

Biology

BIO3T/P14/task

Unit 3T AS Investigative Skills Assignment Task Sheet

The effect of concentration of blackcurrant squash on osmosis in potato cylinders

Introduction

In this investigation, you will measure the change in mass of potato cylinders in different concentrations of blackcurrant squash. You will be provided with different concentrations of blackcurrant squash. The blackcurrant squash contains sugar. You will trim the pieces of potato provided to a suitable length, weigh them and place one cylinder in each concentration of squash. After a period of time, you will reweigh the cylinders.

Materials

You are provided with the following:

- blackcurrant squash of concentrations 100%, 80%, 60%, 40% and 20%
- water for 0% concentration
- water containing potato cylinders
- 6 boiling tubes
- boiling-tube rack
- measuring cylinder, syringe or pipette
- white tile
- scalpel or small knife to cut the potato cylinders
- paper towels
- ruler
- access to a sieve
- timer
- glass rod
- access to a balance.

You may ask your teacher for any other apparatus you require.

Method

Read these instructions carefully before you start your investigation.

To assist your planning, you should be aware that you will leave your potato cylinders in blackcurrant squash for 30 minutes.

1. Label a boiling tube '100%'. Add 20 cm³ of 100% blackcurrant squash to this tube.
2. Trim a potato cylinder to a length that will be covered by the squash when placed in the boiling tube. Blot it dry with a paper towel, use the balance to weigh it and record its mass. **Do not** add it to the boiling tube yet but keep it with this tube.
3. Repeat steps 1 and 2 with blackcurrant squash at concentrations of 80%, 60%, 40%, 20% and 0% (water).
4. Place each potato cylinder into the appropriate boiling tube and start the timer.
5. After each cylinder has been in its boiling tube for 30 minutes, remove it, blot it dry with a paper towel, reweigh it and record its mass.
6. For each concentration of blackcurrant squash, calculate the percentage change in mass of the potato cylinder. Record these calculated values in your results table.

You will need to decide for yourself:

- the length of the potato cylinder to cut
- what to do if a potato cylinder floats to the surface.

ISA BIO3T/P14 Candidate Results Sheet: Stage 1

The effect of concentration of blackcurrant squash on osmosis in potato cylinders

Centre Number

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Candidate Number

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Candidate Name

Record your raw data and the results of your calculations in a table in the space below. **[4 marks]**

Hand in this sheet at the end of each practical session.

Turn over for Stage 2

4

Turn over ►

ISA BIO3T/P14 Candidate Results Sheet: Stage 2

The effect of concentration of blackcurrant squash on osmosis in potato cylinders

Centre Number

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Candidate Number

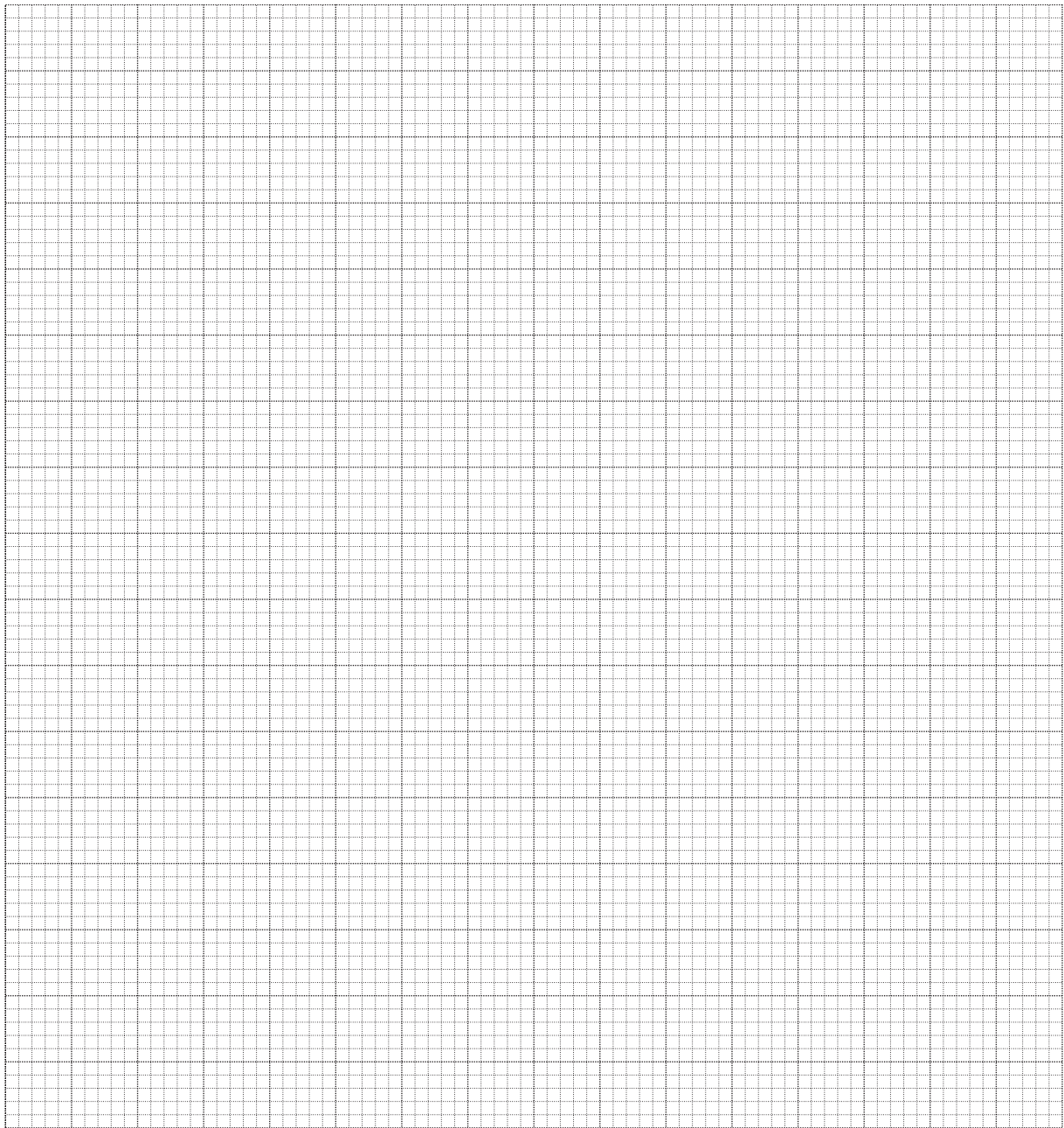
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Candidate Name

Use the graph paper to plot an appropriate graph of your processed data.

[5 marks]

Hand in this sheet at the end of each practical session.



END OF TASK

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