

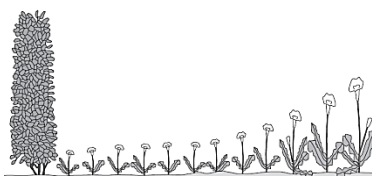
Year 9 Practice Examination 2015

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	TOTAL
2	3	5	4	5	5	6	7	6	7	50

Answer all questions in the spaces provided

Question One: [2 marks]

The drawing shows plants growing near a hedge in a garden.



(a) Write down one observation.

(b) Write down one inference.

Question Two: [3 marks]

Information on five seed types suitable for feeding parrots is provided in the table below.

Seed type	Colour	Shape	Groove on surface
Bibble	Black	Elongated	Absent
Bobble	Brown	Elongated	Present
Nippy	Brown	Round	Absent
Poppy	Black and white stripes	Elongated	Absent
Blobby	Brown	Elongated	Absent

Use the information from the table to complete the key below.

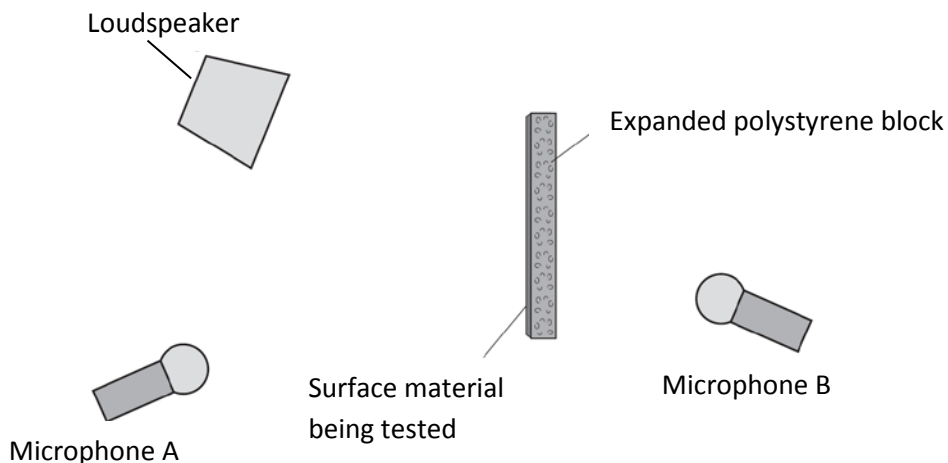
- | | | |
|--------------------|---------|--|
| 1. Seed round | Nippy | |
| Seed not round | Go to 2 | |
| 2. Seed brown | Go to 3 | |
| Seed not brown | Go to 4 | |
| 3. _____ | Bobble | |
| _____ | Blobby | |
| 4. Seed all black | _____ | |
| Seed not all black | _____ | |

Question Three: [5 marks]

The proportion (percentage) of sound energy which is reflected or transmitted or absorbed depends on the material which receives the sound.

A student investigates different materials. The diagram shows how a student sets up her equipment.

(a) Using a pencil and ruler to draw on the diagram, show how microphone A receives reflected sound.



(b) The student tests five materials. Each sheet of material is 1 mm thick. This has been glued onto a block of expanded polystyrene.

Why does the student use the same size of expanded polystyrene block and the same sound level for each test?

The table shows the readings for the sound level transmitted to microphone B.

Sound level from loudspeaker (%)	Surface material	Sound level transmitted to microphone B (%)
100	plasterboard	30
100	Thin cloth	53
100	paper	67
100	wood	23
100	soft material	24

(c) Which surface material transmits the smallest proportion of the sound?

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People living in a flat have very noisy neighbours. They play their music very loudly.

(d) Suggest one practical idea to reduce the amount of noise transmitted into the flat through your walls.

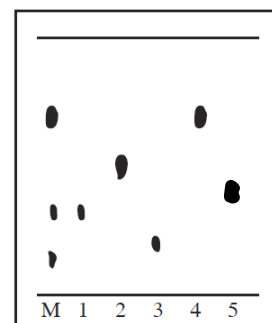
Question Four: [4 marks]

Paper chromatography can be used to identify substances in a mixture.

- (a) The steps in making a chromatogram are listed below in the wrong order.
- A Draw a pencil line near the bottom of the filter paper strip.
 - B Hang the filter paper in the solvent.
 - C Mark filter paper with a sample of the mixture.
 - D Pour solvent into a beaker so it will be just below the pencil line.
 - E Remove the strip and allow to dry.

Arrange the steps in the correct order. _ _ _ _ E

- (b) Why must the solvent in the beaker be **below** the pencil line?



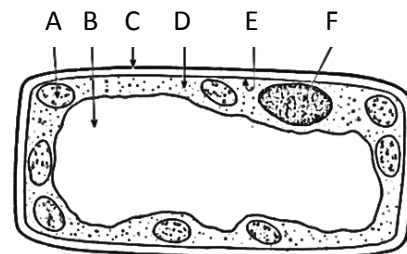
The ink sample M was compared with known dyes 1, 2, 3, 4 and 5.

- (c) What dyes were present in the sample M? How can you tell?

Question Five: [5 marks]

The diagram shows a plant cell.

Structure A is a chloroplast.



- (a) Name the process that occurs in the chloroplasts of plant cells.

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- (b) Complete this word equation for the process that occur, using the words listed below. (One answer won't be needed)

carbon dioxide nitrogen oxygen water

_____ + _____ → glucose (sugar) + _____

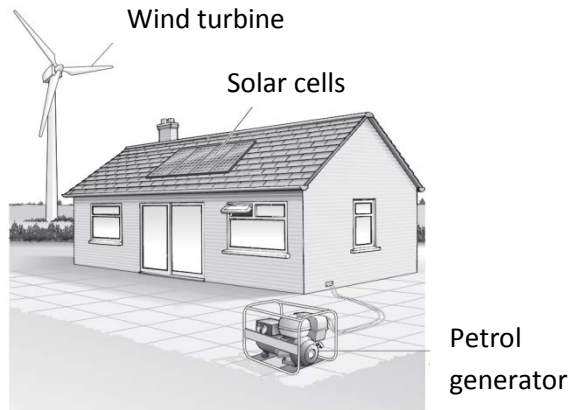
Some structures in the diagram are also found in animal cells.

- (c) Complete the table.

Structure also found in an animal cell	Letter
Cell membrane	
Cytoplasm	
	F

Question Six: [5 marks]

The drawing shows William's house. He lives in the countryside and is trying not to use any mains electricity at all. He uses three methods to generate electricity.



- (a) Draw a straight line from each of the two methods below to the main energy resource used to generate electricity. Draw only **two** lines. Use a ruler.

Method	Energy resource
Wind turbine •	• fossil fuel
	• air movement
Petrol generator •	• heat
	• sunlight

- (b) The solar cells cannot generate electricity all of the time. Give the reason for this.

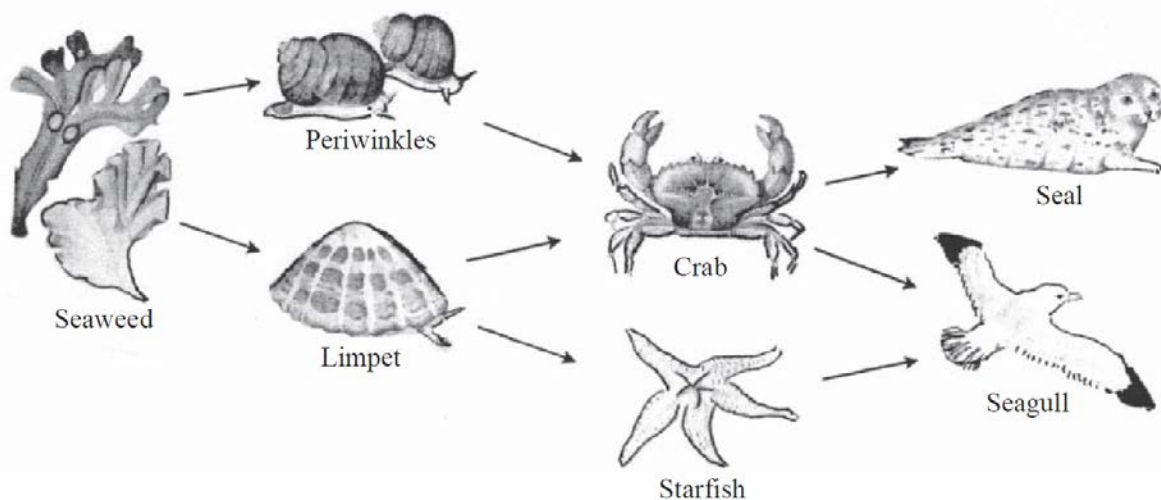
- (c) William's nearest neighbours, who live about 70 m away, complained when he applied for permission to install a wind turbine. Suggest two reasons why.

1.

2.

Question Seven: [6 marks]

The drawing shows a food web.



- (a) Give the original source of energy for this food chain.

(b) Complete the food chain from this food web.

Seaweed → limpet → _____ → seagull

(c) Give an example of a secondary consumer in this food web.

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(d) Describe and explain what might happen to the limpet population if all the seals died.

The limpet population might { increase / stay about the same / decrease } because

(e) Name the type of organisms, not shown in this food web, which feed mostly on dead animals?

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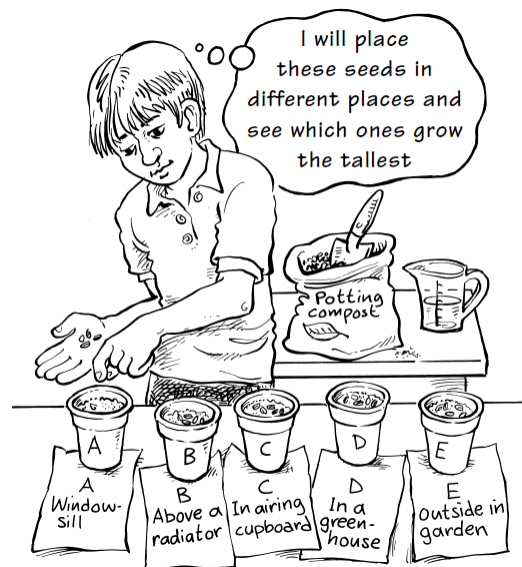
Question Eight: [7 marks]

Danny was carrying out a fair test investigation. He wanted to see in which place his seeds grew the tallest. He placed 3 pots in each place. He recorded how tall his plants were after 2 weeks.

(a) Complete the design of the results table for his investigation. You will not be filling in any results (in the shaded area).

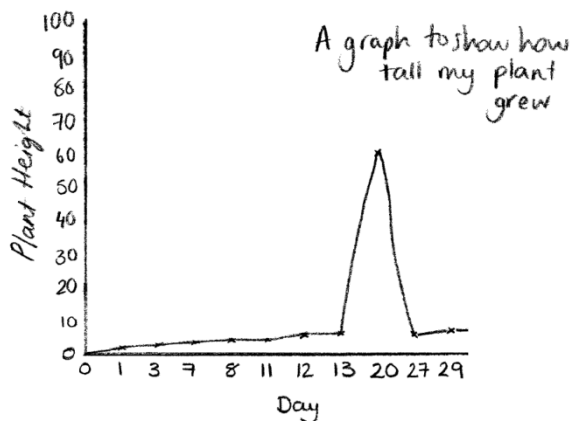
Consider the following points:

- What is being measured? (dependant variable)
- Which variable is Danny changing? (independent variable)
- How many columns and rows will your results table need?
- Does the results table need headings?
- Are there any units which need to be included? Where should these be?
- How can you show repeat measurements in the results table?
- Does there need to be space for writing down averages?



Pot			
	Trial 1		
A			

(b) In class Danny grew a bean plant and he measured how tall it grew.



His graph has many errors (mistakes). List 5 errors you can spot.

1.
2.
3.
4.
5.

Question Nine: [6 marks]

Below are two results tables, from year 9 pupils who carried out an investigation into boiling different amounts of water.

(a) Circle any results which you believe could be wrong and suggest why you think they are anomalies.

These could be

- individual repeats which are dissimilar to the others
- whole sets of results which appear incorrect.

Marie

Amount of water (mL)	Time taken to boil (s)			Average time to boil (s)
10	51	10	48	36.3
20	65	65	59	63
30	95	85	87	90.3
40	80	76	75	77
50	130	120	119	123

Wiremu

Amount of water (mL)	Time taken to boil (s)			Average time to boil (s)
20	58	53	80	63
40	85	79	84	82.6
60	141	138	144	141
80	210	202	203	205
100	600	606	594	600

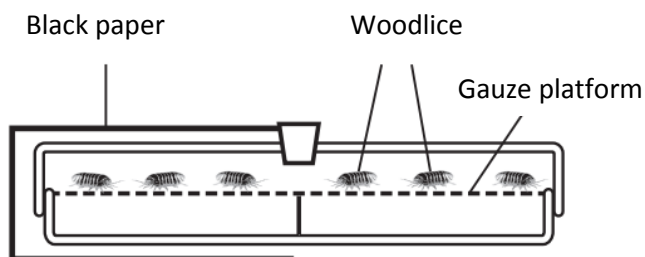
Marie's experiment
Wiremu's experiment

(b) What could these students have done to get incorrect results? Give two suggestions.

1.
2.

Question Ten: [7 marks]

A student set up the choice chamber below to investigate the behaviour of woodlice. He used six woodlice. He left them for 3 minutes and counted the number of woodlice on each side.



(a) What is the experiment above trying to find out?

(b) Describe how the student would alter the setup of the choice chamber to investigate the response of woodlice to humidity (dampness) only.

(c) Describe two things the student could do to make the results more reliable, and explain how each makes the results more reliable.

1.	
2.	

(d) Explain how the response of woodlice to light and to humidity increases their chances of survival.

Light	
Humidity	

One (a)	The further the plants are from the hedge, the taller they are	1 mark
(b)	Plants don't grow as well when they are close to the hedge as they don't get enough water / light	1 mark
Two	3 Groove present (Bobble), Groove not present / groove absent (Blobby) 4 Seed all black = Bibble, 4 Seed not all black = Poppy	1 mark for both 1 mark 1 mark
Three (a)	Ray drawn from speaker, hitting surface and bouncing off at the same angle it hit it. (Angle of incidence = angle of reflection)	1 mark
(b)	To make it a fair test - only variable to change is the surface material. Louder sound = more sound transmitted. Thicker polystyrene = less sound transmitted etc	1 mark for fair test; 1 mark for some explanation
(c)	Wood (soft material very similar)	1 mark
(d)	Sound proofing using layers e.g plasterboard and/or soft materials	1 mark
Four (a)	A - C - D - B - (E)	1 mark
(b)	If not then the sample would dissolve in the solvent and not be carried up the paper with it.	1 mark
(c)	M contains dye 1 and 4 AND one unidentified dye Can tell by matching the spots up to how far the known dyes had travelled	1 mark 1 mark
Five (a)	photosynthesis	1 mark
(b)	Water + carbon dioxide (either order) → (glucose) + oxygen	1 mark both reactants; 1 mark oxygen product correct
(c)	Cell membrane = E cytoplasm = D, nucleus = F	1 mark each = 3 marks
Six (a)	Wind turbine = air movement; petrol generator = fossil fuel	1 mark each = 2 marks
(b)	Do not work at night and/or when it is not very sunny	1 mark
(c)	Noisy - visually unattractive - may disturb wildlife etc; Any 2 valid reasons	1 mark each = 2 marks
Seven (a)	The Sun	1 mark
(b)	Star fish OR crab (either answer)	1 mark
(c)	Star fish OR crab (either answer)	1 mark
(d)	Decrease - as crab population increases as less/no seals eating them OR Increase as seagulls can now eat more crabs and so there are less crabs eating the limpets: ANY reasonable answer showing how the food chains are interconnected.	1 mark for effect on # of limpets + 1 mark for

		<i>explained reason(s)</i>
<i>(e)</i>	<i>Scavengers</i>	<i>1 mark</i>
<i>Eight (a)</i>	<i>Pot B, C, C, E. Conditions/where the pot is placed window sill, above radiator etc. Height of plant (cm) (or mm). Columns made and labelled as Trial 2, Trial 3 AND Average height (cm) (or mm).</i>	<i>1 mark 1 mark 1 mark 1 mark</i>
<i>(b)</i>	<i>Scale on the x axis has been unevenly spaced (they have just plotted data points). Scale chosen on the y axis is inappropriate (the data points are all in a small area at the bottom). The y-axis label does not show a unit. The best fit line has been drawn as a 'dot to dot'. A data point @ 20 days is clearly an anomaly / included in line,</i>	<i>Any 2 correct = 1 mark, 3 correct = 2 marks, 4 correct - 3 marks, all 5 correct = 4 marks</i>
<i>Nine (a)</i>	<i>Marie's experiment 10 s (for 10 mL) circled It is much lower than the other 2 trials of 51 and 48 s Wiremu's experiment - row for 100 mL water is circled For an extra 20 mL of water the times are much too high compared to results for 80 mL</i>	<i>1 mark 1 mark 1 mark 1 mark</i>
<i>(b)</i>	<i>Any 2 of: incorrect reading of volume, incorrect reading of time, human error in recording data, change in Bunsen flame etc</i>	<i>1 mark each, maximum of 2 marks</i>
<i>Ten (a)</i>	<i>Do woodlice 'prefer' dark or light conditions</i>	<i>1 mark</i>
<i>(b)</i>	<i>Remove light / dark conditions (make either all dark or all light) Make one side damp (water under gauze), leave the other dry (or use a drying agent under the gauze)</i>	<i>1 mark 1 mark</i>
<i>(c)</i>	<i>Repeats - and reason e.g. can average results OR can spot any anomalous results / outliers. Use a larger number of woodlice - trend will be more obvious Leave dish for a longer time - 3 minutes might not be long enough for woodlice to explore and chose locations Use an odd number of woodlice - that way there can never be a "draw" on both sides so a preference is clear. Other valid answers</i>	<i>1 mark each, maximum of 2 marks</i>
<i>(d)</i>	<i>Dark - less likely to be seen by predators / eaten or dark places usually damper or cooler so less at risk of dying because of drying out Damp - less at risk of dying because of drying out</i>	<i>1 mark each, maximum of 2 marks</i>