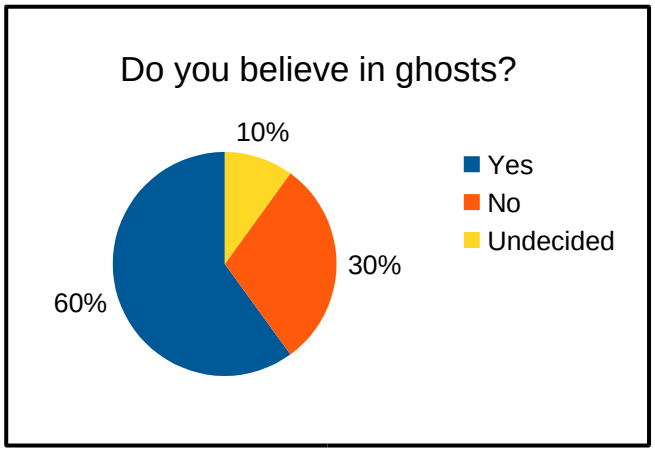
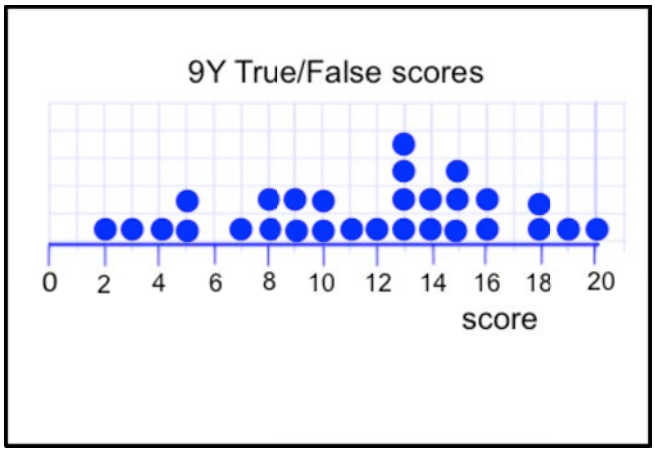
Can you interpret these statistical diagrams?

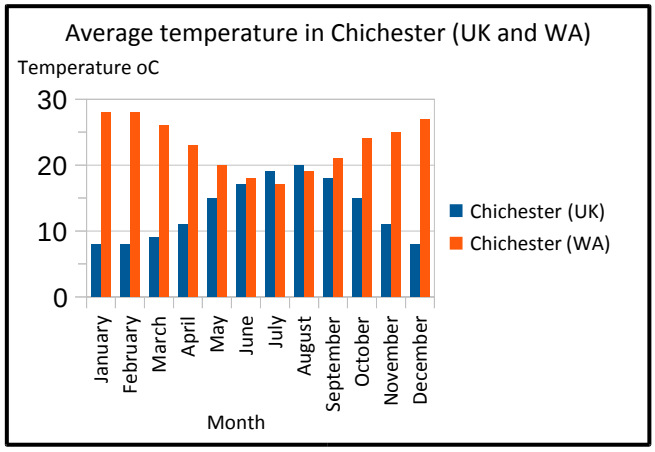


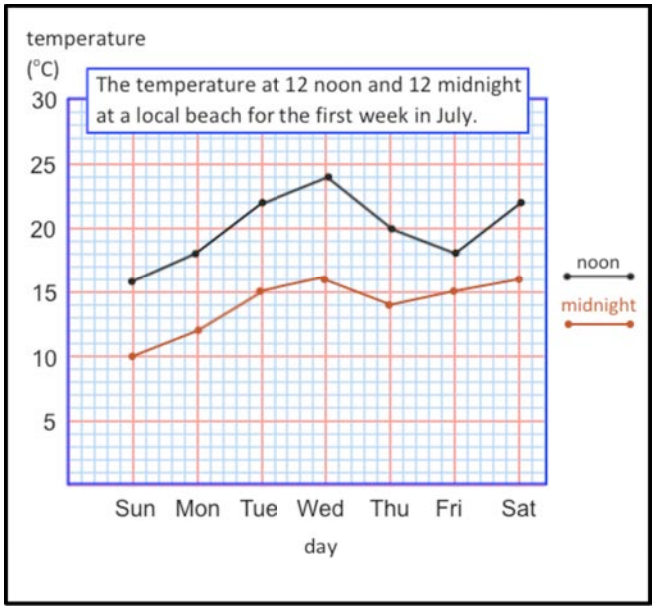


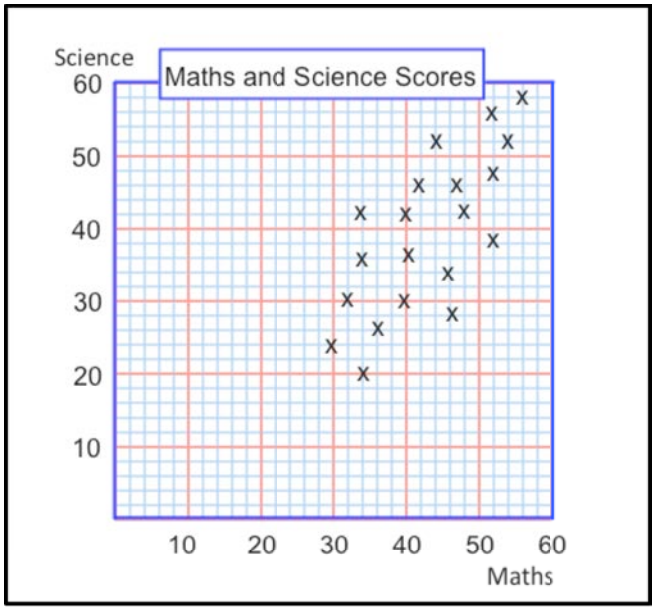
Pulse rate at rest

4	6 8 8	(3)
5	2 4 7 7	(4)
6	4 8 8 9 9	(5)
7	0 2 2 2 5 6	(6)
8	6	(1)
	Count	(19)

Key 5 | 2 represents 52 beats per minute







Drawing a statistical graph is not an end in itself. The purpose of graphs is to help us to understand the data. After drawing a graph, always ask, “What can I see?”

THE CHICHESTER CHIMES

Volume 1 Edition 1 | July 1st 2016 | www.chichimes.online

GOLIATH FIND ON THE DOWNS



Police dramatically closed down a local university's summer archeology dig on the South Downs last night. This followed the unexpected discovery of a fossilised "human" footprint of gigantic proportions.

Professor Marlon Groves said, "If my calculations are correct, this footprint suggests that the owner was a little of 3m tall." Students immediately christened their find Goliath after the Biblical character who was reported to be 3.20m tall (1 Sam 17:4) and who lived around 1010BC.

This paper can report that there have actually been several reports of "giant" skeletons found in different parts of the world. However, this information is carefully kept away from the public.

For example on December 20th, 1897 the New York Times reported that three large burial mounds had been discovered near Maple Creek, WI. Upon excavation, a skeleton measuring over nine feet from head to toe was discovered with other relics.

It seems that information is being suppressed as it clashes with Darwin's theory of evolution.

This reporter wants to know if this is part of a giant cover up by the authorities.

Watch this space for further developments.



Alice

Let's think about the what sort of evidence Professor Groves needed to draw his conclusion that the footprint belonged to a man "a little over 3m tall?….

He must have had lots of data to look at.



Evie



Jon

In any case, how tall is a giant?

Just how tall is a giant?



Jon

I'm not really sure but definitely taller than a giraffe.

Statistical problem solving is an investigative process that involves four components: formulating questions, collecting data, analysing data and interpreting results.

Statistical questions are quite different to other maths questions as they generally allow for a variety of answers or opinions. Statistical thinking focuses on understanding and describing variability in data.

Data comes from one of two possible sources – these are commonly referred to as *primary* sources (where you collect the data yourself) or *secondary* sources (where you use data already collected by someone else).

In this section we will be concentrating on collecting primary data through a class survey which we will later use across KS3 to investigate such questions such as "Do you believe in aliens?

Name	Group	ID
	Gender	

Question 1 Do you believe in aliens?	Yes	No	Undecided
Tick one			

Question 2 How tall is a giant?	Over 2m	Over 3m	Over 4m	Over 5m	Over 6m
Tick one					

Question 3 What happened to the dinosaurs?	Possible explanations	Tick one
	They were too heavy to swim and so were drowned in a global flood.	
	They were victims of climate change following a volcanic eruption that caused a dust cloud to obscure the sun.	
	After a meteorite hit the earth, the temperature rose so quickly that the dinosaurs spontaneously combusted.	
	They never really existed and their bones were fabricated by early man to confuse later generations.	
	They were abducted by aliens.	

	Height (cm)	Arm span (cm)	Foot length (cm 1dp)	Hand span (cm 1dp)	Knee height (cm)
Your measurements					

When did it happen?

In each of the following questions, you simply have decide which of the suggestions are correct.

Name	Group	ID
	Gender	

		A	B	C	D
1	When was the Queen born?	1927	1926	1925	1924
2	When did chewing gum first go on sale?	1911	1913	1915	1917
3	When was the Falklands war?	1990	1980	1982	1992
4	When did the worlds first national lottery start?	1569	1769	1969	2016
5	When did Tolkien first publish the Hobbit?	1837	1937	1957	1958
6	When was the FA Cup founded?	1871	1861	1961	1971
7	When did the BBC first broadcast in colour?	1955	1967	1956	1966
8	When was the first parliament of Britain held?	1807	1707	1907	1507
9	When was Prince George born?	2013	2015	2008	1996
10	When was the tank first used in battle?	1896	1900	1910	1916
11	Which year was the Boston Tea Party?	1673	1763	1773	1776
12	When was the battle of Agincourt?	1515	1715	1415	1215
13	When was Blackpool Tower opened?	1894	1895	1896	1897
14	When was Bentley Motors formed?	1919	1909	1929	1939
15	When was the first episode of Coronation Street?	1950	1955	1960	1965
16	When was the UKIP political party founded?	1963	1973	1983	1993
17	When was the first transatlantic telephone call?	1926	1936	1915	1916
18	When did Sellotape first go on sale?	1927	1937	1947	1957
19	When did Britain's first woman doctor qualify?	1965	1685	1865	1912
20	When did Blackpool first have illuminations?	1925	1935	1945	1955

True or False

In each of the following questions, you simply have decide if the statement is true or false.

Name	Group	ID
	Gender	

	Statements	True	False
1	New Zealand is an island.		
2	The 2008 Summer Olympics were held in Bejing.		
3	The Titanic sank in 1922.		
4	Singapore is the largest country with no farms.		
5	Cotton is made from sheep's wool.		
6	Everyday, more money is printed for Monopoly sets than for the U.S. Economy.		
7	The Thames is the longest river Britain.		
8	60% of all the worlds lakes are found in Canada.		
9	The CD was invented in 1981.		
10	The Pale Catshark is the smallest shark in the world.		
11	Rihanna is the best selling female singer in the world.		
12	The Hawaiian alphabet has 13 letters.		
13	Rope made from hemp floats.		
14	Holland consumes the most pork in the world.		
15	Nuclear energy supplies a third of the electricity in the UK.		
16	Roger Moore was the first James Bond.		
17	China has more tanks than any other nation.		
18	The currency of Russia is called the 'Ruble'.		
19	Twister was the first Hollywood film released on DVD.		
20	Japan is the largest exporter of frog legs.		

Picturing distributions

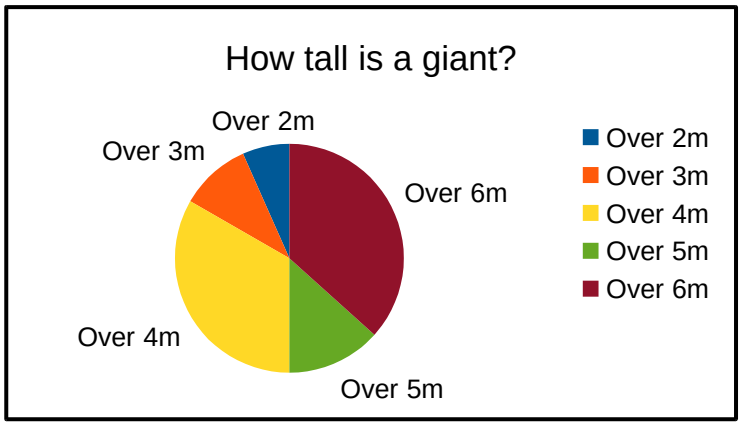
CATEGORICAL VARIABLES

A **categorical variable** places an individual into one of several groups or categories. For example in Question 1 you were given a choice of three categories. Exploring the distribution of data for a categorical variable involves summarising the frequency (count) or relative frequency (percentage) of the responses in each category.
Categorical data is usually represented by a bar chart or pie chart.

Enter your groups results into a summary table as shown below.

Question 2 How tall is a giant?	Over 2m	Over 3m	Over 4m	Over 5m	Over 6m	Total
Frequency	2	3	10	4	11	30
Percentage	6.7%	10%	33.3%	13.3%	36.7%	100%
Angle	24°	36°	120°	48°	132°	360°

I decided to draw a pie chart in my report.



1 Draw a pie chart to represent your data for this question.



I wonder if the other groups thought the same?

Sarah

2 Look at the data for another group for the same question.
Compare the two sets of results in an appropriate way.

Picturing distributions



Jon

I think we are a lot smarter than 9Z.

Never! Show me your evidence!



Evie

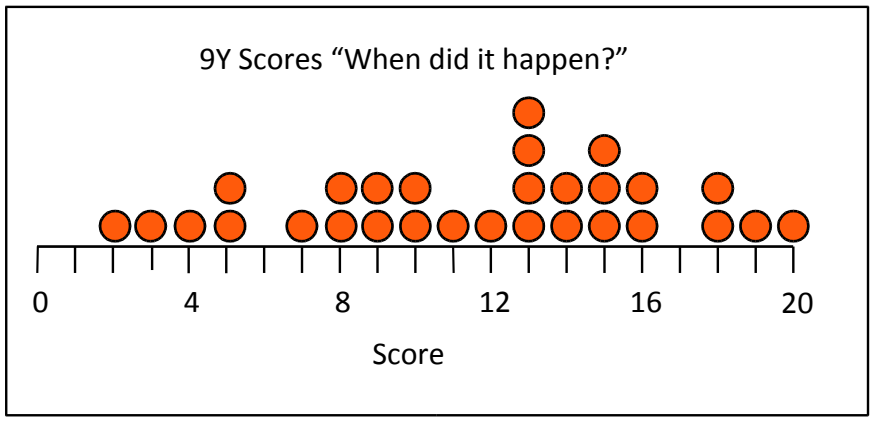
QUANTITATIVE VARIABLES

Quantitative variables are numerical. They represent a measurable quantity. They can either be discrete or continuous. **Discrete** data, such as your score in the True/False round, takes only particular, exact values. **Continuous** data can take any vale in a range. For example, the measurements you recorded in your survey are all examples of quantitative continuous data. It is always important to record the unit of measurement such as centimetres, seconds, kilograms and so on.

Drawing a statistical graph is not an end in itself. The purpose of graphs is to help us to understand the data. After drawing a graph, always ask, “What can I see?”

To begin to investigate Jon's claim we need to look at the scores of the pupils in his group for the “When did it happen?” quiz .

One way we might do this is by drawing a **dot plot**.



Interpreting a dot plot

1. How many results are represented in the diagram?
2. What was the most common score (mode)?
3. What was the middle result (median)?
4. How many results were less than 12?
5. How many results were above 12?

3

Draw a dot plot to represent the scores of the pupils in your group and then answer the same five questions from your data.

Looking at results

Stem and leaf diagrams

Dot plots are not the only graphical display of distributions. For small data sets a stemplot or stem and leaf diagram is often quicker to produce and shows the same information.
To draw a stem and leaf diagram:

1. Split each observation into a stem, consisting of all but the final digit, and a leaf, the final digit.
2. Stems may have as many digits as needed, but each leaf contains only a single digit.
3. Write the stems in a vertical column with the smallest on the top, and draw a vertical line at the right of this column. Be sure to include all the stems needed to span the data, even when some stems have no leaves.
4. Write each leaf in the appropriate row to the right of its stem, in increasing order outwards from the stem.
5. Always include a key as shown below.

9Z Results "When did it happen?"

0	2 4 4	(3)
0	6 7 8 9	(4)
1	0 0 0 0 1 2 2 3 3 4 4 4	(12)
1	5 5 6 6 6 6 7 7 8	(9)
	Count	(28)

Key 1|5 represents 15 correct



Alice

You must remember to sort the data into ascending order first.

So it might be easier to begin by drawing a dot plot.



Matthew

Interpreting a stem and leaf plot

1. How many results are represented in the diagram?
2. What was the most common score (mode)?
3. What was the middle result (median)?
4. How many results were less than 12?
5. How many results were above 12?

4

Draw a stem and leaf plot to represent the scores of the pupils in your group.

Back to back stem and leaf diagrams

A back to back stem and leaf plot enables you to compare two sets of data on one plot. We do this by adding the second dataset on the left of the stem as shown below.
As with a single plot, the smallest leaves are positioned closest to the stem and the larger leaves are further away.

"When did it happen?" - The results

9Y			9Z	
(3)	4 3 2	0	2 4 4	(3)
(6)	9 9 8 7 5 5	0	6 7 8 9	(4)
(10)	4 4 3 3 3 3 2 1 0 0	1	0 0 0 0 1 2 2 3 3 4 4 4	(12)
(9)	9 8 8 6 6 6 5 5 5	1	5 5 6 6 6 6 7 7 8	(9)
(1)	0	2		(0)
(29)	Count		Count	(28)

Key 1|5 represents 15 correct answers



Jon

I think this shows that 9Y are smarter than 9Z because ...

Well I don't agree, I think the data shows that 9Z are smarter because ...



Evie

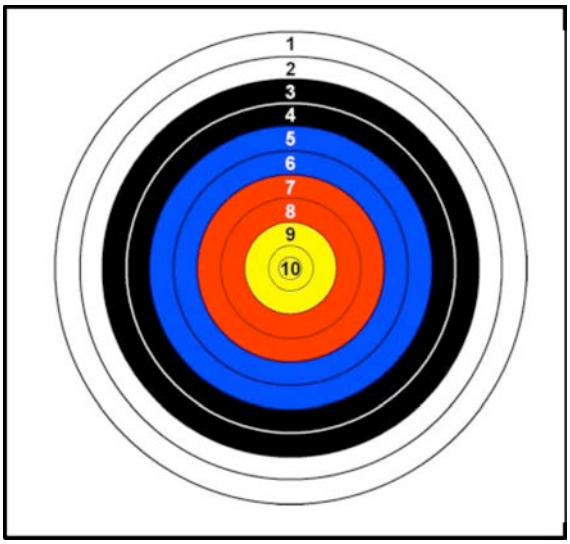
5 Look at the data and try to find evidence that supports Jon's claim and then look for evidence that supports Evie's opinion.

In statistical problems, there are often different ways of interpreting the data. News reporters and politicians often present the data in a way that supports their opinions. Beware, there may be another way of looking at the data!

6 Draw a back to back stem and leaf plot of your group's data and that from another group. What conclusions can you draw?

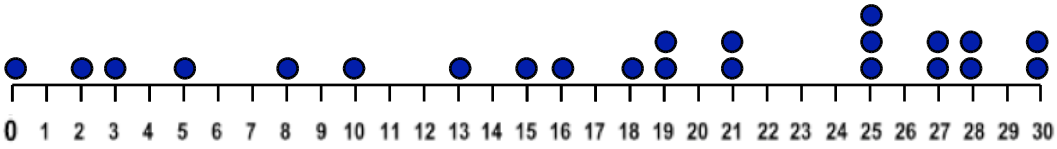
Exercises

In an archery competition each competitor had 3 shots at this target giving a maximum score of 30. The girls scores are shown in this stem and leaf plot.



0	3	(1)
0	7 9	(2)
1	0 0 2 3 4 4 4	(7)
1	5 5 6 8 9	(5)
2	0 2 4 4	(4)
2	5 6 8 9	(4)
3		(0)
	Count	(23)

The boys score are shown on this dot plot



In each case answer the following questions

1. How many results are represented in the diagram?
2. What was the most common score (mode)?
3. What was the middle result (median)?
4. How many results were less than 15?
5. How many results were above 15?

7

Look at the data and try to find evidence that suggests the boys did better and then look for evidence that suggests the girls were actually better.

Grouped frequency tables

The table on the right summaries the scores of the boys who took place in the archery competition. It does not give their individual scores as the scores are divided into 5 point intervals from 0 to 4, 5 – 9 and so on.
As the data set involves **discrete data** there is no overlap between intervals.
The range of each division is called the **class interval**, and the number of data in each class is called the **frequency**.
The table is known as a grouped frequency distribution table or **grouped frequency table**.

Score (s)	Frequency
$0 \le s \le 4$	3
$5 \le s \le 9$	2
$10 \le s \le 14$	2
$15 \le s \le 19$	5
$20 \le s \le 24$	2
$24 \le s \le 29$	7
$30 \le s \le 34$	2
Count	23

Check point

Answer the following questions about this frequency distribution table.

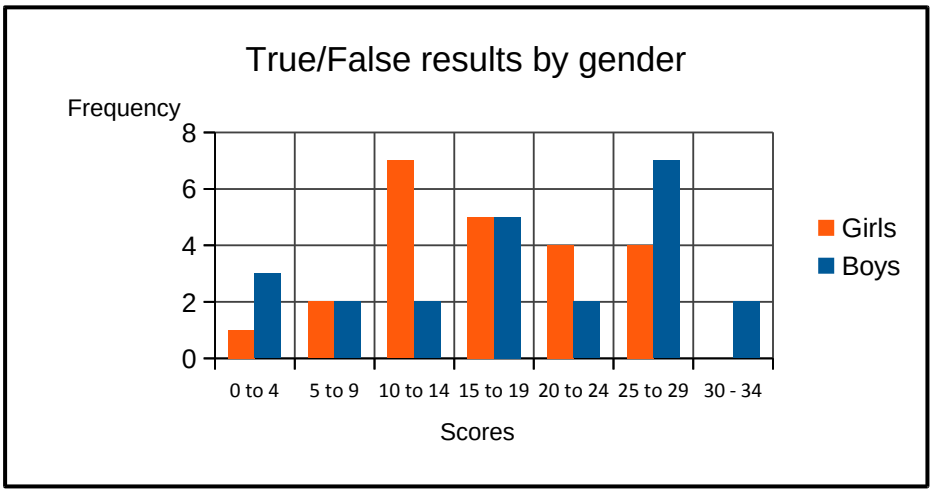
1. How many class intervals are there?
2. A pupil's score is recored as 15. In which class does his data belong?
3. Name the class that has the greatest frequency and indicate what the frequency is.
4. Which class contains the 10th lowest score?

8

Construct a grouped frequency table for the scores of the pupils in your group.

Grouped bar charts

In order to make the frequency distribution data easier to see, the distribution can be represented by a graph known as a **bar chart**. If you want to compare two different groups you can use a comparative bar chart as shown below.



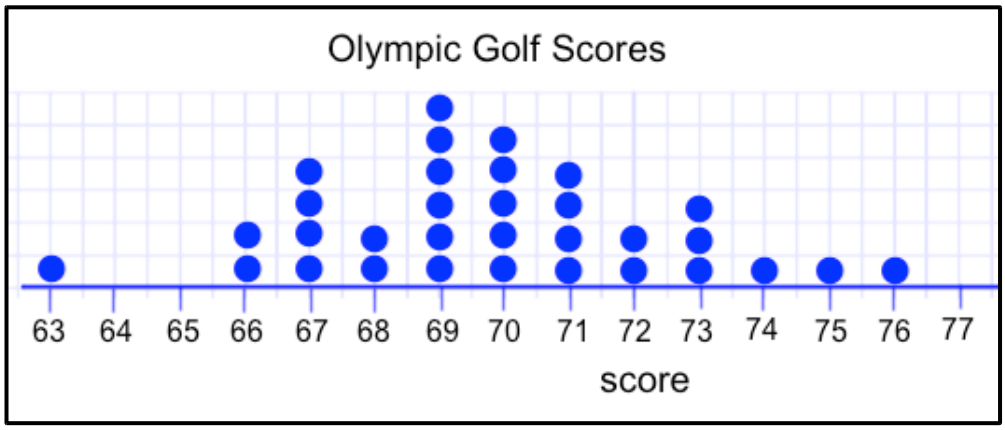
9

Construct a grouped bar chart of the pupils' scores in your group.

Exercises

Golf returned to the Olympics in 2016 after a gap over over 100 years.

This dot plot shows the first round scores of some of the top players.



1. How many player's scores are shown?
2. What was the most common score(mode)?
3. What was the middle result (median)?
4. How many scores were less than 71?
5. How many scores were above 71?

A local gym keeps a record of the ages of its member who attend their early morning sessions. They results for August are shown in this stem and leaf diagram.

1. What was the most common length (mode)?
2. What was the middle result (median)?
3. How many members were less than 40?
4. How many members were more than 70?

Gym members by age

2	2 4 5 8 9	(5)
3	0 1 1 5 7 8 9	(7)
4	0 3 4 5 8 9	(6)
5	2 4 5 6 7 7 8 9	(8)
6	1 4 5 7 9 9 9	(7)
7	0 0 2 3 6 7 8 7 9	(9)
8	0 2 3	(3)
	Count	(45)

Key 2|5 represents 25 years old

Greta is confident that the girls in her form are fitter than the boys and so challenged them to take part in a two minute astride jump challenge. Each pupil did as many astride jumps as possible in two minutes.
The results are shown in this back to back stem and leaf plot.

Does the data support Greta's claim? Try to find as much evidence as you can to justify your opinion.

Astride Jump Challenge

Boys			Girls	
(2)	2 2	1	2 4 4	(3)
(6)	9 8 8 6 5 5	1	6 7 8 8 9	(5)
(9)	4 4 3 3 2 2 2 1 0	2	0 1 1 2 2 3 3 4 4 4	(10)
(8)	8 8 6 6 5 5 5 5	2	5 5 6 6 7 7 7 8	(9)
(4)	4 2 1 0	3	0 0 2 2 4	(5)
(1)		3	8	(1)
(30)	Count			Count (33)

Key 1|5 represents 15 astride jumps

Exercises

The netball team have been practising their shooting. Each team member had twenty shots. Their scores are shown in this grouped frequency table.

Score(s)	Frequency
$1 \le s \le 5$	3
$6 \le s \le 10$	11
$11 \le s \le 15$	9
$16 \le s \le 20$	2
Count	25

1. How many class intervals are there?
2. What is the width of each class interval
3. Annie's score was 15. In which class does her data belong?
4. Name the class that has the greatest frequency and indicate what the frequency is.
5. Which class contains the 12th highest total?
6. Draw a bar chart to represent this data.

The following data shows the ages (x years) of male patients currently diagnosed with a blood disorder at a local hospital.

17	55	32	22	12	59	56	31	35	55	50	28	39
69	56	43	39	35	39	56	21	17	16	50	50	36
10	54	40	29	68	42	21	64	44				

Construct a grouped frequency table for these ages using equal class intervals beginning with $0 < x \le 10$

This data is from the same hospital but gives the data for their female patients who have the same blood disorder.

39	36	46	27	34	38	48	38	44	35	33	62
31	35	41	54	23	47	55	39	22	54	46	26
41	57	58									

Represent both the sets of data on the same statistical diagram. You could use a grouped bar chart or a back to back stem and leaf diagram.

Explain what the diagram tells you about the two distributions. Try to include of as many relevant facts as you can.

Is your foot size a good predictor of your height?



At the start of this unit, we read about about the discovery of a gigantic fossilised "human" footprint. We also heard that Professor Martin Groves suggested that the owner of the footprint might well be over 3.20m tall.

10 What evidence might Professor Groves have used to support his claim?

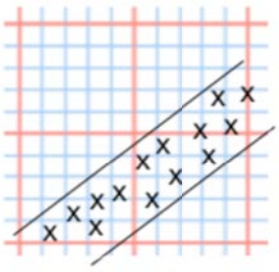


Amber: He must have collected lots of data, I wonder if it is true today?

Matthew: We could measure everyone in our group and draw a scatter graph



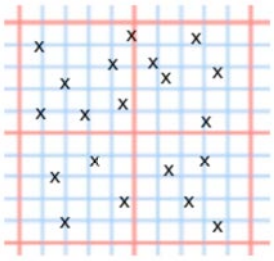
Correlation Recap



General going upwards.

Both variables increase together.

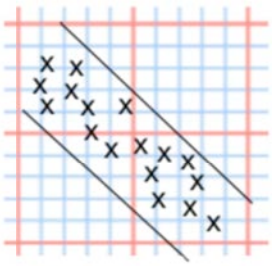
Positive correlation



Generally scattered.

No relationship between the variables.

No correlation



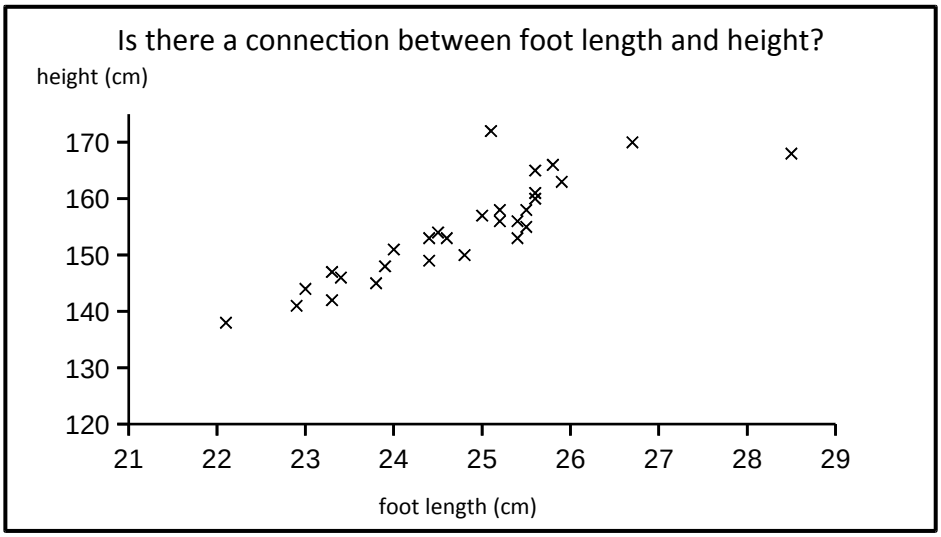
Generally going down.

As one variable increases the other decreases.

Negative correlation

Is your foot size a good predictor of your height?

When we want to investigate if there is a connection between two variables we draw a scatter graph. Each points represents a specific pair of values but we do not join up the dots.

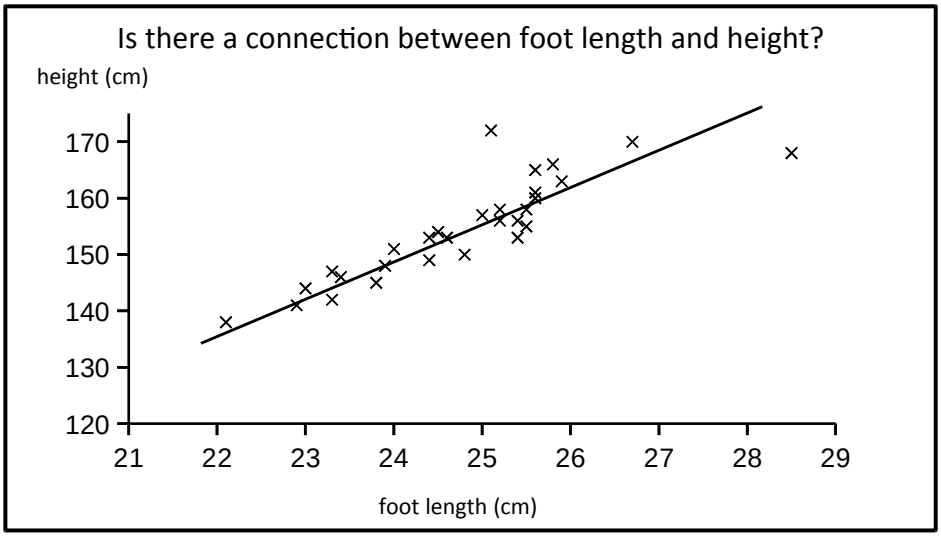


This graph shows that as the foot length gets larger so does the height. This indicates that there is positive correlation between foot length and height.

11 Investigate if there is a connection between foot length and height for members of your group.

Drawing a line of best fit

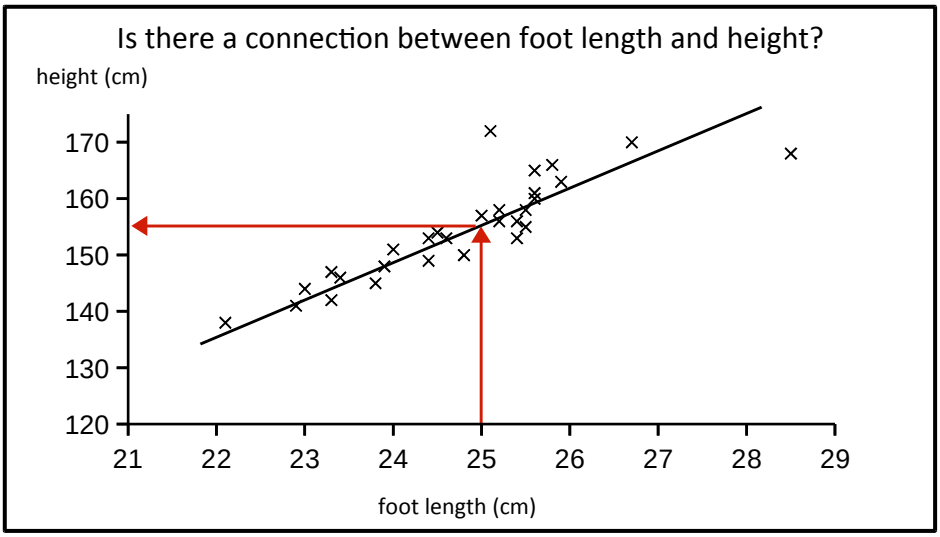
Although the trend shown in the scatter graph suggests there is a linear connection between foot length and height, we can't use this to make predictions. To do this we summarise our results by drawing a **line of best fit**. This line shows how the response variable *y* changes as the explanatory variable *x* changes. There is no point in trying to draw a line of best fit unless your scatter graph indicates there is a relationship between the two variables.



Is your foot size a good predictor of your height?

Making predictions

You can now use your line of best fit to make predictions. For example, suppose you want to estimate the height of a pupil who has a foot length of 25cm, draw a vertical line from 25.0 on the x-axis (arm span) until it meets the line of best fit. Now draw a horizontal line to the y-axis (height). Read off the result. In the diagram above the predicted height would be 156 cm.



In the same way you can estimate arm span from a given height.

12 Add a line of best fit to the scatter graph that you drew earlier.

Use your own line of best fit to estimate

1. The height of someone with an foot length of 25.0 cm.
2. The height of someone with an foot length of 123.5 cm.
3. The foot length of someone who is 1.45m tall.
4. The foot length of someone who is 1.68m tall.

Interpolation and extrapolation

In each of the above questions we can be confident in our predictions as they are based on data within our data range. This is called **interpolation**.
It is unadvisable to extend the line of best fit beyond our data range and use it to make predictions. This is called **extrapolation** and the results could be unreliable.
As a rule, don't make predictions far outside the range of x that appears in your data.

Is your foot size a good predictor of your height?

The University, Aug 24th 2016

"Goliath's foot print"

I thought you might like to know how I estimated Goliath's height. From my own research it appears that your height is roughly 7 times the length of your foot. Goliath's footprint is 47 cm long, so 7 x 47 = 329 cm or 3.29 m. Interesting!

All the best

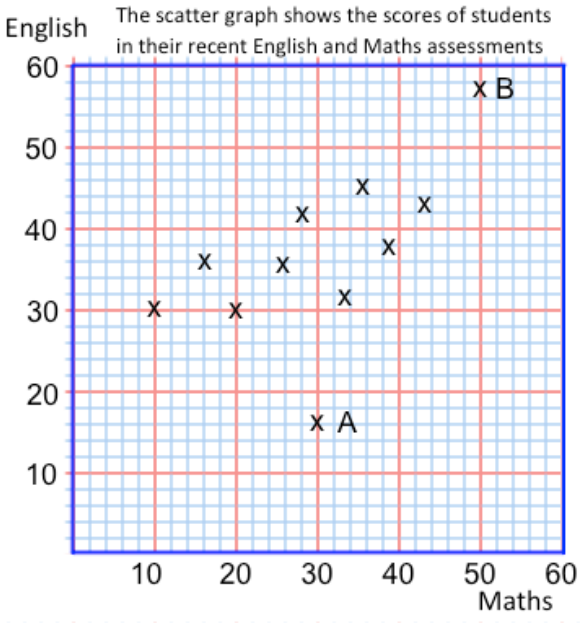
Professor Marlon Groves

13 Does your data support Professor Groves' theory?

Outliers

Sometimes a scatter diagram will include one or two outliers, points that are far away from the others. They do not fit the pattern and can have a significant effect on your line of best fit. Should they be ignored as being unrepresentative of the population? They should certainly be checked as there could have been a mistake in recording the data but they should not be automatically rejected.

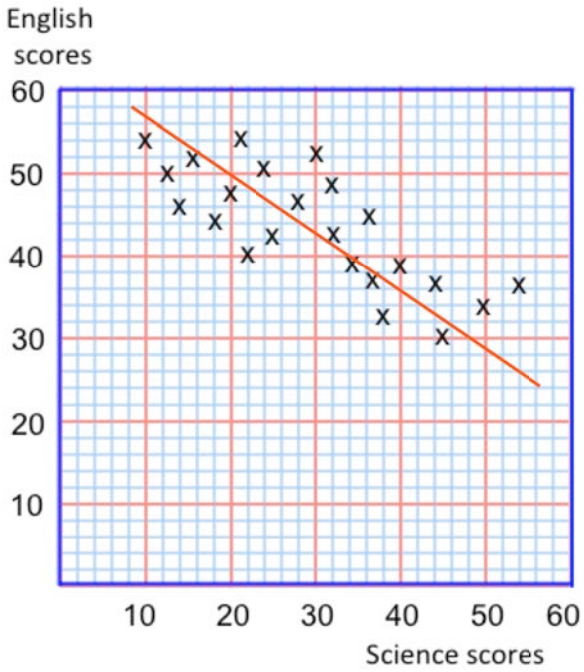
For example, in this scatter graph the data represented by the point A would appear to be an outlier and would warrant further investigation. Would you say the point represented by B could be described as an outlier? Give your reasons.



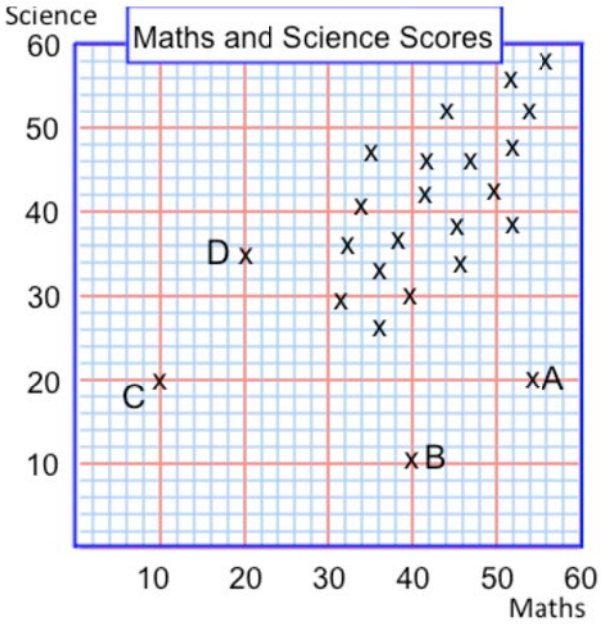
Section 2 Making predictions

1. What sort of connection, if any, would you expect between the variables in each of the following situations? Sketch a graph of what you expect the results to look like.
   a) The length and width of leaves from dandelions?
   b) Outside temperature and the number of gloves sold?
   c) The number of hours of sunshine in a day and the number of pupils absent from school?

2. This scatter graph shows the scores of 23 pupils in their recent English and Science assessments.
   a) Interpret this data and describe the type of correlation it demonstrates.
   b) Phil missed his English test but scored 56 in Science. Explain why using the line of best fit to predict his score in English may be unreliable.

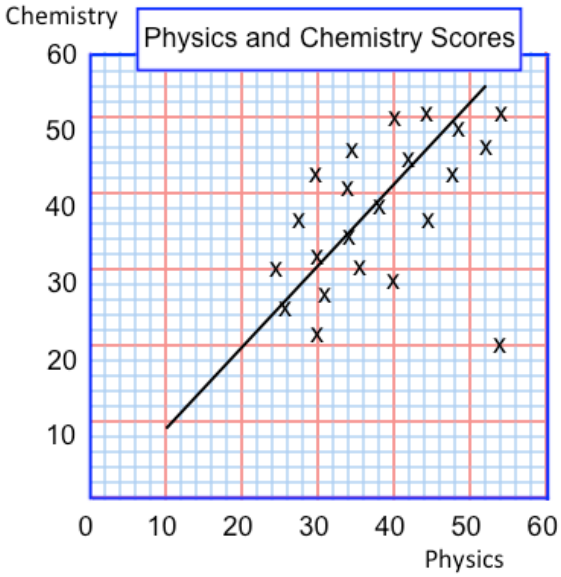


3. In this scatter graph, Eric identified the points A, B, C and D as possible outliers.
   a) Do you agree with his decision?
   b) Give your reasons.



Section 2 Making predictions

4. Dr Grey, the head of Science, believes that pupils who are good at Physics are also good at Chemistry. She plotted a scatter graph of the recent summer exams to prove her point.



   a) What type of correlation is shown by the graph?

   b) Would you say there is an outlier in the data?

   c) Using Dr Grey's line of best fit, estimate the score in Chemistry for someone who scored 46 in Physics.

   d) Using Dr Grey's line of best fit, estimate the score in Physics for someone who scored 28 in Chemistry.

   e) Why is this likely to be incorrect?

5. A publisher checks documents for errors. He records the number of documents checked each day and the total number of errors found. His data is shown below.

Documents	42	79	26	47	76	44	28	75	26	64
Errors	10	23	7	15	24	12	8	22	5	16

   a) Draw a suitable scatter graph and describe any correlation that you observe.

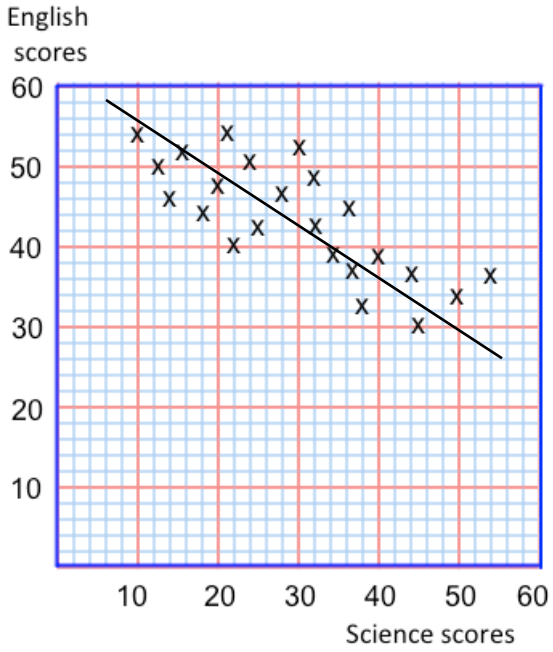
   b) Draw a line of best fit.

   c) Using your line of best fit, estimate the numbers errors if he checked 54 documents.

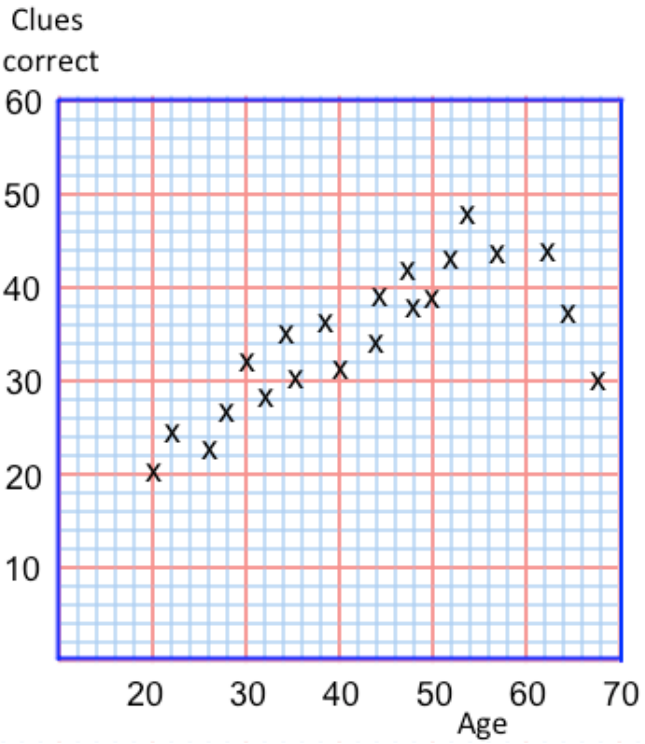
   d) Using your line of best fit, the number of documents checked if he found 22 errors.

Section 2 Making predictions

6. This scatter graph shows the scores of 23 pupils in their recent English and Science assessments.
   a) Interpret this data and describe the type of correlation it demonstrates.
   b) Phil missed his English test but scored 56 in Science. Explain why using the line of best fit to predict his score in English may be unreliable.



7. Members of a local community group all took part in a quick crossword competition. They wanted to see if there was a connection between age and the ability to answer crossword word clues quickly.
   Their results our shown in this scatter graph.
   Explain what you can see in the diagram.



Statistics 4a Mastery questions

In questions 1 – 4, four possible answers are given. Only one of them is the correct. Record the letter which you think indicates the correct answer. You must be able to give reasons for your choice.

1. George is carrying out a survey of the number of coins people have in their pocket. His data is shown below:

2	8	4	6	5	4	7	8	7	6	3	12
0	7	6	3	9	5	5	6	0	7	6	0

He then grouped his data into equal class intervals beginning with 0 to 2, 3 to 5 and so on.

Which one of the following statements is false?

A	There are 4 classes	B	The interval 0 to 2 has the least number of results
C	The median is in the interval 6 to 8	D	The modal group is 3 to 5

2. How many values are represented in this stem and leaf plot?

0	1 4 4
0	5 7 8
1	0 3 4 4
1	5 5 7 9
2	0 0 3 4
2	5 8

Key 2 | 3 represents 23

A	B	C	D
29	28	6	20

3. Which of these describes positive correlation?

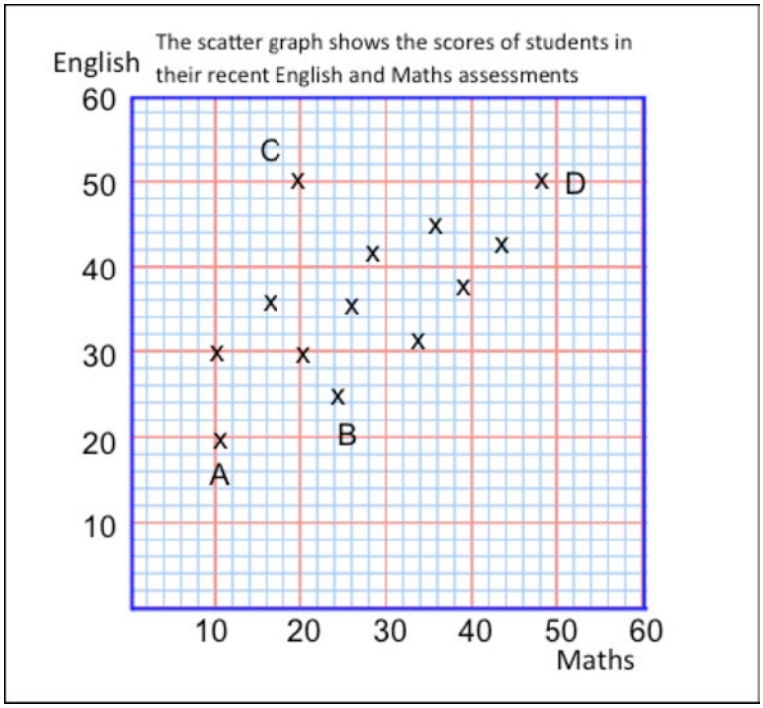
A	As x increases, y increases	B	As x increases, y decreases
C	As x decreases, y decreases	D	When x is big, y is small

4. Which of these describes an outlier?

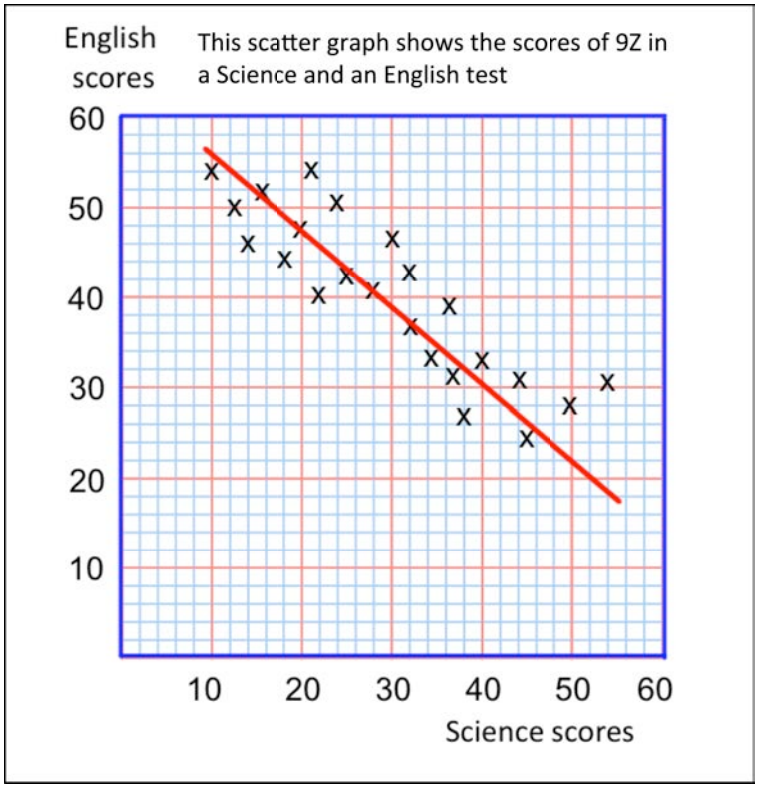
A	Identifying a point that does not satisfy the general trend of data	B	Extending the line of best fit beyond the range of your data to predict a value
C	It is a form of correlation	D	Using a line of best fit within the range of your data to predict a value

Statistics 4a Mastery questions

5. Which of these points might be classed as an outlier?

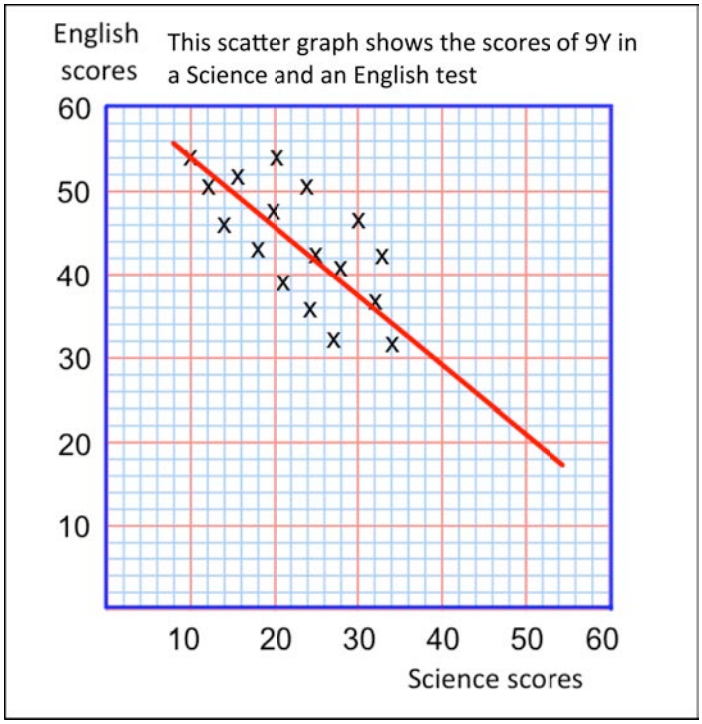


6. Using the line of best fit, if a pupil scored 30 in the science test, what would predict their English score might be?



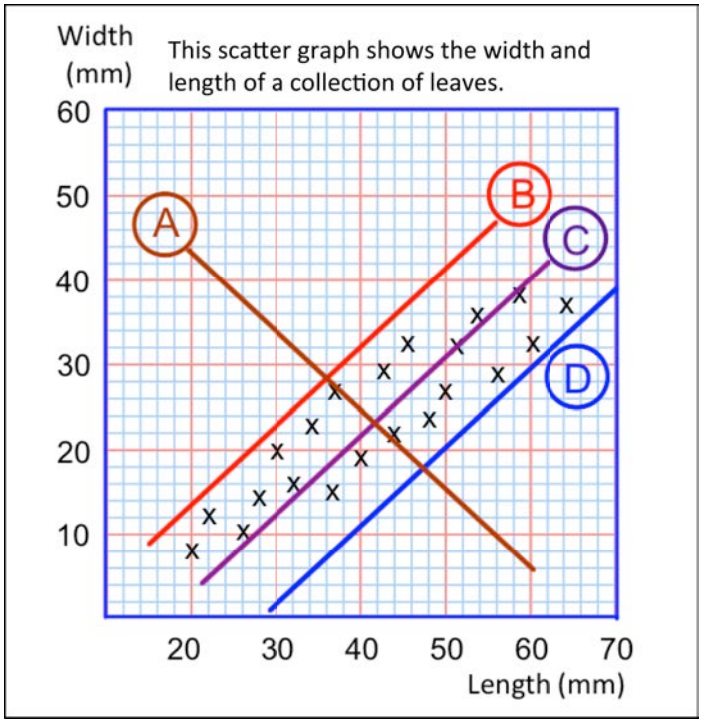
A	B	C	D
40	47	39	54

7. Why would you need to be careful in estimating the English score for a pupil who scored 50 in Science using this scatter graph?



A	There is no correlation	B	50 for Science is outside of the given data range
C	The line of best fit does not pass through the origin	D	The English score is too low.

8. Which of these lines represents the best line of fit for the given data?



Statistics 4a Mastery questions

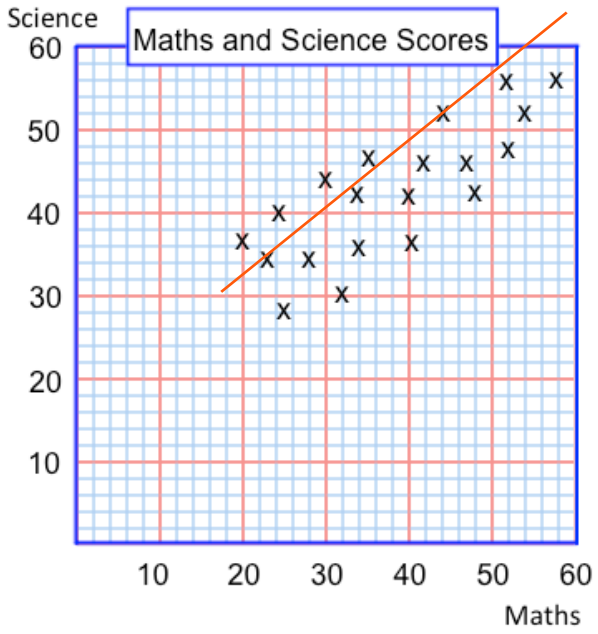
9. What sort of connection, if any, would you expect between the variables in each of the following situations? Sketch a graph of what you expect the results to look like.

a) Hours of sleep and reaction times?

b) Traffic density and journey time?

c) Time to run 100m and your maths results?

10. This scatter graphs shows the score of 20 students in their recent Science and Maths assessments.



a) Interpret this data and describe the type of correlation it demonstrates

Anna has drawn a line of best fit.

b) Do you think her line is fairly accurate? Explain your reasons.

c) James scored 40 in his Science assessment but missed his Maths assessment.

d) Using the line of best fit, estimate what he might have scored in his Maths assessment.

e) Niamh missed her science test but scored 50 in maths. Estimate her score in science.

f) Rosie scored 15 in Maths, explain why you might not be able to use the line of best fit to predict her Science score?

11. Despite asking people not to feed the seagulls, people still do.
The following table gives the number of people feeding gulls and the number of sea gulls circling above.

Feeders	3	12	7	14	4	7	11	10	6	11
Birds	14	24	18	26	15	19	22	21	17	24

a) Represent this data on a suitable scatter graph.

b) Interpret the data and state what kind of correlation this represents.

c) Draw a line of best fit by eye.

d) Use this to estimate the number of gulls if there are 9 feeders.

e) Why might you be less confident to estimate the number of gulls if there are 15 feeders?

12. Buying a new hamster is a serious business. Jade looked up the on how long different species live (in months). She wasn't sure whether to buy a Chinese hamster or a Syrian hamster.

a) The data she found is shown in this back to back stem and leaf plot.

b) What does the data tell you about the life expectancy of each type of hamster?

c) Try to find as much evidence as you can to justify your views.

How long do hamsters live?

Syrian hamster		Chinese hamster	
(0)	1	4	(1)
(1)	1	6 8 8 9	(4)
(7)	2	0 0 0 1 1 1 1 2 3 4 4 4	(12)
(10)	2	5 5 5 6	(4)
(3)	3		(0)
(21) Count		Count	(21)

Key 2|1 represents 21 months

13. Sheila is the receptionist at a local doctor's surgery. She keeps a record of the number of appointments missed (m) each day and presents monthly figures to the partners. This is a copy of her data for January.

Missed appointments (m)	Frequency
$1 \le m \le 4$	2
$5 \le m \le 8$	10
$9 \le m \le 12$	5
$12 \le m \le 16$	2
Count	19

a) How many days are there in January?

b) Why might she only have records for 19 days?

c) What is modal class interval?

d) Which class interval contains the median number of appointments missed?

e) Draw a suitable graph that Sheila could include in her report.

STILL UNDER DEVELOPMENT

My Maths Notes

Do not just copy what is on the board, but also try to take notes in a way that makes easier to understand other people's ideas and the things you have learnt.

When studying maths, use what you have learned before to solve new problems.
Keep a clear record of your learning in your notes so that you can always look back.

In your notebook, record

- Date
- Problem
- My idea
- Another idea
- Summary
- Reflection

