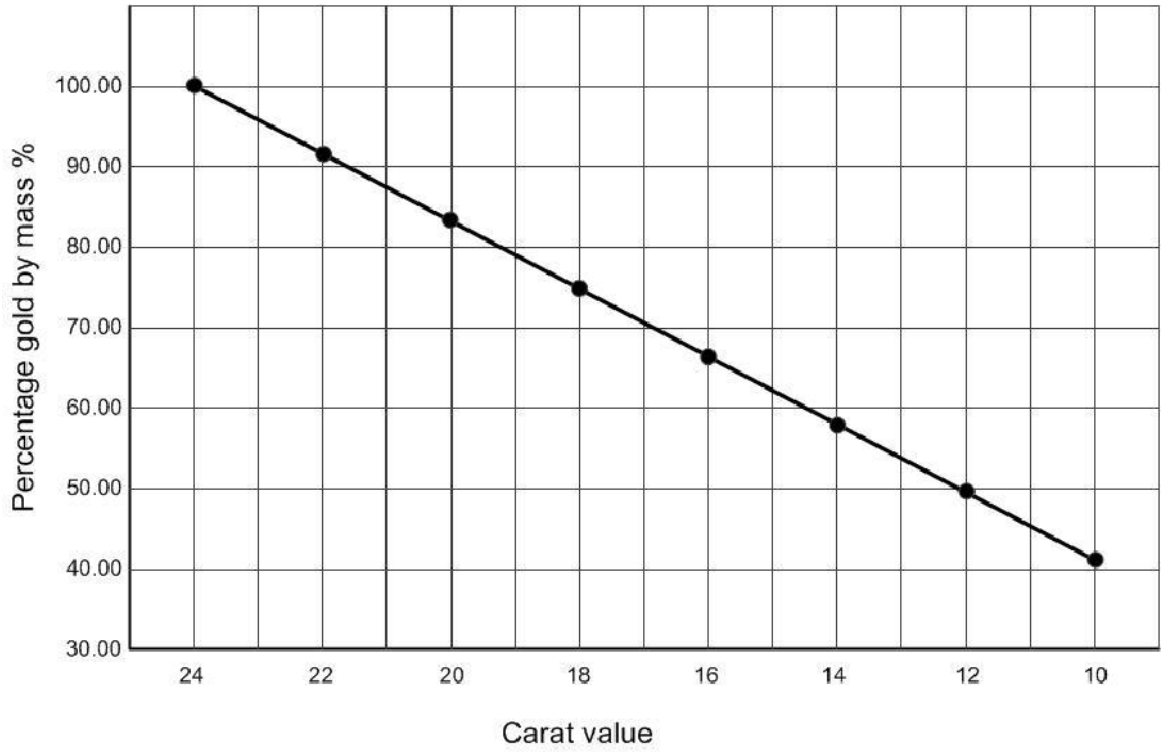
1(a). The purity of gold is measured in carats.

24 carat gold is almost pure gold.

Gold with lower carat values is an alloy which contains other metals such as silver and copper.

The graph shows how the percentage of gold by mass is related to its carat value.



What mass of other metals are in 20 g of 11 carat gold?

Show your working

_____ g **[2]**

(b). A chemist tests a 50 g sample of gold.

He finds that it contains 0.19 **moles** of gold.

What is the carat value of the sample?

Use the periodic table and the graph above to help you.

Carat value = _____ **[3]**

2(a). Salt is put on roads in winter because it lowers the freezing point of water.

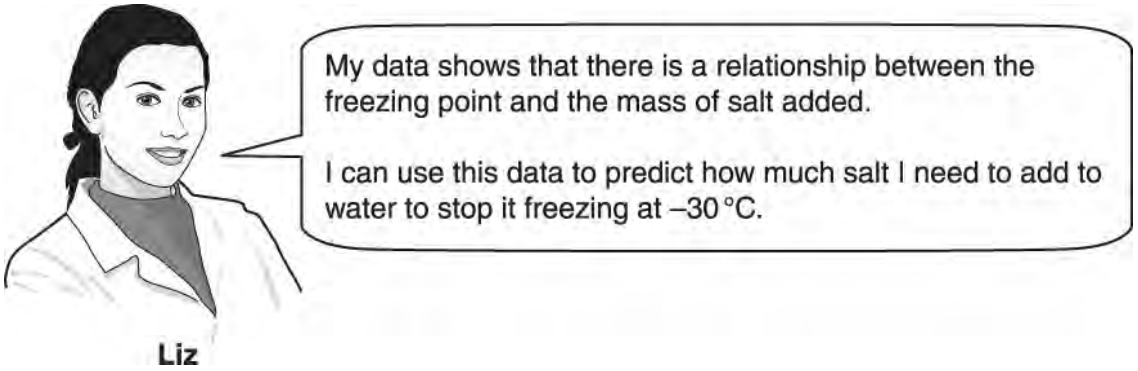
Liz does some experiments to investigate whether salt can be used to stop water from freezing in extreme weather conditions.

She adds different masses of salt to 100 cm^3 of water and records the temperature when the water freezes.

Here are her results.

Mass of salt added to 100 cm^3 water in g	Freezing point in °C
0.0	0
5.0	?3
10.0	?6
15.0	?9

Liz talks about her results.



(i) What is the relationship shown in this data between the mass of salt added and the freezing point?

---

[2]

(ii) Use the relationship to predict how much salt would need to be added to 100 cm^3 of water to lower the freezing point to ?30 °C.

Show your working.

[2]

(b). Liz does some more experiments using two higher masses of salt.

These are her results.

Mass of salt added to 100 cm^3 water in g	Freezing point in °C
25.0	?15
35.0	?5

(i) Liz thinks that these results do not fully match predictions made based on the trend in the previous table.

Explain why she is right.

---

[3]

(ii) Liz wants to investigate the relationship between mass of salt and the freezing point of water when she adds up to 50.0 g of salt.

Describe what experiments she should do.

---

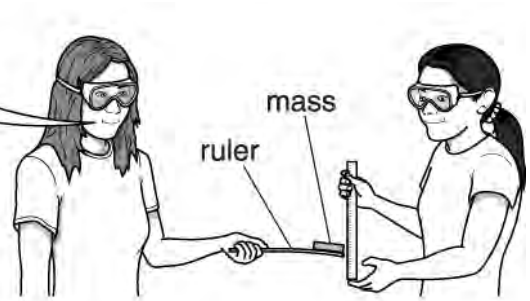
[3]

3(a). Some students investigate the stiffness of plastic rulers.

This is how three students plan their investigation.

Jane

I will hold the ruler at one end and put a mass on the other end. I will measure how much it bends and get my friend to repeat the test.

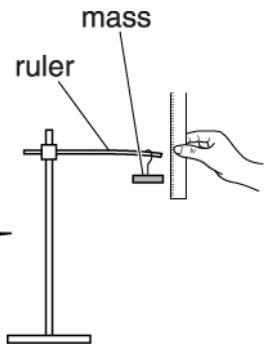


Katya

I will measure how far I can bend the ruler before it breaks. I will bend and break the rulers myself so that the test is fair.

Matt

I will use rulers that are the same length. I will hang the same mass to the end of each ruler and measure the distance it bends. I will do each test four times and work out the mean.



Which plan is best? Explain why this plan is better than the other two plans.

The quality of written communication will be assessed in your answer.

[6]

(b). Some students investigate the stiffness of ruler **A**.
Here are their measurements.

Test number	1	2	3	4	5
Bend (mm)	23	26	13	19	24

(i) These measurements include an outlier.

Which measurement is the outlier?

[1]

(ii) What could the students do to decide whether or not to include the outlier when calculating the best estimate of the true value from their measurements?

[1]

(iii) **Include** the outlier and work out the best estimate of the true value of their measurements.

Show your working.

[2]

(iv) The students think a second ruler, **B**, is made from a different plastic.
The students repeat the investigation with ruler **B**.

They write down the range and the best estimate of these measurements.

Range (mm)	Best estimate (mm)
5 – 10	8

Do these results support the idea that ruler **A** and ruler **B** are made from different plastics?
Use the data to explain your answer.

---

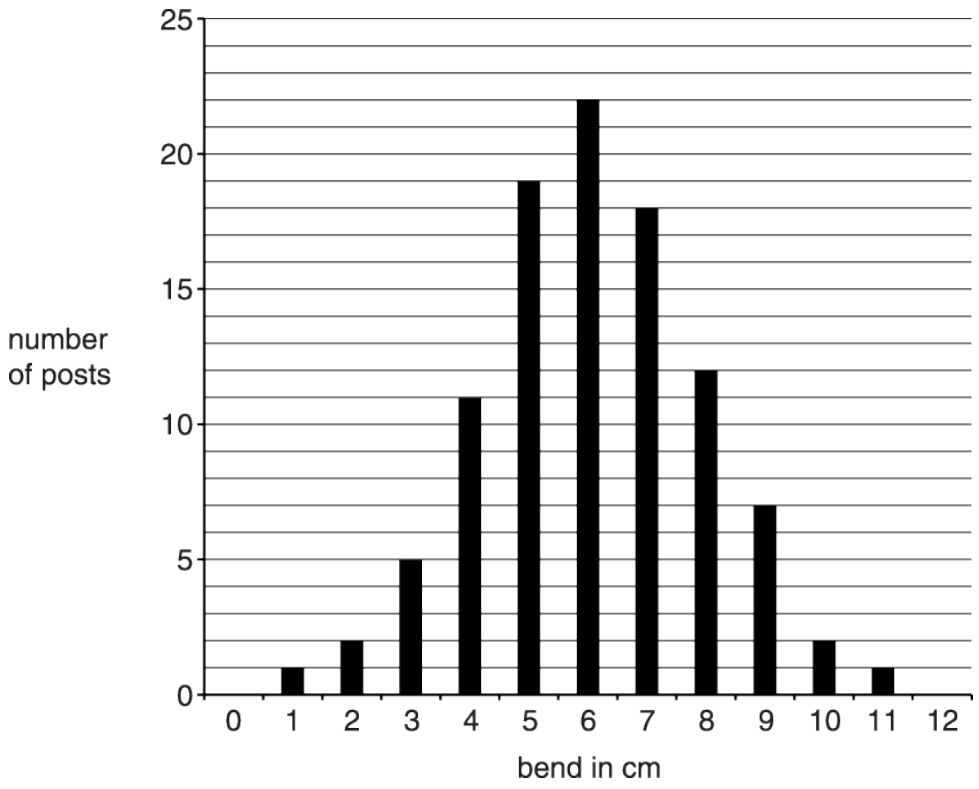
[2]

4(a). A company decides to make fence posts from a plastic.

The company makes and tests 100 fence posts with the same size and shape.

They measure how far each post bends under the same conditions.

The bar chart shows their results.



The same size force is used for each measurement.

Why is this essential?

Put ticks (✓) in the boxes next to the **two** best answers.

Factors that are not kept constant may affect the outcome. ☐

So that the fence post does not bend too far. ☐

So that the size of the force does not have to be noted down each time. ☐

To compare the flexibility of different fence posts. ☐

To make sure the fence post does not break. ☐

[2]

(b). The company decides to test each post they make for quality control.

They will not sell posts that bend 3 cm or less, or those that bend 9 cm or more.

The company makes 2500 posts each week.

How many posts will they reject each week?

Show your working.

number of posts rejected = _____ **[2]**

(c). The company decides that the plastic they have is too flexible and has too large a range of flexibility.

Technicians test small pieces of three other plastics.

All the samples used have exactly the same size.

They measure how far each sample bends under the same conditions.

Their results are shown in the table.

	Distance sample bends in mm						
Sample number	1	2	3	4	5	6	mean
Plastic A	35	33	35	34	34	33	34
Plastic B	2	4	3	2	4	3	3
Plastic C	14	13	14	15	13	15	14

Use your knowledge of the structure of polymers to suggest why these three plastics gave different results in the tests.

The quality of written communication will be assessed in your answer.

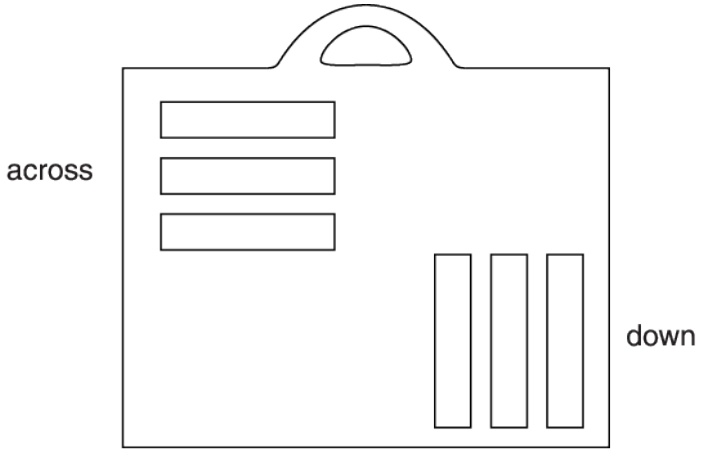
---

[6]

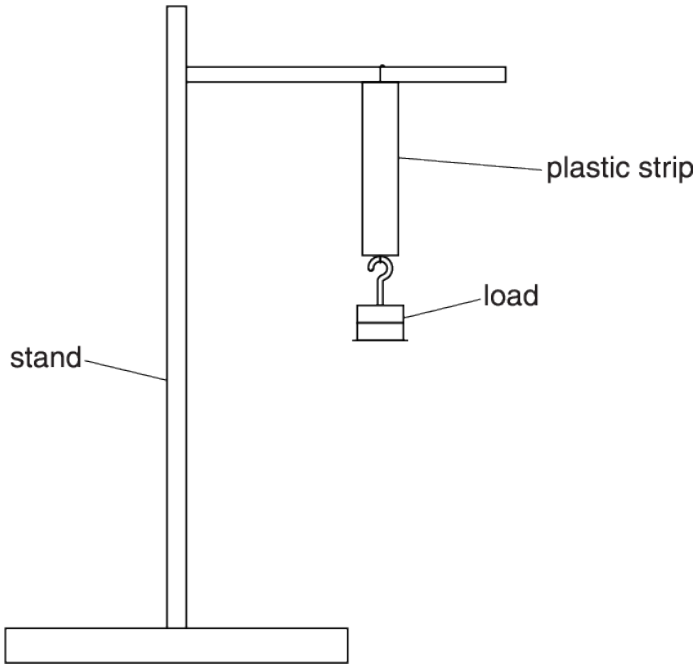
5. Students test strips of plastic from a shopping bag.

They cut some strips **down** the bag.

They cut some strips **across** the bag.



They use this apparatus.



Their results are shown below.

Strips across the bag		
Load in g	Length in mm	Total stretch in mm
0	200	0
100	222	22
200	243	43
300	265	65
400	286	86
500	307	107

Strips down the bag		
Load in g	Length in mm	Total stretch in mm
0	200	0
100	209	9
200	221	21
300	231	31
400	242	42
500	252	52

Compare the two tables of results.

Which of these statements can you conclude from these data?

Put a tick (?) in the box next to the correct statement.

The plastic stretched more when pulled down than when pulled across. ☐

The size of the force does not affect the amount of stretch. ☐

It took more force to stretch the plastic in one direction than in the other direction. ☐

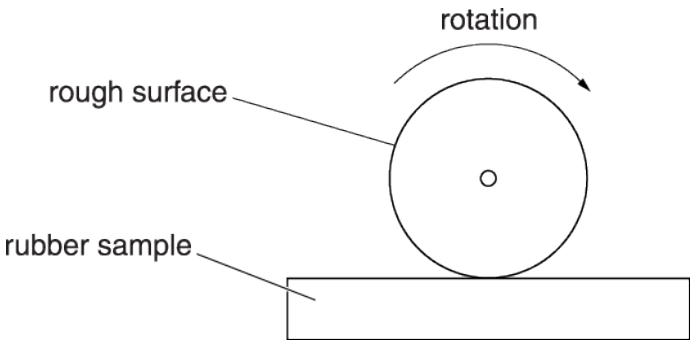
For the same force, the plastic stretched down more than across. ☐

[1]

6(a). Vulcanised rubber is made by reacting natural rubber with sulfur. During the reaction, the sulfur forms cross-links between the polymer chains.

Samples of vulcanised rubber and natural rubber are tested to see how hard-wearing they are.

Scientists measure the time taken to wear away 1.0 cm of the rubber.



When the rubber samples are tested, a number of factors are kept constant.

(i) Suggest two of these factors.

1

2

---

[2]

(ii) Why should these factors be kept constant?

Put a tick (✓) in the box next to the best answer.

To make it easier to set up the apparatus. ☐

So that a comparison can be made between the properties of the two types of rubber. ☐

So that the same apparatus could be used for both sets of measurements.

The only thing that affects the results must be the factor that is being investigated. ☐

☐

[1]

(b). Results of the tests are shown in the table.

Sample number		1	2	3	4	5	6	Range	Mean
Time in mins to wear away 1.0 cm rubber	natural rubber	13	15	12	13	11	14	11–15	13
	vulcanised rubber	34	33	35	37	33	32	32–37	34

(i) Sam says that the results show there is a definite difference between the properties of the two types of rubber.

Use ideas about range and mean to show that Sam is correct.

---

[2]

(ii) Vulcanisation has changed the properties of the rubber.

Which two statements, when taken together, describe **why** the properties have changed?

Put ticks (✓) in the boxes next to the **two** correct statements.

The molecules in natural rubber are held together by weak forces. ☐

Natural rubber has higher density than vulcanised rubber. ☐

Vulcanised rubber has longer chains of atoms than natural rubber. ☐

Sulfur links the rubber chains together by covalent bonds. ☐

Sulfur increases the strength of the covalent bonds in the rubber molecules. ☐

[2]

(iii) Cross-linking is one way in which the properties of a polymer can be changed.

Suggest **two other** modifications that can be used to change the properties of a polymer.

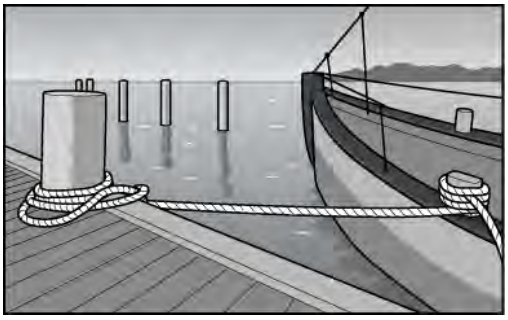
1

2

---

[2]

7(a). Dave is buying new ropes for his boat.



Look at the properties of four synthetic fibres used to make ropes.

	Kevlar	Nylon	Polyester	Polypropene
Tensile strength in N / mm^2	210	70	70	65
Stiffness in MN m / kg	80	2	3	1
Density in g / cm^3	1.44	1.14	1.38	0.91
Floats on water or sinks	sinks	sinks	sinks	floats
Water absorbency in %	4.5	6.0	0.5	negligible

The best ropes are made from fibres which are strong, flexible and light, even when wet.

Which fibre would make the best rope for Dave's boat?
Use the data to help you explain why you would choose that fibre and not the others.

The quality of written communication will be assessed in your answer.

---

[6]

(b). In countries where there is no chemical industry, ropes are made from plant material.
Suggest reasons why plant material, and not synthetic material, is used to make ropes.

---

[2]

8(a). Tennis balls used in competitions must have a similar bounce.

The balls are dropped onto concrete and the height of the bounce is measured.

Why must the tennis balls be dropped onto the same surface?

Put a tick (✓) in the box next to the correct answer.

Tennis courts are made of different materials. ☐

Changing the surface affects the outcome. ☐

So that the bounce height can be measured accurately. ☐

So that the balls do not bounce too high. ☐

[1]

(b). Ben needs 120 tennis balls for a local competition.

He measures the bounce of 100 tennis balls.

This is what he finds.

Height of bounce	Number of tennis balls
up to 130 cm	4
131 to 135 cm	16
136 to 140 cm	52
141 to 145 cm	28
146 to 150 cm	0
greater than 150 cm	0

For the competition the bounce range must be between 136 cm and 145 cm.

(i) How many tennis balls would you expect Ben to check before he has 120 suitable for the competition?

---------- [2]

(ii) Josie watches Ben test the tennis balls.

Josie says he should test each tennis ball more than once.

Is she right? Explain why.

---------- [1]

9. A supermarket uses plastic carrier bags.

The handles of some of a **new** set of bags break when customers carry their shopping away.

The supermarket complains to the company that makes the bags.

The company tests 5 of the new set of bags.

They find the mass that will break each bag.

Here are their measurements.

Bag number	1	2	3	4	5
Mass to break handle in kg	6.5	8.2	6.1	10.2	9.0

(i) Use **all** their measurements to find the mean value of the mass to break the handles.

Show your working.

answer = _____ kg **[2]**

(ii) The company compare the data for the old and new sets of bags.

	Old set of bags	New set of bags
Mean value of mass to break the handles in kg	14.5	
Range of values of mass to break the handles in kg	10.0 – 18.5	

Complete the table with your answer to **(i)** and the range of values.

Has the strength of the bags changed?

Use the data to explain your conclusion.

---**[2]**

10.

The table shows the properties of three polymers.

Polymer	Relative breaking strength	Flexibility	Temperature at which it softens (°C)
A	very high	fairly flexible	250
B	low	very flexible	70
C	fairly low	stiff	150

A firm wants to make cups to hold boiling water.

Discuss the suitability of **each** polymer.

---**[3]**

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Guidance
1	a		FIRST CHECK THE ANSWER ON THE ANSWER LINE f answer = 11 (g) award 2 marks percentage gold = 45% / reads 45% from graph other elements = 55 % ✓ $\frac{55}{100} \times 20 = 11(g)$ ✓	2	
	b		FIRST CHECK THE ANSWER ON THE ANSWER LINE f answer = 18 (carat) award 3 marks mass = number of moles x RAM or gives correct numbers = 197 x 0.19 ✓ $\%\text{ of gold} = \frac{37.43}{50} \times 100 = 74.86\ \% = 18\text{ carat}$ ✓ = 37.43 ✓	3	
			Total	5	
2	a	i	decreases by 3 (°C); for every 5.0 (g) added; Allow (1) mark for…. as mass increases, freezing point decreases / more salt added the lower the temperature ;	2	Allow ‘melting point’ as AW for ‘freezing point’ Ignore ‘gets colder’ Mass and freezing point show a negative correlation/are inversely proportional (1) Examiner's Comments Most gained a single mark for describing a trend in the data. Some went further to quantify this trend by identifying that each 5.0g increase leads to a ?3 °C decrease in freezing point. Some mistakenly said that the relationship is a ‘positive correlation’.
		ii	50 g (2) If answer incorrect: Idea of incremental steps of 3 / Working showing 30/3 = 10 (1)	2	50 without correct units = (1) Examiner's Comments Most answered this well and extrapolated the trend to work out the freezing point. Some omitted the unit or gave an incorrect unit such as cm^3.

Question			Answer/Indicative content	Marks	Guidance
	b	i	25.0 g follows the pattern / links 25.0g to pattern described in b i ; 35.0 g does not / 35.0 g should be lower / 35.0 g is higher than expected / 35.0 g similar to value for 10g salt added; 35.0 g should be ?21°C / 35.0 g should be lower than ?15°C ;	3	**Allow** '?5 reading' or just '35.0' as alternative for '35.0 g' **Allow** 35.0 g/?5°C is an outlier '35.0 g should be ?21°C' gets MP2 and MP3 (2) '35.0 g should be lower than ?15°C' gets MP2 and MP3 (2) **Examiner's Comments** There were three marks available for this question. Many candidates gave a single response such as 'it goes up'. This was another situation where the logical connections were not well expressed. Best answers discussed how the trend was secure for 25.0 g of salt and then went on to work out a prediction for 35.0g and compare it to the experimental value.
		ii	measure/take/record the freezing point (for another experiment); Add a range of salt masses to water / 35g, 45g, 50g; Use 100cm^3 water/same amount every time;	3	Need at least two different salt masses or 'range' idea **Ignore** 'add more' or 'add 50' alone **Examiner's Comments** This question asked for a description of some experiments. Most candidates did not gain any marks for this task. Most discussed carrying out repeats or 'testing 50g'. Few identified clearly that the volume of water would need to be controlled, a range of values for the salt would need to be chosen and the freezing point measured for each. Many candidates talked in vague terms about 'seeing how long it will take to freeze' or 'see what happens when it freezes'.
			Total	**10**	

Question			Answer/Indicative content	Marks	Guidance
3	a		LOR **[Level 3]** **Matt's** plan chosen with at least 3 features that make it the best and reasons for 2 of them making it the best plan. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks) **[Level 2]** Matt's plan chosen with 2 features **and** a reason for one of those features making it the chosen plan OR **3** features. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks) **[Level 1]** Matt's plan chosen and 1 reason or 1 feature for this choice. Quality of written communication impedes communication of the science at this level. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	6	**This question is targeted at grades up to C** **Features:** Same length of ruler Same mass / force Measure distance bends Repeats Calc mean Ruler fixed at one end **Explanations / reasons** Control variables (allow fair test) Increase reliability Identify outliers Can calculate best estimate of true value Safety Accuracy –fixed rather than loose ruler - linked to calculating mean **Accept reverse argument in terms of why Jane / Katya are not chosen.** **Use the L1, L2, L3 annotations in Scoris; do not use ticks.** **Examiner's Comments** This question was an overlap question with the foundation paper and there were very good discussions of the features of the experiment for a level 2, with many accessing level 3 by giving detailed reasons for the differences and merits of the three plans. However weaker candidates were often vague when linking reasons to features. It was not uncommon to find a list of features followed by the sentence 'making it fair and accurate'.
	b	i	test 3 / 13; (1)	1	
		ii	repeat test / check again / see how far away it is from the other values / see if the range is too large	1	**Ignore**: 'real difference' for 'how far away it is'
		iii	(23+26+13+19+24)/5;(1) =21;(1)	2	Process of calculating a mean correctly = 1 mark Correct answer without working= 2 marks

Question			Answer/Indicative content	Marks	Guidance
		iv	There is a difference because: the means / best estimates are different ;(1) the ranges do not overlap/ are lower / higher;(1)	2	'The mean of each is outside the range of the other' is 2 marks **Do not accept**: smaller range / larger range **Ignore**: different range **Examiner's Comments** Parts (i) and (iii) of this question were done well. Candidates have no problem spotting outliers and calculating the best estimate of the true value. More difficult was explaining whether to include or discard outliers in the calculation. A common wrong answer was to calculate the mean, with and without the outlier, and see if there was a difference: candidates were unaware that it is important to make a decision about the outlier **before** the mean is calculated. Part (iv) of this question discriminated well. Some weaker candidates failed to gain marks because they did not use the data. Others wrote about the best estimate or the range, but not both. Some of those discussing the range believed, incorrectly, the difference was because one range was narrower than the other.
			Total	12	

Question			Answer/Indicative content	Marks	Guidance
4	a		Factors that are not kept constant may affect the outcome. ✓ To compare the flexibility of different fence posts. ✓	2	Examiner's Comments Most candidates gained both marks.
	b		2500 x 18 / 100 (1) = 450 (1)	2	**accept** correct answer without working = 2 marks Examiner's Comments Only the more able had the mathematicals skills to perform this calculation correctly. 2500 x 18 / 100 = 450 Those who made a sensible attempt generally gained both marks. Incorrect answers ranged from very small to very large numbers. Many candidates simply presented a jumble of figures, often with no actual answer.

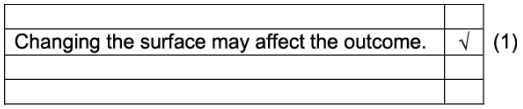
Question			Answer/Indicative content	Marks	Guidance
	c		**Level 3 (5–6 marks)** Answer gives detailed explanation of different flexibility related to three or four relevant factors from chain length, plasticizers, cross-linking and crystallinity. Quality of the written communication does not impede communication of the science at this level. **Level 2 (3–4 marks)** Answer gives some description of different flexibility: related to two relevant factors from chain length, plasticizers, cross-linking and crystallinity. Quality of written communication partially impedes communication of the science at this level. **Level 1 (1–2 marks)** Answer recognises difference in flexibility of different polymers and relates to one relevant factor from chain length, plasticizers, cross-linking and crystallinity. Quality of written communication does impede communication of science at this level. **Level 0 (0 marks)** Insufficient or irrelevant science. Answer not worthy of credit.	6	**This question is targeted at grades up to A*** **Indicative scientific points may include:** • order of flexibility A, C, B (most to least) • the polymers have different flexibility • flexibility is affected by plasticizer / chain length / crosslinking / crystallinity • flexibility depends on size of force / attraction between polymer chains • more force / attraction between polymer chains less flexibility • force / attraction between chains lowered by addition of plasticizer • more plasticizer more flexible • force / attraction between chains depends on length of chains • longer chains less flexible • force / attraction between chains depends on crosslinking • more cross linking less flexible • force / attraction between chains depends on crystallinity • more crystalline less flexible **ignore** unqualified comparison of polymers in table **Use the L1, L2, L3 annotations in Scoris; do not use ticks.** **Examiner's Comments** Many candidates put the three polymers in correct order according to flexibility. Most of these quoted a factor thataffects polymer properties, eg plasticizer, and then made some attempt to explain how. Few could go beyond this. More able candidates suggested and tried to explain two or three factors, but only a few of the most able used ideas of forces between polymer chains in their answers. Some weaker candidates put the polymers in the wrong order of flexibility and many became confused between bonds in monomers and in polymers.

Question			Answer/Indicative content	Marks	Guidance
			Total	10	
5			tick in box 3	1	Examiner's Comments A large majority of candidates chose the correct statement.
			Total	1	

Question			Answer/Indicative content	Marks	Guidance
6	a	i	any two from: (speed of) rotation / movement ; roughness of surface / material on surface ; pressure / weight applied / mass of roller	2	do not allow "time tested / size of rubber sample / amount of rubber tested" Examiner's Comments Only the weakest candidates could not give at least one valid factor to be kept constant. Common incorrect suggestions were the size of the rubber sample and the number of rotations.
		ii	tick in box 4	1	Examiner's Comments Only the stronger candidates correctly chose the fourth statement. The major distracter was the second statement.
	b	i	mean of original rubber is outside range of vulcanised rubber / ora (1) ranges for original and vulcanised rubber do not overlap (1)	2	do not allow idea that one range is higher than the other / "ranges are different" / "means are different" do not allow quoted range numbers unqualified Examiner's Comments Most candidates wrote about large differences between the ranges and means without gaining any credit. A few of the most able realised that the ranges did not overlap and even fewer correctly pointed out the mean of the original rubber was outside the range of the vulcanised rubber.
		ii	tick in box 1 (1) tick in box 4 (1)	2	Examiner's Comments Most candidates wrote about large differences between the ranges and means without gaining any credit, most candidates identified one correct statement but not the other. There was no pattern to the incorrect choices. A majority of candidates gained at least one mark.

Question			Answer/Indicative content	Marks	Guidance
		iii	**any two from:** chain length ; plasticiser ; crystallinity	2	**do not allow** “adding chains / adding covalent bonds” **do not allow** “length” unqualified **allow** “branching” **Examiner's Comments** A majority of candidates gained at least one mark. Common incorrect suggestions were heating, polymerisation and vulcanisation.
			Total	9	

Question			Answer/Indicative content	Marks	Guidance
7	a		**[Level 3]** Chooses polypropene **and** uses properties to justify that choice **and** gives a reason why another material is not chosen. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks) **[Level 2]** Chooses polypropene **and** uses properties to justify that choice. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks) **[Level 1]** Chooses polypropene OR chooses any other material and justifies choice of that other material with a correct property. Quality of written communication impedes communication of the science at this level. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	6	This question is targeted at grades up to C Indicative scientific points may include: Properties of polypropene: • low stiffness • low density • floats • low water absorbency Why another material is not chosen: • Kevlar is dense / sinks / stiff / absorbs water • Nylon is dense / sinks / absorbs water • Polyester is dense / sinks **ignore**: flexible and light (in the stem of question) **Use the L1, L2, L3 annotations in Scoris; do not use** ticks. Examiner's Comments ? Many answered this well, but those who failed to pick up marks, or didn't achieve beyond level 1, had problems with knowing the significance of the properties - stiffness; density; and water absorbency. They saw high readings as a positive and Kevlar was often picked out as the best type of rope. Also candidates again need to take care that they do not merely repeat the question eg by saying 'polypropene because it's flexible and light', but show that they understand, and can interpret, the data.

Question			Answer/Indicative content	Marks	Guidance
	b		Any **two** from abundance / lots of plants / synthetic materials not available; plant material is grown locally / need of transport for synthetic materials; high cost of transport / use of energy to transport materials;	2	?Examiner's Comments?? This question was not well answered. Most gave a poorly stated argument based on relative availability. Others, who did not gain marks, wrote about the environmental impact of synthetic materials and biodegradability of natural fibres. There were also many attempts to write about the properties of the materials, rather than the issues of making ropes out of these materials.
			Total	**8**	
8	a			1	**Examiner's Comments** A very well answered question, with almost all correctly picking out that changing the surface affects the outcome.
	b	i	150 (2) Shows '80' anywhere in working for 1 mark	2	Correct answer with no working (2) Allow 100/52 × 120 = 231 for 1 mark **Examiner's Comments** In part (i) few candidates got this entirely correct, but most got 1 mark for finding the number of competition balls in the data. Those who did not score often failed to show the working to their answer. Part ii was well answered.
		ii	First measurement could be an outlier / reliability / repeatability / checking; (1)	1	**allow** accuracy / close to the true value **allow** to calculate a mean **allow** idea of variation of results problems with controls eg wind, height etc **ignore** fair test **ignore** best estimate on its own
			Total	**4**	

Question			Answer/Indicative content	Marks	Guidance
9		i	(6.5 + 8.2 + 6.1 + 10.2 + 9.0) / 5 (1) = 8.0 kg (1)	2	Correct answer without working = 2 marks **accept** 8 **Examiner's Comments** Almost all candidates could correctly calculate a mean.
		ii	Means are different / mean of old bags higher than new ones; (1) Idea of small overlap of ranges; (1)	2	**ignore** weaker or stronger **allow** average **allow** mass is different **allow** numbers 14.5 and 8 or 6.5 difference ecf from 3ai mean of one is outside the range of the other = 2 marks **Examiner's Comments** Some wrote that the new bags were weaker with no attempt to use their data to justify this statement. Many others just quoted the change in the mean values for one mark. A few of the more able realised that there was only a small overlap in the ranges and fewer correctly pointed out that the mean of the new bags was outside the range of the old bags.
			Total	**4**	

Question			Answer/Indicative content	Marks	Guidance
10			A high breaking strength <u>is good</u> / is strona(er) / won't break / cup would not hold its shape / can hold boiling water / softens <u>above 100</u>/at higher temperature than B or C ✓ B low breaking strength <u>is not good</u> / weak(er) / breaks / would not hold its shape / could not hold boiling water /softens <u>below 100</u>/at lower temperature than A or C ✓ C low breaking strength <u>is not good</u> / weak(er) / breaks / would hold its shape / could hold boiling water / softens <u>above 100</u>/above B/below A ✓ Breaking strength	3 (AO 3 × 3.1a)	IGNORE list of properties repeated from the table e.g. 'A has high breaking strength, is fairly flexible but softens at 250' = 0 Answer must show some processing of information e.g. links properties to 'good' and 'bad' or interprets properties For (3) marks answer must discuss at least two properties <u>Examiner's Comments</u> In answering this type of question, candidates need to ensure that they make clear statements about the suitability of the polymers, rather than restate the data from the table. For example 'A has a very high breaking strength, is fairly flexible and softens at 250°C' restates the data without discussing the suitability. To improve this answer, candidates need to explain how these properties affect the polymer's ability to make a cup to hold boiling water, for example 'A can hold boiling water because it softens above 100'C'.
			Total	3	