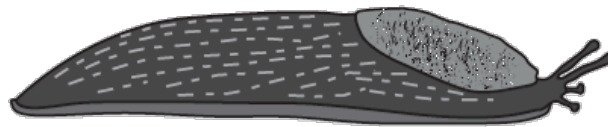


Tips for Paper 6 Biology

Drawings

Fig. 3.1 shows the external appearance of animal A.



animal A

Fig. 3.1

(a) (i) Make a large, labelled drawing of animal A. 📄

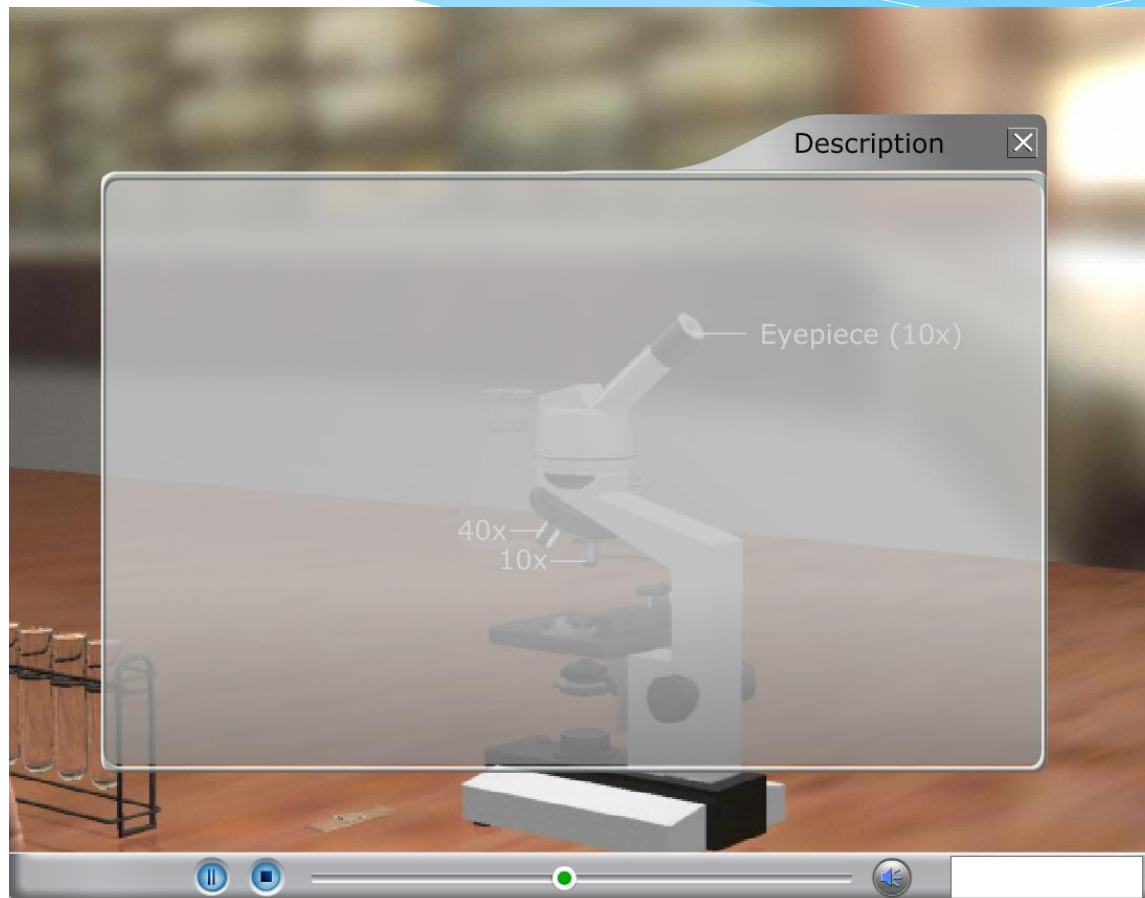
Label **two** features that are characteristic of this group of animals.

Drawings

When you will be asked to draw diagrams of fruits, insects..etc. in the exam.

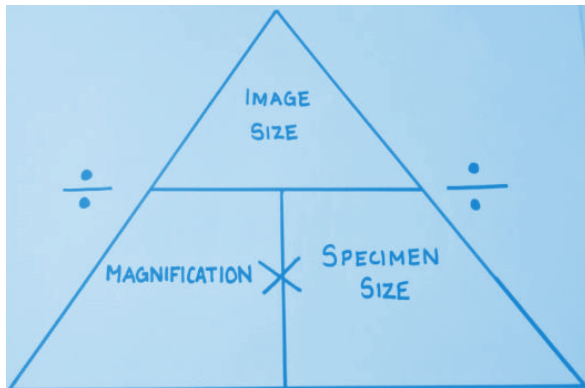
- Make sure you use a sharp pencil
- your outline is clear.
- The drawing should be as large as you can fit into the space provided.
- It has definite outlines (no 'sketchy' lines)
- No shading,
- No arrow heads when labelling
- Lines point exactly at the labelled part.

Calculating Magnification



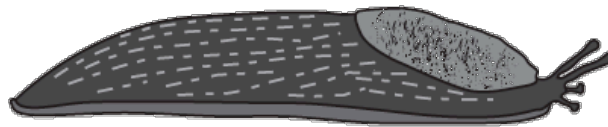
Calculating Magnification

Units used should be mm and the magnification given as 'x' correct at least to one decimal place and to not more than two.



Drawings

3 Fig. 3.1 shows the external appearance of animal A.

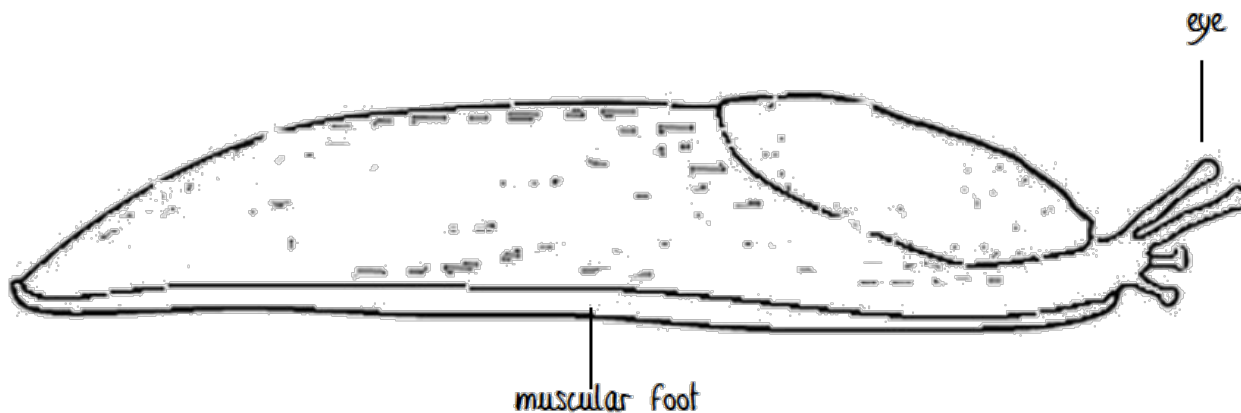


animal A

Fig. 3.1

(a) (i) Make a large, labelled drawing of animal A. 📄

Label two features that are characteristic of this group of animals.



Magnification

Measure the length of animal **A** in Fig. 3.1 and in your drawing. Calculate the magnification of your drawing.

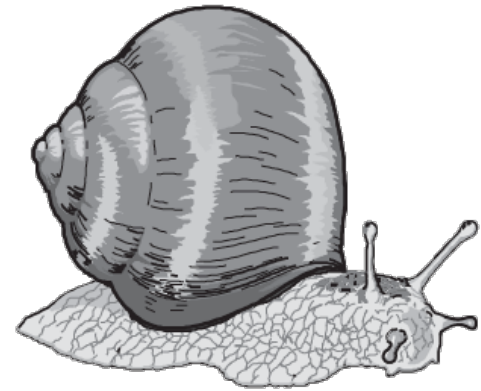
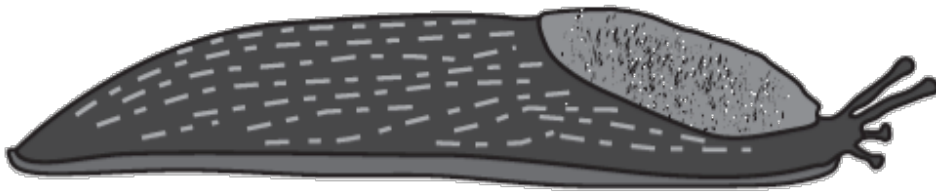
length of animal A: in Fig. 3.1 75 mm

in drawing 135 mm 

magnification $\frac{135}{75} = \times 1.8$ [2]

Comparisons

State one similarity which indicates that these two animals are classified in the same group and state one difference between them.

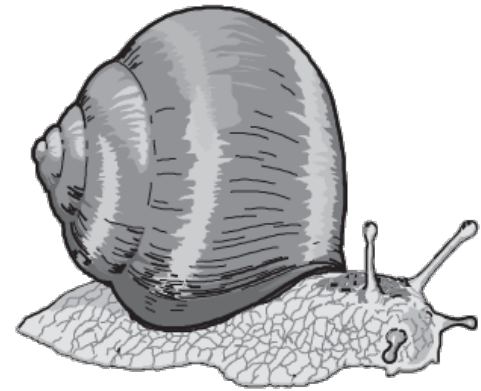
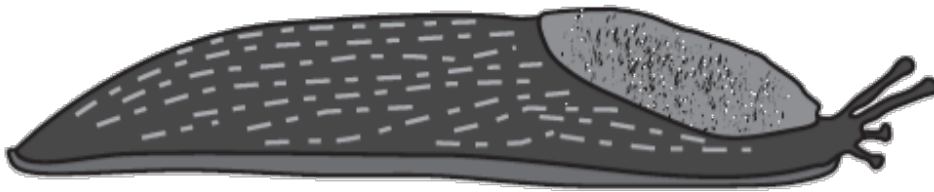


Comparisons

- Make sure the points you use to compare diagrams are visible in the diagrams
- Use labels on the diagrams as your guide
- You can compare numbers shape and proportional sizes.
- Don't compare sizes unless you're given a scale.

Comparisons

State one similarity which indicates that these two animals are classified in the same group and state one difference between them.



similarity ... They both have tentacles



difference ... Animal B has a large external shell (absent in animal A) ... [2]

Designing an Experiment

Describe an investigation that you could carry out to show the need in seed germination for suitable temperature

Designing an Experiment

- Find the variable which is to be changed (from the question) and mention how you are going to change it
- List all variables that you have to keep constant throughout the experiment
- Mention how long your experiment will last.
- Say how you will measure experiments' results (change in colour for example)
- Write: 'repeat experiment to get more reliable results and minimise error.'
- Set a control for your experiment.

Designing an Experiment

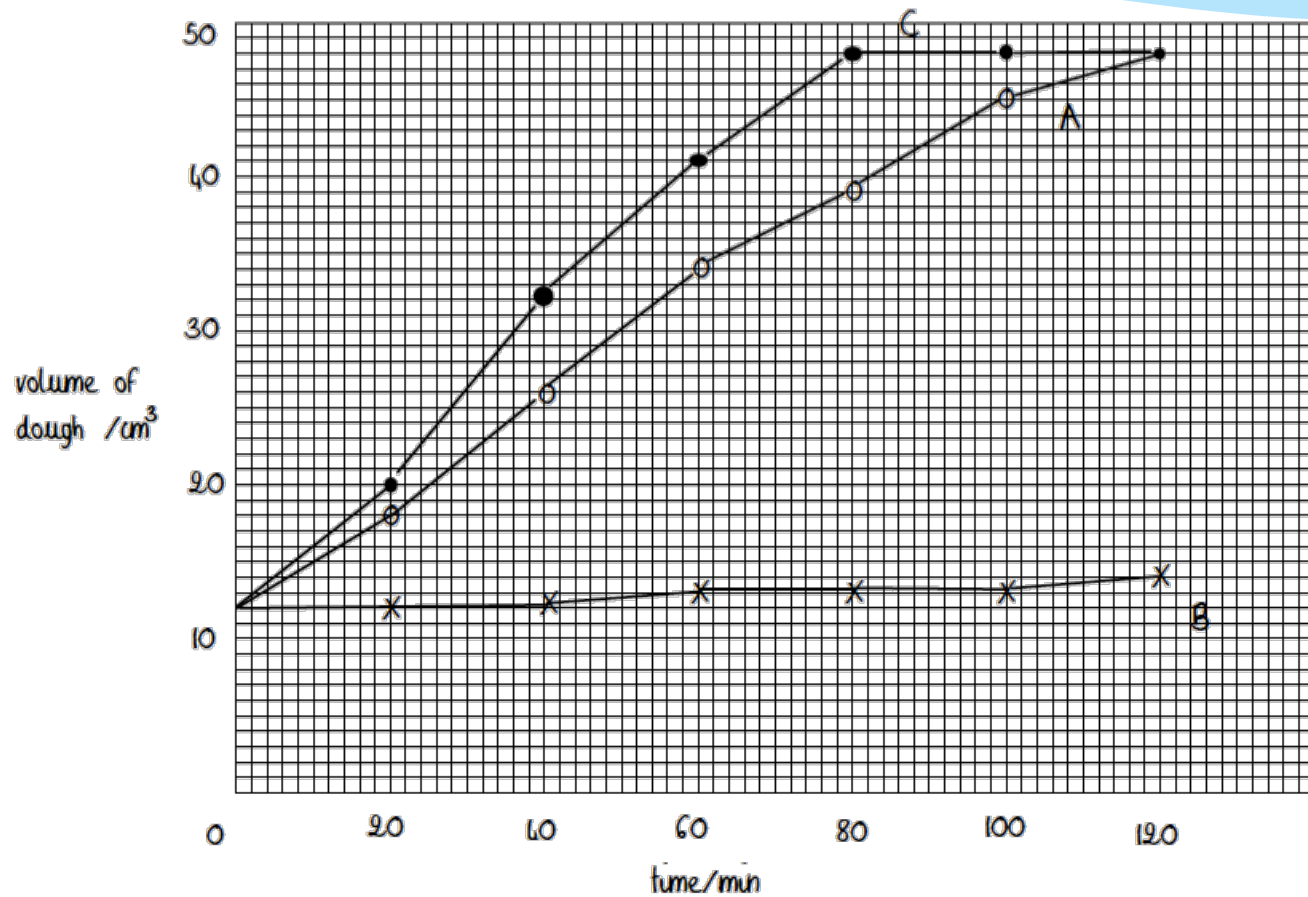
Describe an investigation that you could carry out to show the need in seed germination for suitable temperature

Two identical sets of apparatus are set up. Each set of apparatus should contain many seeds - all of the same species - placed on damp cotton wool in a glass jar the lid of which is open to allow entry of air. One set is placed on a bench in a warm laboratory (or, better, in a temperature-controlled propagator for growing seeds). The second set is placed in a refrigerator at 4°C. Both sets of seeds are watered daily over a period of several days. Only the seeds in the suitable temperature should germinate.

Drawing a Graph

- Use a sharp pencil
- Label both axes including the units
- Choose an even scale for each axis that uses up as much of the grid as possible.
- The controlled variable (time) is plotted on the x (horizontal) axis
- Dependent variable (i.e. the one that changes as a result in a change of the other) is plotted on the y (vertical) axis.
- Join your plotted points with ruled lines
- When drawing bar charts, all bars must be of the same width

Drawing a Graph



[5]

Test of Reducing Sugars

Safety:

- test tube holders;
- Safety Goggles
- use of lab coat
- hair tied back

Procedure:

- Take equal samples for comparison
- Crush the sample (if it's needed) or extract with water
- Add Benedict's Solution
- Heat (not warming) with a water bath
- Same time of Boiling for comparison
- The colour changes blue → green → yellow → orange → red
- Or it remains blue if there is no reducing sugars (negative result)



Test of Reducing Sugars



Test of Reducing Sugars

The reducing sugar test can tell you that:

- reducing sugar is absent
- reducing sugar is present at a low concentration
- reducing sugar is present at a high concentration

Explain how you can tell the difference between these possible results.

.....

.....

.....

.....

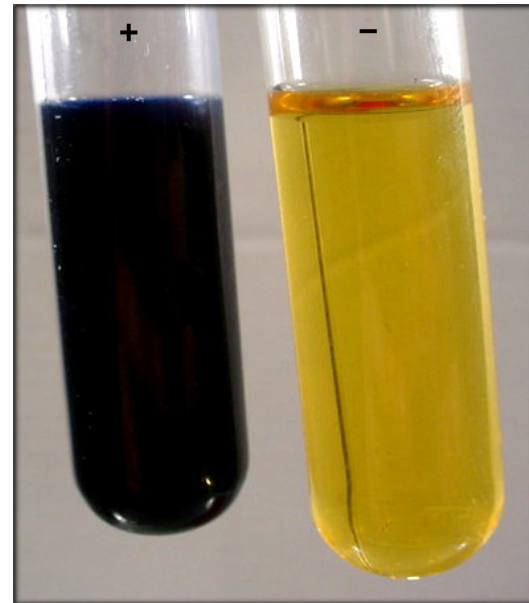
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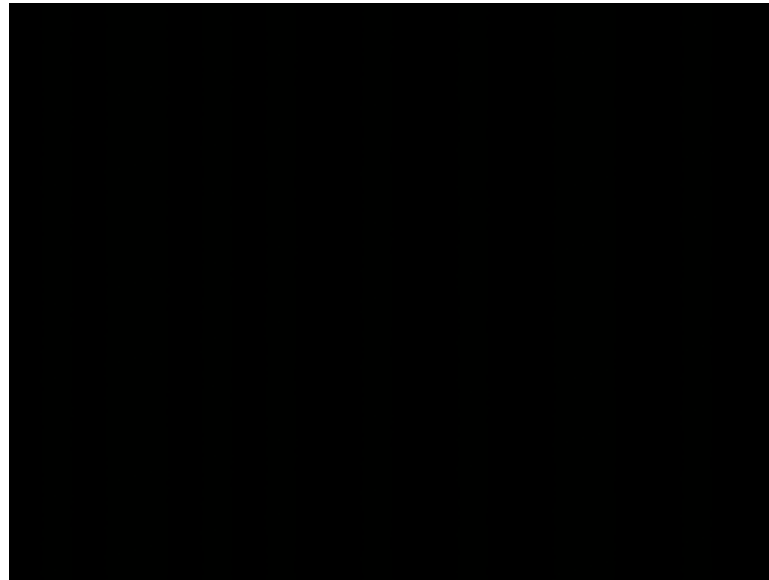
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Starch Test

- Crush the sample (if it's needed) or extract with water
- Add drops of iodine
- Observe colour change
brown → blue black

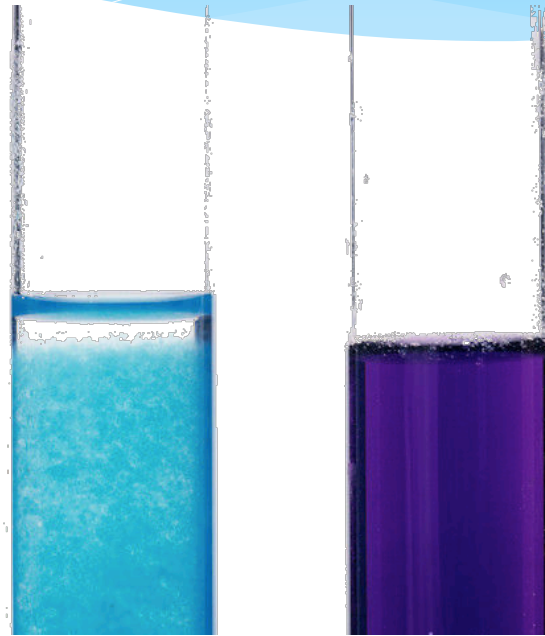


Starch Test



Protein Test

- * Add a measured volume of Biuret solution
- * In a test tube or a beaker
- * Colour changes from blue → purple



Protein Test

Test of Fats

Add a measured volume of ethanol to the sample

Add an equal volume of water to the mixture

A white emulsion forms which is a sign of

**III. Alcohol Emulsion
test for fats**

Tests of Gases

- * Test of Oxygen:

It relights a glowing splint

- * Test of Carbon dioxide:

Bubble gas in limewater

Limewater turns milky white

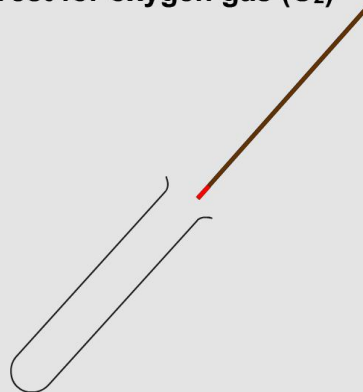
Note:

Carbon dioxide is an acidic gas, it lowers the pH



Tests of Gases

Test for oxygen gas (O_2)



Tests of Gases

Description

$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2 + \text{energy}$

Glucose → Ethanol + Carbon dioxide + energy