £191,000

Calculate the mean price.

Question 5: The mean of four numbers is 10. Three of the numbers are 9, 11 and 7.
Work out the fourth number.

Question 6: The mean of six numbers is 5. Five of the numbers are 6, 6, 5, 3 and 1.
Work out the sixth number.

Question 7: The mean of five numbers is 8.2. Four of the numbers are 8, 10, 12 and 10.
Work out the fifth number.

Stewards Academy

Equal Cups

For each set of cups, how would the water be **divided equally**?
How much would be in each cup?

Think about different **methods** you could use.

A

Divided equally
= each

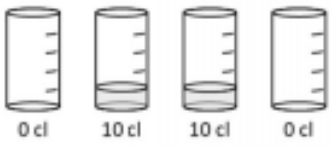
B

Divided equally
= each

C

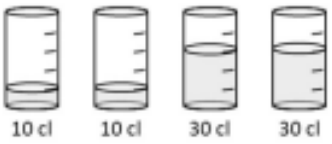
Divided equally
=

D



Divided equally
=

E

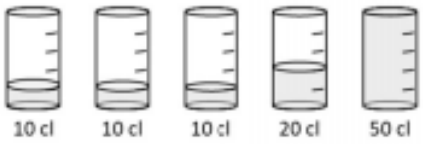


Divided equally =

F

Divided equally =

G

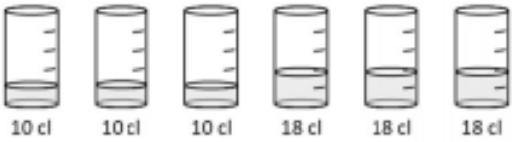


Divided equally =

H

Mean average (amount in each when shared equally) =

I



Mean average (amount in each when shared equally) =

Find the mean average for these sets of cups.

J) 20 cl, 20 cl, 32 cl, 32 cl

K) 34 cl, 34 cl, 44 cl, 44 cl

L) 8 cl, 13 cl, 9 cl, 16 cl, 14 cl

For these sets, we know the mean average. What is the missing value?

M) 50 cl, 50 cl, ???? cl Mean Average = 40 cl

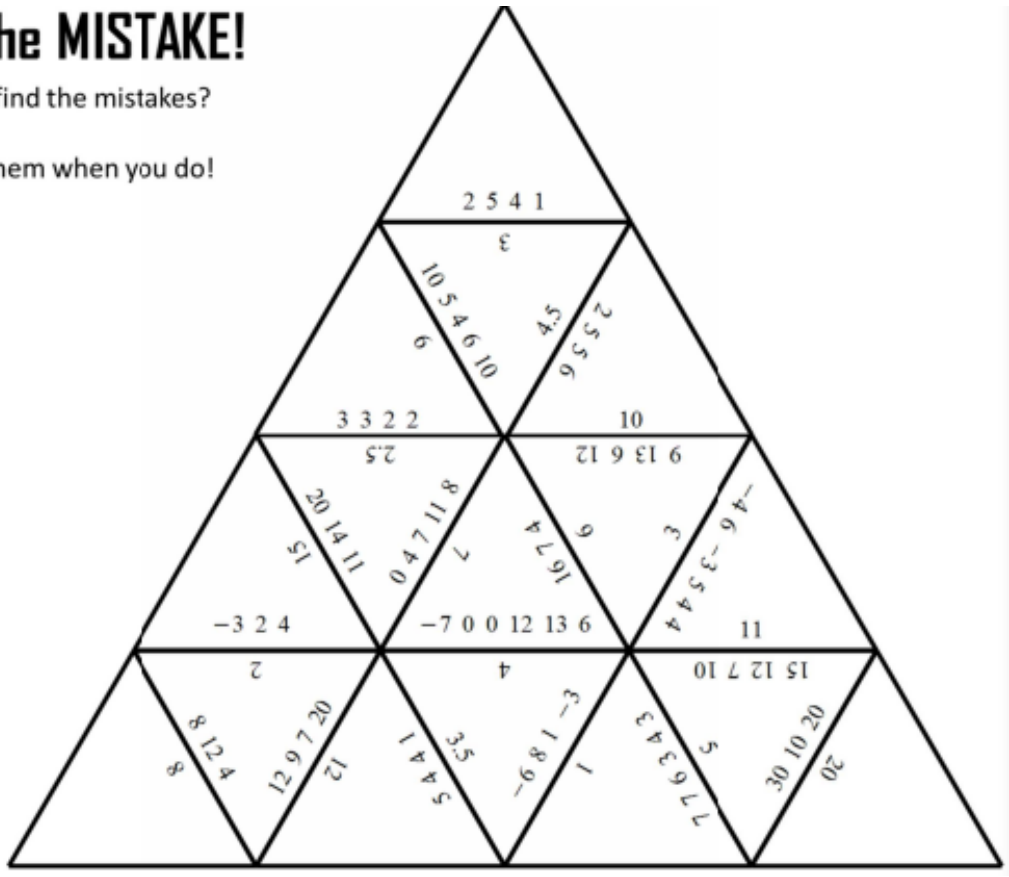
N) 12 cl, 5 cl, 8 cl, ???? cl Mean Average = 9 cl

O) 106 cl, 111 cl, ???? cl, 120 cl Mean Average = 113 cl

SPOT the MISTAKE!

Can you find the mistakes?

Correct them when you do!



Week 1:

- **LI: I can find the mean, median, mode and range from raw datasets**

Demonstration Videos: https://corbettmaths.com/2012/08/02/the-median/

Tasks:

Question 1: Work out the median for the each of the following

(a) 5, 1, 4, 6, 8

(b) 9, 1, 3, 6, 7, 8, 9

(c) 6, 4, 7, 1, 3, 8, 1, 10

(d) 7, 3, 8, 9, 6, 5

(e) 9, 8, 6, 6, 6, 7, 1, 2, 6, 8

(f) −4, 5, −7, −1, 2, 0, 9

(g) 20, 30, 10, 20, 40, 50, 60, 10, 80, 30

(h) 49, 34, 12, 10, 53, 20, 65, 34, 90, 100, 33

(i) 6.2, 6.8, 6.6, 7.2, 6.4, 7.4, 5.8

(j) 124, 53, 39, 230, 155, 180

Question 2: Shown are the ages and weights of 5 dogs.

	Fido	Lucky	Toto	Barney	Tess
Age	4	12	7	9	1
Weight	14kg	9kg	30kg	16kg	8kg

(a) Which dog has the median age?

(b) Which dog has the median weight?

Question 3: The height of some footballers are listed below:

1.81m, 1.78m, 1.88m, 1.79m, 1.86m, 1.85m, 1.78m, 1.93m

(a) Work out the median height

(b) What is the modal height?

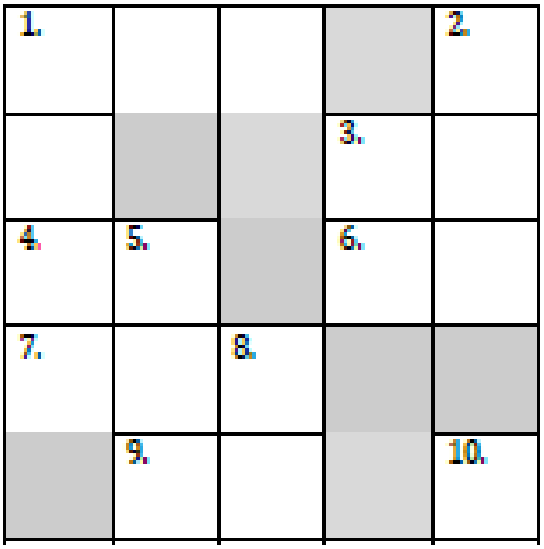
Question 4: Write down five numbers with a median of 7

Question 5: Write down eight numbers with a median of 10

Question 6: Write down four different numbers with a median of 4.5

Question 7: Write down six different numbers with a median of 0

2. Complete the crossnumber below.



DOWN

1. Work out the median of these number:

   3255, 3150, 3155, 3099, 3205.

2. Work out the median of these numbers:

   134, 117, 121, 133, 119, 141, 122.

3. What is the mode of these numbers?

   51, 55, 52, 56, 55, 56, 55, 57, 55.

5. The cost of a week's shopping for 15 families is:

£140, £123, £125, £100, £115
£145, £143, £127, £112, £130
£138, £124, £90, £108, £140.

Calculate the mean amount they spend.

ACROSS

1. What is the mode of these numbers?

   330, 320, 330, 325, 340, 330.

3. What is mode of these numbers?

   49, 32, 52, 47, 52, 47, 52, 60, 49.

4. Work out the median of these number:

   33, 43, 49, 51, 51, 56, 67, 89.

6. Calculate the mean of these 8 umbers:

   50, 45, 51, 49, 53, 49, 58, 61.

7. Calculate the mean of these 14 numbers:

   500, 600, 550, 520, 508, 500, 450,
   520, 490, 590, 530, 550, 530, 470.

9. The time taken, in minutes, of 20 students to complete a cross country race were:

   25, 60, 40, 50, 41, 52, 35, 30,
   45, 42, 50, 42, 22, 35, 40, 30,
   50, 45, 40, 46.

Calculate the mean time taken to complete the race.

10. The mean of five numbers is 9. Here are the other four numbers. Which number is missing?
7, 9, 11, 11, ___

HINT:

$$\frac{7+9+11+11+\_\_\_}{5} = 9$$

Stewards Academy

Week 2:

- **LI: I can find the mean, median, mode and range from raw datasets**

Demonstration Videos: https://corbettmaths.com/2012/08/02/the-median/ https://corbettmaths.com/2012/08/02/the-mean/ https://corbettmaths.com/2013/12/21/the-mode-video56/ https://corbettmaths.com/2012/08/02/the-range-video/

Tasks:

Name

Mixed Averages

4.5	7.5	6.7	7.6	9.8
7	12	6.5	2	1.5
6	3.5	6.6	6.4	2.5
5.5	11	13	13.2	5
3	9	12.5	11.3	4

Mean : 6, 7, 8, 6, 3, 3	Mean : 12, 15, 14, 11, 11, 15	Median : 12, 1, 1, 1, 1, 12, 12, 2	Median : 2, 4, 5, 3, 1, 1, 2, 5, 9
Median : 3, 5, 6, 2, 9, 3, 4, 3	Mean : 2, 3, 7, 8, 12	Median : 6, 10, 12, 7, 2, 3, 3, 6, 2	Mean : 15, 15, 2, 12, 5
Mean : 12, 14, 12, 15, 13	Mode : 11, 12, 9, 11, 11, 12	Mean : 20, 2, 3, 5, 8	Mode : 3, 7, 4, 9, 6, 7, 5, 1, 2
Mean : 5, 3, 7, 7, 11	Median : 9, 8, 7, 4, 8, 3, 4, 5, 2	Median : 10, 10, 9, 3, 4, 2, 8, 5	Mean : 15, 13, 14, 10, 12, 11
Median : 8, 2, 2, 3, 6, 4, 8, 5	Mode : 5, 2, 5, 6, 7, 2, 3, 2, 1	Median : 4, 7, 3, 2, 2, 6, 4, 8, 10	Mode : 3, 9, 4, 9, 3, 2, 7, 7, 9

TOTAL

Finding the Median Value

Find the median for each set of raw data.
What is the rule for finding the median value?

Raw Data	How many pieces of data?	Middle Number(s) (Median)	Median Position (1^{st}, 2^{nd}, 3^{rd}?)
1, 3, 6	3	3	2^{nd}
1, 2, 3, 4, 5			
2, 4, 5, 6, 6, 6, 7			
1, 2, 3, 4, 4, 4, 5, 6, 6			
3, 4, 4, 5, 5, 6, 7, 7, 8, 10, 11			
2, 4	2	2 & 4	1.5^{th}
3, 4, 4, 5			
3, 4, 4, 5, 7, 8			
2, 3, 6, 6, 7, 8, 9, 9			
5, 6, 7, 7, 8, 9, 10, 11, 11, 12			
5, 6, 6, 7, 8, 10, 11, 11, 11, 12, 13, 13			
	21		
	34		
	50		
n pieces of data	n		

If the Median is between two values, what should we do?

A) Take the highest value?

B) Take the lowest value?

C) Take both values?

D) Take the mean of the values?

Stewards Academy

Choosing an Average to Use An average is used to **represent** a set of data. Using different averages can **distort** and possibly **misrepresent** the data.

	Average		
	Mean	**Median**	**Mode**
Advantages			
Disadvantages			
Used for			

Write each statement into the table.

Uses all values.
Finding the most likely value.
Not affected by outliers.
Does not use every piece of data.
Has to be calculated.
Easy to find.

May not exist.
Evenly spread data.
Not affected by outliers.
Outliers can distort it.
A total can be calculated from it.
Can average non-numerical data.

Easy to find.
Data with outliers.
Non-numerical data.
Easy to find with ungrouped data.
Does not use every piece of data.

Use the numbers 1, 2, 3, 4, 5, 6, 7, 8 & 9 to complete these tables.

A

	Mean 4	Mean 3	Mean 8
Median 5			8
Mean 6	3	6	
Mean 4	4		

B

	Median 7	Mean 4	Mean 4
Range 8	9		4
Median 6		8	6
Mean 4			

C

	Range 5	Median 6	Mean 5
Mean 2		2	1
Range 3			9
Median 5	4		

Use the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11 to complete these tables.

D

	Median 1	Range 5	Mean 5	Range 6
Range 10		8		
Mean 5	0		10	
Median 6	7			5

E

	Range 5	Mean 5	Mean 3	Median 9
Median 7	4	10		
Range 8			6	
Mean 3	9		1	0

Use the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 & 15 to complete this table.

Just Some Average Puzzles

F

	Median 11	Mean 7	Range 10	Median 8
Median 9			7	
Mean 5	3	12		4
Range 15			0	
Mean 7.5		6		5

Challenging

Week 2:

- **LI: I can use averages to compare datasets**

Demonstration Videos: https://corbettmaths.com/2012/08/02/the-median/ https://corbettmaths.com/2012/08/02/the-mean/ https://corbettmaths.com/2013/12/21/the-mode-video56/ https://corbettmaths.com/2012/08/02/the-range-video/

Tasks:

Concept corner

The **range** is a measure of **spread of a set of data.**

Range = the highest value − the lowest value

Fill in the gaps

data	range
spread	compare

In statistics we frequently need to

_____ two sets of _____.

A simple comparison can be made by using the _____ to compare the

_____ of data and the mean to compare average.

1. Find:
   a) Six numbers with a mean of 6 and a range of 5.

   b) Seven numbers with a median of 9 and the range of 10.

   c) Five numbers with a median of 6, mean of 5.6 and range of 5.

2. The number of minutes 12 trains were late in one day are shown below.

4 5 4 6 7 10 2 1 3 4 5 3

a) What is the range of times recorded?

b) Calculate the mean of the times recorded in minutes?

The number of minutes 12 buses were late in one day was also recorded. The range in lateness is 15 minutes and the mean lateness is 6 minutes.

c) Compare and comment on the lateness of the trains and buses.

3. The times, in seconds, taken by 8 girls to run 100 metres are shown.

13 17 15 18 15 19 18 16

a) What is the range of these times?

b) Calculate the mean time.

The times, in seconds, taken by 8 boys to run 100 metre are shown.

17 12 15 15 14 16 17 16

c) Compare on the times taken by these girls and boys to run 100 metres.

5. Which is the best average to analyse the data in these questions?

Explain why.

a) 10 people swim a 25 m length in pool. Their times, in seconds, are recorded.

30.1 29.6 31 31.5 26.9 29.9 30.2 30.9 31

b) On a train: 17 people are wearing trainers, 10 people are wearing boots and 3 people are wearing sandals.

Stewards Academy

Week 2:

- **LI: I can use averages to compare datasets**

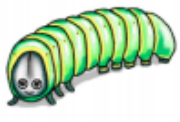
Demonstration Videos: https://corbettmaths.com/2012/08/02/the-median/ https://corbettmaths.com/2012/08/02/the-mean/ https://corbettmaths.com/2013/12/21/the-mode-video56/ https://corbettmaths.com/2012/08/02/the-range-video/

Tasks:

Question 1: The length of nine caterpillars are listed below

9cm 4cm 8cm 10cm 7cm 5cm 13cm 10cm 6cm

(a) Find the mode
(b) Find the median
(c) Find the mean
(d) Find the range



Question 2: James plays six games of darts.
His scores are 120, 71, 80, 14, 90, 117

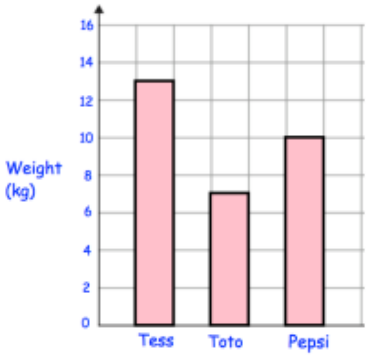
Should James use the mean or the median to give him the highest average score?

Question 3: Shown are the weights of 3 puppies.

(a) Work out range of the weights

(b) Work out the median weight

(c) Work out the mean weight



Question 4: The amount of water in some containers are:

2 litres, 330ml, 0.08 litres, 0.7 litres, 75ml, 5000ml, 0.15 litres

(a) Work out the median (b) Find the range

Question 5: The median height of 11 footballers is 1.85m.
Only one footballer has a height of 1.85m
How many footballers have a height under 1.85m?

Question 6: Write down seven numbers that have a range of 10 and a mean of 12.

Question 7: Write down six numbers that have a median of 8, a mean of 9 and a range of 13

Question 8: Five numbers have a range of 14.
Four of the numbers are 20, 22, 31 and 25.
Work out the two different possible values for the fifth number.

Question 9: Belfast Giants have played 5 matches and the mean number of goals scored is 3
When they play the 6th match, the mean increases to 4.

How many goals were scored in the 6th match?

Question 10: James is a car salesman.
He has a target of selling 5 cars a day from Monday to Friday.
Over Monday to Thursday, he has sold a mean of 6 cars a day.
How many cars must he sell on Friday to meet his target?

Question 11: A teacher surveys a group of students.
He asks how much pocket money they receive each week. They respond

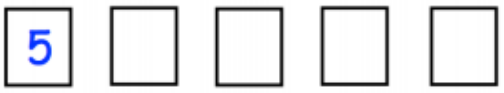
£5 £8 £4 £50 £6 £8 £7.50 £10 £8 £7

(a) Work out the median
(b) Work out the mean
(c) Which average, the median or the mean, is most suitable for this data?

Question 12: A set of six numbers have a median of 9.
All of the numbers are even.
The range of the numbers is 8.
The mode of the numbers is 6.

Write down a possible set of six numbers.

Question 13: Shown below are five cards which are arranged in order from smallest to largest



The range of the cards is 6.
The median of the cards is 7.
The mean of the cards is 8.

Work out the 4 missing numbers.

Stewards Academy

Week 3:

- **LI: I can find the mode, median and mean from tables and graphical representations**

Demonstration Videos: https://corbettmaths.com/2013/03/16/median-for-a-frequency-table/
https://corbettmaths.com/2012/08/19/means-from-frequency-tables/

Tasks:

1. Sally measures the lengths of all the pencils in her pencil case.

   She recorded the following results.

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

a) Complete the frequency distribution table.

Length (cm)	Number of pencils Frequency	Frequency × length (cm)
2		
3		
4		
5		
6		
Totals		

b) Write the modal value(s) of the lengths of the pencils Sally measured?

c) What is the median of the length of pencils Sally measures?

d) Calculate the mean of the lengths of the pencils that Sally measured.
Round your answers to a suitable degree of accuracy.

2. 35 people were asked how many pens they have in their pencil cases.
   The results are recorded in the table below:

Number of pens	Number of people Frequency	Frequency × number of pens
	1	
2	12	
3	14	
4		
5	6	
Total	35	

The mean is 3.

a) Use this information to help complete the frequency table above.

b) What is the mode of the number of pens in the pencil cases?

c) What is the median of the number of pens in the pencil cases?

Week 3:

- **LI: I can find the mode, median and mean from tables and graphical representations**

Demonstration Videos: https://corbettmaths.com/2013/03/16/median-for-a-frequency-table/
https://corbettmaths.com/2012/08/19/means-from-frequency-tables/

Tasks:

3. True or false?

Letters delivered	Frequency
0	2
1	7
2	3
3	2
4	3

a) The data set contains exactly 10 values ……

b) The median is 2 as it's in the middle of 0, 1, 2, 3, 4. ……

c) The mean cannot be 1.8 because you cannot have 1.8 letters! ……

d) There are 5 different values in the data set. ……

e) The number 7 does not appear in this data set. ……

f) The data is discrete. ……

g) The range is 4. ……

h) The combined total of all the letters delivered is 31. ……

i) The mode of the data is 4. ……

j) The mean is 3.4. ……

Question 1: A teacher asked his class how long they spent revising for a test, to the nearest hour. By calculating the mean, compare the amount of time the boys and girls spent revising.

Boys

Hours	Frequency
0	0
1	2
2	3
3	4
4	5
5	1

Girls

Hours	Frequency
0	2
1	7
2	2
3	2
4	1
5	1

Question 2: Aidan plays 50 games in an arcade. The table shows how many tickets he won in each game.

(a) Work out the missing frequency

(b) Work out the total number of tickets won

(c) Work out the mean number of tickets won per game.

Aidan wants to exchange his ticket for a prize that costs 800 tickets.

Tickets won	Frequency
0	4
1	3
2	5
3	
4	11
5	6
6	10
7	2
8	3

(d) How many more games do you expect Aidan would have to play?

Question 3: Max rolls a dice 80 times. The table shows the results.

(a) Find the value of x

(b) Work out the mean score

Number	Frequency
1	4
2	6
3	x + 5
4	x
5	2x
6	5

Week 3:

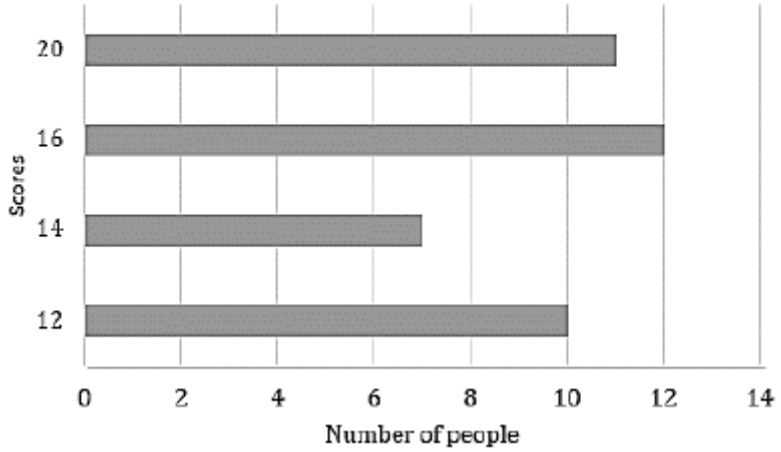
- **LI: I can find the mode, median and mean from tables and graphical representations**

Demonstration Videos: https://corbettmaths.com/2013/03/16/median-for-a-frequency-table/
https://corbettmaths.com/2012/08/19/means-from-frequency-tables/

Tasks:

4. A group of people took part in a quiz.

The bar chart shows their scores.



Complete the table and use this to answer the questions below.

Scores	Frequency (Number of people)	Frequency × scores
Totals		

a) Which score is the mode?

b) What is the median score?

c) How many people took part in the quiz?

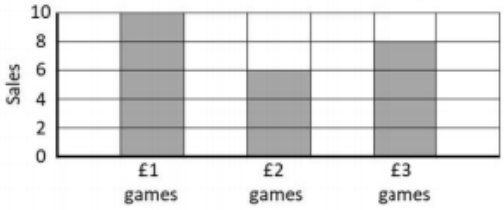
d) Calculate the mean score.

Stewards Academy

App Store Data

Nu-Gen Games Ltd sell mobile phone games at different price levels: £1, £2 & £3.

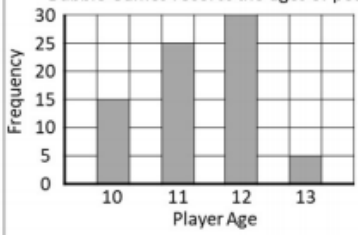
The bar chart shows sales over a day.



1)

a) How much money did the company make from £2 games?
b) How much more money did they make from £3 games?
c) How many games were downloaded in total?

Bubble Games recorcs the ages of people who play its games.

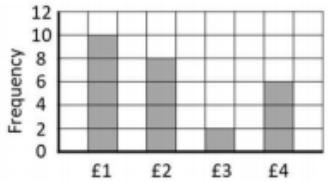


Age		
10		
11		
12		
13		

3) Complete a frequency table to help answer these questions:

What is the **range** of player ages?
What is the **mode** age?
What is the **median** age?
(imagine putting all the players in age order & picking the middle player)
What is the **mean** age of the players?

God-Bod LTD sell health apps for £1, £2, £3 & £4.
The bar chart shows sales over a week.



App Price (£)	Frequency	Total Spent
1		
2		
3		
4		

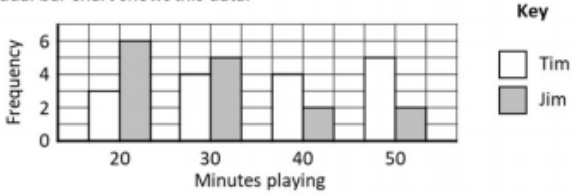
2) Complete the frequency table to help with these questions.

a) How many apps were sold in total?
b) How much money did the company make in total?

c) Use this information to calculate the mean average sale value.

4) Tim & Jim both play Berserk Battle. Every day they played in June, they recorded how long they spent playing (to the nearest 10 minutes).

The dual bar chart shows this data.



a) Who spent the most time playing?
b) Who played on the most days?
b) Compare the mean & median time spent playing for Tim & Jim

Pets are getting more popular.

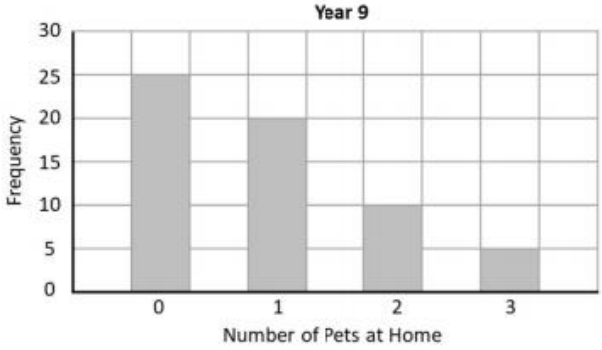
Matt tested his hypothesis by surveying some Year 7, Year 9 & Year 11 students.

He represented the data using bar charts.

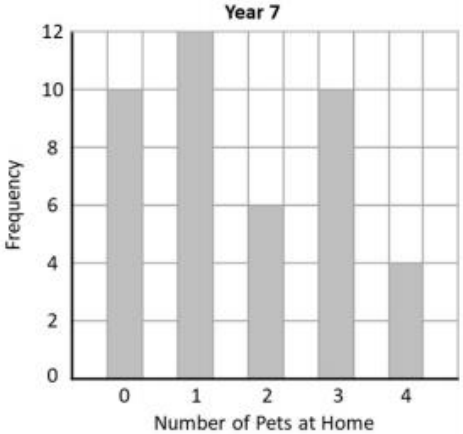
Is Matt's hypothesis generally true?

What do you think of how the data is represented?

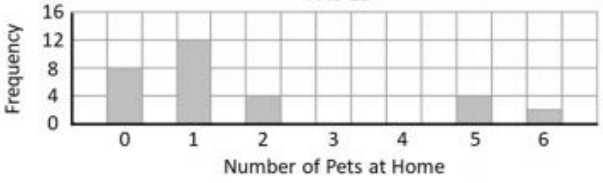
Year 9



Year 7



Year 11



How many students from each year group were surveyed?
How many pets were owned in total for each year?

Use this information to calculate the mean pets-per-household for each year.

Calculate & compare the mean, median & range for each year.

Do we need to be careful comparing averages?
How could we improve data collection, analysis & representation?

Stewards Academy

Week 4:

- **LI: I can analyse the difference between discrete and continuous data**

Demonstration Videos: https://corbettmaths.com/2013/05/12/discrete-and-continuous-data-corbettmaths/

Tasks:

Concept corner

Use the words in the box to fill in the blanks.

primary	qualitative	continuous
variables	discrete	secondary
	quantitative	

..... data is raw data collected by an individual or organisation to use for a particular purpose.

..... data is already available or has been collected by someone else for a different purpose.

Data is made up of a collection of .....

Data that can only be described in words is.....

Data which is give numerical values is .....

Quantitative data is either..... or.....

..... data can only take certain values, usually whole numbers, but may include fractions.

..... data can take any value within a range and is measurable.

1. Complete the table below:

Situation	Example of data	Type of data (Quantitative, qualitative, discrete, continuous)
The height of trees in the forest.	2.8 m	
The sizes of ladies dresses in a shop.		
How much pocket money people receive.	£7	
The colours of cars in a carpark.		
The number of desks in a classroom.		Quantitative and discrete
The size of spanners in a toolbox		
The types of sandwiches in a café.		

What type of data in mentioned in the questions?
(Quantitative, qualitative, discrete, continuous)

Which town were you born in?	How old are you?
How much do you spend on music downloads?	What is the weight of this cake?
How many texts do you send in a week?	Do you own a tablet PC?
How tall are you?	How fast can you run 100m?
What size trousers do you wear?	What is your favourite food?
How many people live in your house?	What is your hand span?
What is the colour of your car?	How much water is there in this glass?

Stewards Academy

Week 4:

- **LI: I can explore methods of data collection**

Demonstration Videos: https://corbettmaths.com/2013/06/23/questionnaires/

Tasks: **13.5: Explore methods of data collection including surveys, questionnaires and the use of secondary data**

1. A questionnaire is a set of questions used to collect data for a survey.

   True or False?

   Questionnaires should always:

   a) Use simple language .....

   b) Ask questions which can be answered precisely .....

   c) Must provide a tick box .....

   d) Must have open-ended questions .....

   e) Should avoid leading questions .....

   f) Must have a space for people to write their name .....

2. Each of these questions and responses are poorly written.

   Re-write a good question and answer set for these questions.

1. Do you have long or short hair?

   ☐ Yes ☐ No

2. How old are you?

   ☐ 0 – 9 ☐ 9 – 19 ☐ 19 – 29 ☐ 30 +

3. What is your favourite subject?

   ☐ Maths ☐ Other

4. You don't not like football?

   ☐Yes ☐No ☐ Don't know

5. How much TV do you watch a year?

   ☐ Less than 400 hours ☐ Between 400 to 800 hours
   ☐ More than 800 hours

6. What do you do in your free time? _____

3. A mobile phone company wants to carry out a survey. It wants to find out the distribution of age and gender of the customers and the frequency with which they use their phone.

   Design a suitable questionnaire for the mobile phone company to use.

   [Remember to include response boxes].

Stewards Academy

Week 4:

- **LI: I can explore methods of data collection**

Demonstration Videos: https://corbettmaths.com/2013/06/23/questionnaires/

Tasks:

1. George wants to find out how much money people spend on DVDs.

He uses this question.

How much do you spend on DVDs?

- ☐ £5 - £10
- ☐ £10 - £30
- ☐ £30 - £50
- ☐ Over £50

(a) Write down two criticisms of his question.

1 .....

.....

2 .....

.....

(2)

(b) Design a better version of this question.
Include response boxes.

(2)

George asks 10 people in his class.

(c) Explain why his sample is biased.

.....

.....

(1)

Jon wants to find out how much people spend on Christmas presents.

Design a question for his questionnaire to find out how much people spend on Christmas presents each year.
Include response boxes.

Stewards Academy

Week 5:

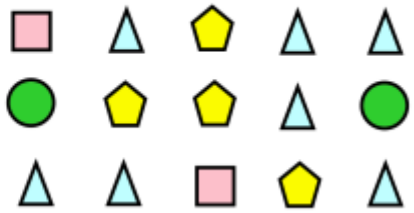
- **LI: I can classify and tabulate data**

Demonstration Videos: https://corbettmaths.com/2013/05/07/tally-charts-corbettmaths/

Tasks:

Question 1: Copy and complete the tally chart

Shape	Tally	Frequency
Circle		
Pentagon		
Square		
Triangle		



Question 2: Dara has recorded how many tries he scored in 25 rugby matches
Copy and complete the tally chart

1	2	0	0	1
0	1	0	2	0
0	3	0	1	0
0	1	2	1	2
0	1	1	1	0

Number of tries	Tally	Frequency
0		
1		
2		
3		

Question 3: Isabelle is creating a tally chart.
Complete the tally chart for her.

Day	Tally	Frequency
Monday	𝍸 𝍸 II	12
Tuesday	III	
Wednesday		7
Thursday	𝍸 𝍸 𝍸 IIII	
Friday		10

Question 4: Jessica rolls a dice 30 times and records the scores.

(a) Draw a tally chart to show her results

(b) Which score was the most common?

(c) Do you think the dice was fair?

6	1	2	3	2	1	5	1	4	1
1	4	1	6	6	5	1	2	3	1
1	3	2	3	2	1	1	6	1	1

Question 5: Danielle asked 50 people how they travelled to school.
The tally chart below shows her results.

	Tally	Frequency
Walk	𝍸 𝍸 𝍸 ||	
Bus	𝍸 𝍸 𝍸 𝍸 |	
Cycle	|||	
Car	𝍸 ||||	

(a) Copy and complete the tally chart

(b) Which method of travel was the most popular?

(c) Danielle says twice as many people walked than travelled by car.
Is Danielle right?

Question 6: Miss Wallace gave the students in a year 6 class a quiz.
The results are shown below.

34	15	31	24	8	11	35
32	27	19	21	39	25	23
14	26	25	26	18	27	30

Score	Tally	Frequency
1 - 10		
11 - 20		
21 - 30		
31 - 40		

(a) Copy and complete the tally chart

(b) How many students are in the class?

Question 7: Thomas records the ages of people at a party.

Age	Tally	Frequency
21 - 30	||	
31 - 40	𝍸	
41 - 50	𝍸 𝍸 𝍸 ||||	
51 - 60	𝍸 𝍸 |	
61 - 70	|||	

(a) Complete the tally chart

(b) How many people when to the party?

(c) How many people were 40 years or younger?

(d) Thomas says the oldest person was 70. Explain why he might not be correct.

Week 5:

- **LI: I can classify and tabulate data**

Demonstration Videos: https://corbettmaths.com/2012/08/10/two-way-tables/

Tasks:

Question 1: Complete the two way table to show the information about the shapes below.

	Rhombus	Star	Total
Red			
Yellow			
Total			

Question 2: 50 children were asked if they wanted to go bowling or to the cinema.

17 girls and 11 boys wanted to go bowling.
12 boys wanted to go to the cinema.

(a) Use this information to complete the two-way table below.

	Bowling	Cinema	Total
Boys			
Girls			
Total			

(b) How many children, in total, want to go to the cinema?

Question 3: Complete the following two way tables:

(a)

	Car	Bus	Walk	Total
Year 9	10	8		24
Year 10		7	5	
Total	16			42

(b)

	English	Art	Total
Pass	25		
Fail		12	13
Total		19	

(c)

	Rugby	Football	Hockey	Total
Class 9A	7		6	24
Class 9B		3		
Total	12			40

(d)

	Child	Adult	Total
Male	52		86
Female		43	
Total			178

Question 4: This two-way table shows information about the students in years 8, 9 and 10.

	Year 8	Year 9	Year 10
Boys	45	38	51
Girls	32	52	28

(a) Find the total number of students in year 8.
(b) Find the total number of girls in years 8, 9 and 10.
(c) What fraction of the students are in year 10?
(d) What fraction of year 9 students are girls?

Question 5: This two-way table shows the number of goals scored in each match by three football teams throughout January, February and March.

	Rovers	City	United
0 goals	8	3	5
1 goal	3	8	9
2 or more	7	9	4

(a) Find the number of matches that Rovers played.
(b) Find the number of matches where 1 goal was scored by these teams.
(c) In what percentage of their matches did City score no goals?
(d) Find the fraction of United's matches where they scored 2 or more goals.

Week 5:

- **LI: I can classify and tabulate data**

Demonstration Videos: https://corbettmaths.com/2012/08/10/timetables/

Tasks:

Question 1: Here is part of a train timetable

Westville	08 45
Milton	08 58
Gold City	09 05
Red Island	09 31
Market Place	09 54

(a) What time does the train arrive in Gold City?
(b) How long is the journey from Westville to Milton?
(c) How long is the journey from Milton to Red Island?
(d) How long is the journey from Westville to Market Place?

Question 2: Here is part of a timetable for a bus

Southville	09 20	10 30	12 10
Leek	09 48	10 58	12 38
Milton	09 55	11 05	12 45
Newtown	10 10	11 20	13 00
Red Island	10 19	11 29	13 09
Sandville	10 45	11 55	13 35
Bakerstown	11 01	12 11	13 51

James catches the bus at 09:20 in Southville.

(a) What time should the bus arrive in Milton?
(b) How long does the journey from Southville to Milton take?

Willow arrives at the Red Island bus stop at 11:10
She waits for the next bus to Bakerstown.

(c) How many minutes should she wait?
(d) At what time should Willow arrive at Bakerstown?
(e) How long does the journey last?

Olivia lives in Leek and has a meeting in Newtown at 13:20

(f) What time should Olivia catch the bus in Leek?

Question 3: Here is Jenson's timetable on a Wednesday.

(a) How long does the maths lesson last?
(b) How long does the English lesson last?
(c) How long does the PE lesson last?

Jenson leaves school early to go to a doctor's appointment.
He leaves the English lesson 35 minutes before the end.

(d) What time did Jenson leave the English lesson?

Question 4: Here is part of a bus timetable.

Ballymena	15 12	16 12	17 12
Antrim	15 34	-----	17 34
Templepatrick	15 50	-----	17 50
Belfast	16 10	17 00	18 10

A bus leaves Ballymena at 17:12.

(a) At what time should the bus arrive at Templepatrick?
(b) How long will the journey take.

Evelyn wants to travel from Ballymena to Belfast.
The 16:12 in an "express bus."

(c) How many minutes shorter is the journey if she takes the "express bus?"

Apply

Question 1: Here is part of a train timetable.

Cardiff	06 56
Newport	07 12
Bristol	07 37
Keynsham	07 44
Bath	07 54

Danny lives in Cardiff and works Keynsham.
He works Monday to Friday.
Danny travels to work and back each day by train.

How long should Danny spend on the train each week?

Stewards Academy

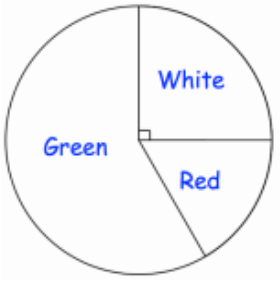
Week 6:

- **LI: I can draw, analyse and interpret graphs**

Demonstration Videos: https://corbettmaths.com/2013/02/27/drawing-a-pie-chart/
https://corbettmaths.com/2013/05/25/interpreting-pie-charts/

Tasks:

Question 1: This pie chart shows the colour of sweets in a bag.



(a) What is the most common colour of sweet?

(b) What is the least common colour of sweet?

(c) What fraction of the sweets are white?

Question 2: The students in a school study one language.
The pie chart shows the languages studied.

(a) What is the most popular language?

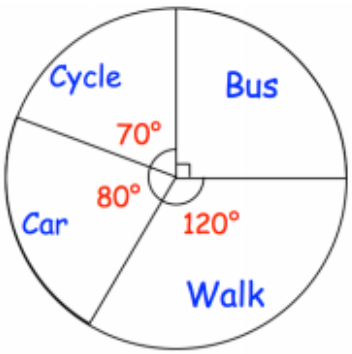
(b) What is the least popular language?

(c) What fraction of the students studied French?

There are 300 students that attend the school.

(d) How many students study French?

Question 3: The pie charts shows how a group of students travel to school.



(a) What is the most common method of travel?

(b) What is the least common method of travel?

(c) What fraction of the students caught the bus?

(d) What fraction of the students walked?

There are 36 students in the group.

(e) How many students caught the bus?

(f) How many students walked?

Question 1: Draw a pie chart for each set of data below

(a)

Method of Transport	Frequency
Car	8
Bus	11
Walk	12
Cycle	5

(b)

Rugby Team	Frequency
England	20
France	5
Ireland	15
Scotland	25
Wales	25

(c)

Colour	Frequency
Blue	25
Green	14
Red	21

Stewards Academy

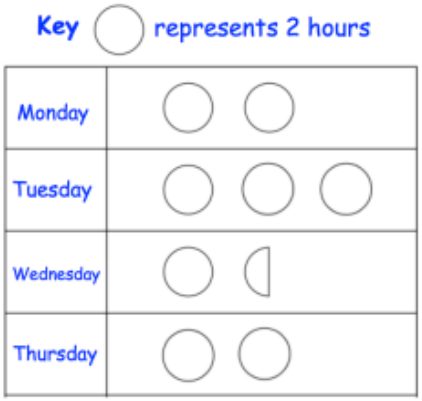
Week 6:

- **LI: I can draw, analyse and interpret graphs**

Demonstration Videos: https://corbettmaths.com/2013/05/25/drawing-pictograms/
https://corbettmaths.com/2012/08/09/reading-pictograms/

Tasks:

Question 1: James is revising for an exam.
The pictogram shows how many hours he spent revising over four days.



(a) How many hours did James spend revising on Monday?

(b) How many hours did James spend revising on Wednesday?

(c) On which day did James spend 6 hours revising?

(d) How many hours did James spend revising in total?

Question 2: The pictogram shows how much money 4 friends raised for charity.

(a) Who raised the most money for charity?

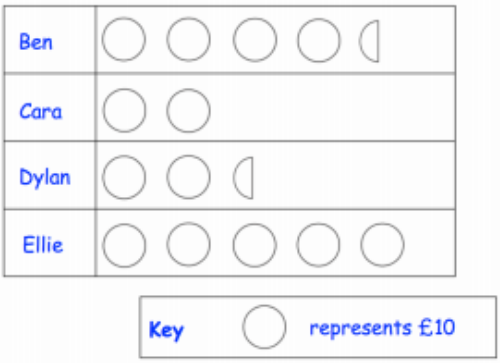
(b) Who raised the least money for charity?

(c) How much money did Dylan raise?

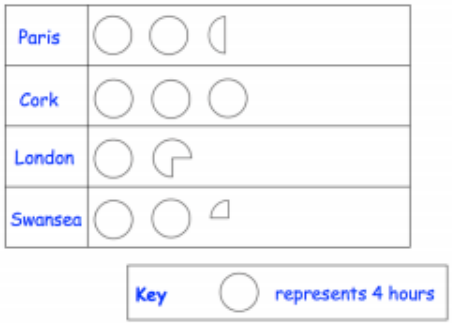
(d) How much more did Ellie raise than Cara?

(e) How much more did Ellie raise than Dylan?

(f) How much money did the friends raise in total?



Question 3: The pictogram shows the number of hours of sunshine in four cities for a day in May.



(a) Which city had the most sunshine?

(b) How many hours of sunshine did Swansea have?

(c) How many more hours of sunshine did Paris have than London?

Question 4: Draw a pictogram for each of the following tables.
Use a suitable key.

(a)

Sport	Frequency
Badminton	20
Judo	15
Squash	25
Table Tennis	5

(b)

Day	Cars sold
Monday	6
Tuesday	8
Wednesday	3
Thursday	10
Friday	7

(c)

Position	Players
Goalkeepers	3
Defenders	18
Midfielders	16
Forwards	14

(d)

Shoe Size	Frequency
4	6
5	9
6	15
7	12
8	6

(e)

	Tweets
Hollie	50
Nick	120
Chris	70
Becky	80

Stewards Academy

Week 6:

- **LI: I can draw, analyse and interpret graphs**

Demonstration Videos: https://corbettmaths.com/2013/04/15/drawing-bar-charts/
https://corbettmaths.com/2012/08/10/reading-bar-charts/

Tasks:

Question 1: The bar chart shows information about the hair colour of students in 7C.

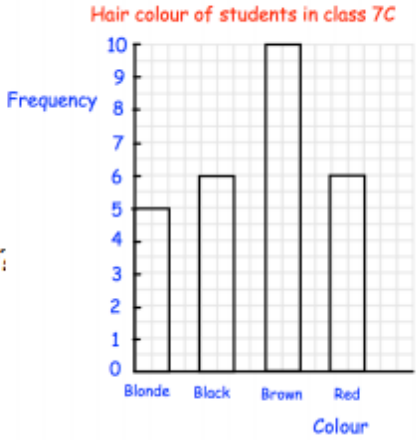
(a) What is the most common hair colour in 7C?

(b) How many students had black hair?

(c) What hair colour is the least popular in 7C?

(d) How many more students had brown than red hair?

(e) How many students are in 7C?



Question 2: Nicole recorded the colours of cars in a car park
She then drew a bar chart to show the results.

(a) What is the most common colour of car?

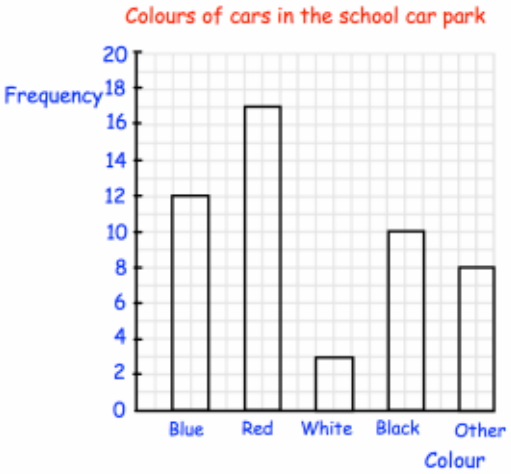
(b) How many cars were blue?

(c) How many cars were white?

(d) How many more cars were red than black?

(e) Why do you think there is a bar called "other?"

(f) How many cars were in the car park?



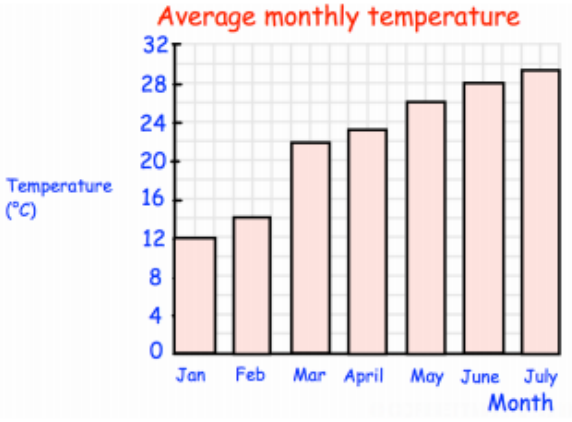
Question 3: The bar chart shows information about the average temperature on an island.

(a) What was the average temperature in March?

(b) Which month had an average temperature of 26°C?

(c) What is happening to the average temperatures between Jan and July?

(d) Between which two months was there the greatest rise in temperature?



Question 1: Draw a bar chart for each of these tables.

(a)

Sport	Frequency
Cricket	4
Football	3
Hockey	6
Rugby	1

(b)

Country	Frequency
China	12
Japan	18
South Korea	6
Thailand	6

(c)

Colour	Frequency
Blue	15
Green	8
Red	21
Yellow	3

Question 2: Draw a bar chart for each of these tables

(a)

Year	Students
7	36
8	35
9	25
10	24
11	16

(b)

Grade	Students
A	80
B	120
C	200
D	100
E	40
U	20

(c)

Animal	Frequency
Cat	12000
Dog	13000
Fish	1000
Horse	2000
Rabbit	7000

Attainment Band :	Unit 6 – Statistics	
	Knowledge and Understanding	**Skills**
Yellow Plus	Correctly represents data in another form to aid calculations 9c	Analyses and interprets charts/graphs discussing the advantages and disadvantages 8
Yellow	Applies knowledge of mean to solve problems 5 Differentiates between discrete and continuous data and the best ways to represent both 8	Finds the mean once a data piece has been removed 5 Solves problems from data represented as pie charts 7 Tabulates data from a bar chart to find the mean 9c
Blue	Uses fractions of amounts to aid pie chart calculations 3/7	Uses inverse operations to find the number of people represented in a pie chart 3c Finds the mean from an ungrouped frequency table 6
Green	Understands and interprets bar charts 9a Understands problems presented with data collection methods such as questionnaires 2 Distinguishes between the different types of average and knows how to calculate them 3a,4	Designs a non-flawed questionnaire, including response boxes 2b Represents information from a pie chart as a fraction 3b Writes critique for a questionnaire 2a Finds the mean and median from a list of data 4b, 4d Identifies the range of a data set represented in a bar chart 9b
White	Writes fractions in their simplest form 3b	Identifies data collection methods 1 Identifies the mode from a pie chart 3a Calculates the mode and range from a list of data 4a, 4c