



General Certificate of Education
Advanced Subsidiary Examination
June 2010

Biology

BIO3T/P10/TN

Unit 3T AS Investigative Skills Assignment

Teachers' Notes

Confidential

**A copy should be given immediately to the teacher(s) responsible for
GCE Biology**

Teachers' Notes**CONFIDENTIAL**

These notes must be read in conjunction with *Instructions for the Administration of the Investigative Skills Assignment: GCE Biology* published on the ISA disk and on the AQA website.

The effect of bile salts and lipase on the digestion of triglycerides in milk

Candidates are required to investigate the action of lipase and bile salts. They will use triglycerides present in full-fat milk as a substrate.

Materials

In addition to access to general laboratory equipment, each candidate needs

- 25 cm³ full-fat milk
- 35 cm³ 0.1 mol dm⁻³ sodium carbonate solution
- 20 cm³ 5 % lipase solution
- 20 cm³ boiled lipase solution
- 20 cm³ 5 % bile salts solution or sodium tauroglycholate solution
- 20 cm³ boiled bile salts solution or boiled sodium tauroglycholate solution
- phenolphthalein indicator
- permanent marker pen or labels
- 1 or more graduated pipettes or syringes capable of measuring up to 10 cm³
- 5 clean boiling tubes
- boiling tube rack or beaker to hold tubes
- stop watch or timer
- beakers to facilitate collection of solutions
- Bunsen burner
- tripod
- gauze
- heatproof mat
- thermometer to cover the range 0 to 100 °C
- large beaker to act as a water bath. Thermostatically controlled water baths should not be used.
- water

Managing the investigation

Candidates should be prompted to read all the instructions carefully before they start the investigation. Note point 4 on the Task Sheet. If the tube contents do not turn pink candidates may be given help. Candidates should work on their own.

This investigation has been trialled successfully by several teachers using the following materials

Bile salts (sodium tauroglycocholate)

Timstar Laboratory Supplies, Timstar House, Marshfield Bank, Crewe CW2 8UY
Tel 01270 250459
<http://www.timstar.co.uk/>

Philip Harris
http://www.philipharris.co.uk/webapp/wcs/stores/servlet/Homepage_72_10501_-1

Lipase

Timstar Laboratory Supplies, Timstar House, Marshfield Bank, Crewe CW2 8UY
Tel 01270 250459
<http://www.timstar.co.uk/>

Philip Harris
http://www.philipharris.co.uk/webapp/wcs/stores/servlet/Homepage_72_10501_-1

Materials from other suppliers may be used. The task must be trialled, however, whatever the source of supply.

One week before sitting Stage 1 of the ISA, teachers may give their candidates the following information.

You will investigate the action of an enzyme on the digestion of triglycerides.

There should be no further discussion of this topic.

In this investigation, teachers must not give candidates the following information

- The temperature at which to set the water bath