

## **Guidance Notes**

There are three types of specified practical work in this specification

- Investigative work
- Microscopy
- Dissection

### ***In general you should be able to:***

- apply investigative approaches and methods to practical work and think independently when undertaking practical work;
- use a wide range of experimental and practical instruments, equipment and techniques appropriate to the knowledge and understanding included in the specification.

## **Experimental Design**

You should be able to :

- identify the independent variable – the factor you will test/ change
- identify the dependent variable- the factor which you are measuring
- identify the controlled variables – the factors that you need to keep constant
- use the correct units for all your variables
- identify a suitable range for your independent variable, this would normally be at least five values
- explain why repeat readings would be needed – a mean is more reliable than an individual reading and it will help identify anomalous results
- design a suitable control experiment
- assess the main risks of your experiment

Hazard	Risk	Control measure

**Hazard** - an object or chemical and the nature of the hazard

**Risk** - an action in the method that can create a risk from the hazard

**Control measure** - must be practicable in the context of the practical

### Table of results

Your table should have:

- correct column headings
- appropriate units in headings (not in body of table)
- columns for sufficient repeats
- appropriate recording of readings, time to the nearest second, same number of decimal places throughout table except 0

### Exemplar table of results

Independent variable (unit)	Dependent variable (unit)			
	Trial 1	Trial2	Trial 3	Mean
Value 1				
Value 2				
Value 3				
Value 4				
Value 5				

### Graphs

Your graph should have:

- the independent variable plotted on the  $x$  axis
- the dependent variable plotted on  $y$  axis
- the axes labelled correctly
- used at least half of the grid should have been used on both axes
- the correct units on both axes
- a suitable linear scale used on each axis, including a figure at the origin for both axes
- all plots accurately plotted
- the points accurately joined with a suitable line with no extrapolation. Point to point using a ruler through centres is advised for most graphs
- range bars correctly drawn

### **Analysis of results**

You should be able to :

- identify a trend in the results
- comment on the consistency of the readings
- comment on the accuracy of the readings
- suggest improvements for any inaccuracies identified
- give an explanation of results using relevant and sound biological knowledge
- draw a suitable valid conclusion