

2 Use the value for the standard deviation that you calculated in question 1 to complete Table 2.

Table 2

milk sample	standard deviation (s)
full-fat cow's milk	1.9
skimmed cow's milk	
full-fat soya milk	0.6

The student plotted the mean times for the three types of milk as a bar chart, as shown in Fig. 2.

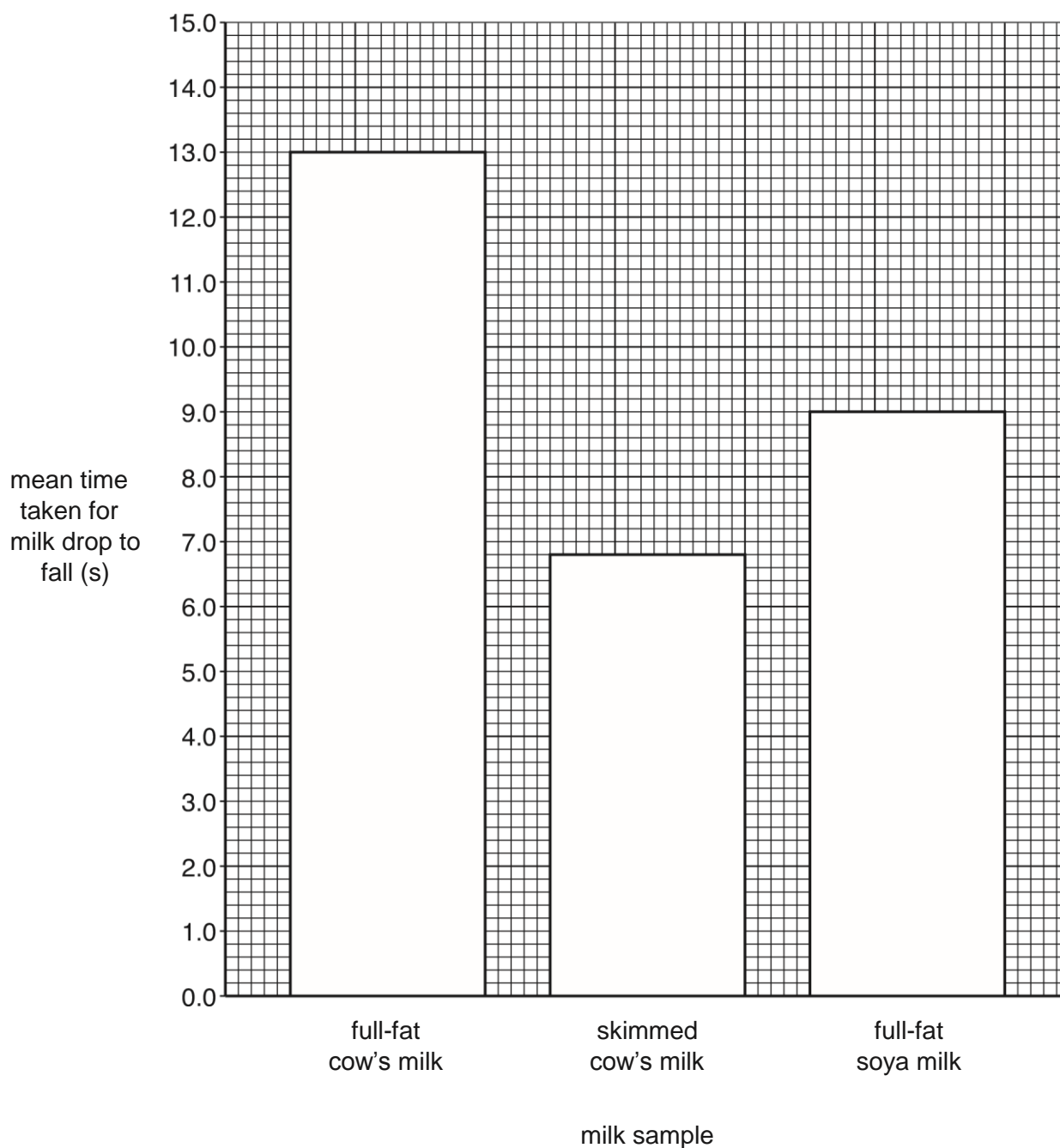


Fig. 2

Turn over

- (b) The student concluded that there must be another factor, other than fat content, that contributes to the difference in the results obtained for skimmed cow's milk and skimmed soya milk. He suggested that the difference could be due to the proteins in the milk.

Suggest how the protein composition of cow's milk may differ from that of soya milk.

.....
.....
.....
.....[2]

- (c) All the milk used in the experiment was fresh.

UHT milk, which has been heated to a very high temperature, is also available.

Suggest why it was important that the milk used in the experiment was **not** UHT.

.....
.....[1]

- 4 (a) Consider the method that the student used to collect the data.

Identify **two** variables that were controlled.

Variable 1
Variable 2[2]

- (b) State **why** it was necessary to control the two variables you have identified in 4(a).

Variable 1
.....
Variable 2
.....[2]

- (c) State **how** each of the two variables you have identified in 4(a) was controlled.

Variable 1
.....
Variable 2
.....[2]

ONslow ST AUDREY'S

A Level Biology Induction Activity

Preparing for A Level Biology

Feedback

Total marks from section A (/20) _____

Total marks from section B (/13) _____

Total marks from section C (20) _____

This booklet needs to be completed and handed in to your Biology teacher at the start of your first lesson in September.

Section B

Enzymes are often referred to as biological catalysts. A set of experiments were carried out on the enzyme *catalase* which helps to breakdown hydrogen peroxide into water and oxygen. The results of these experiments are in **Table 1**.

Table 1

Time (seconds)	Volume of oxygen produced (cm ³)			
	Replicate 1	Replicate 2	Replicate 3	Mean
0	0	0	0	
30	1.1	1.1	0.9	
60	1.8	1.9	1.9	
90	2.6	2.8	3.0	
120	3.3	3.3	3.5	
150	4.3	3.7	4.0	
180	4.6	4.6	4.3	
210	5.7	4.7	4.9	
240	5.0	5.2	4.8	
270	5.3	5.1	4.9	
300	5.5	5.0	5.0	
330	5.3	5.0	5.2	
360	5.4	5.0	5.2	
390	5.3	5.3	5.0	

- Calculate the mean volume of oxygen produced at each time to **3 significant figures** (1)
- Plot these results on suitable graph (4)
- Add range bars for each time (1)
- Using the information in **Table 1** and in your graph describe and explain the relationship between time and volume of oxygen produced (5)
- Which of the results could be classified as an anomalous result? What is an anomalous result? (2)

Part C

Research task

Assessed on

- Scientific knowledge
- Scientific communication
- Sources
- Referencing

Task

Research Eukaryotic cells, include information on structure, function and specialisation, also identify how the internal structures of cells have been identified (microscopy)