

Year 10 Skills – Set 3

Section 1) Writing Method and Risk Assessment Part 2

- 1) An experimenter wants to compare the heat absorbing ability of dull black metal containers with shiny silver metal containers.
 - a) Write a method for an experiment that would test this idea.
 - b) Identify the independent and the dependent variables.
 - c) Describe two risks that could be present when conducting this experiment and include the safety precautions that could be employed to reduce each risk.

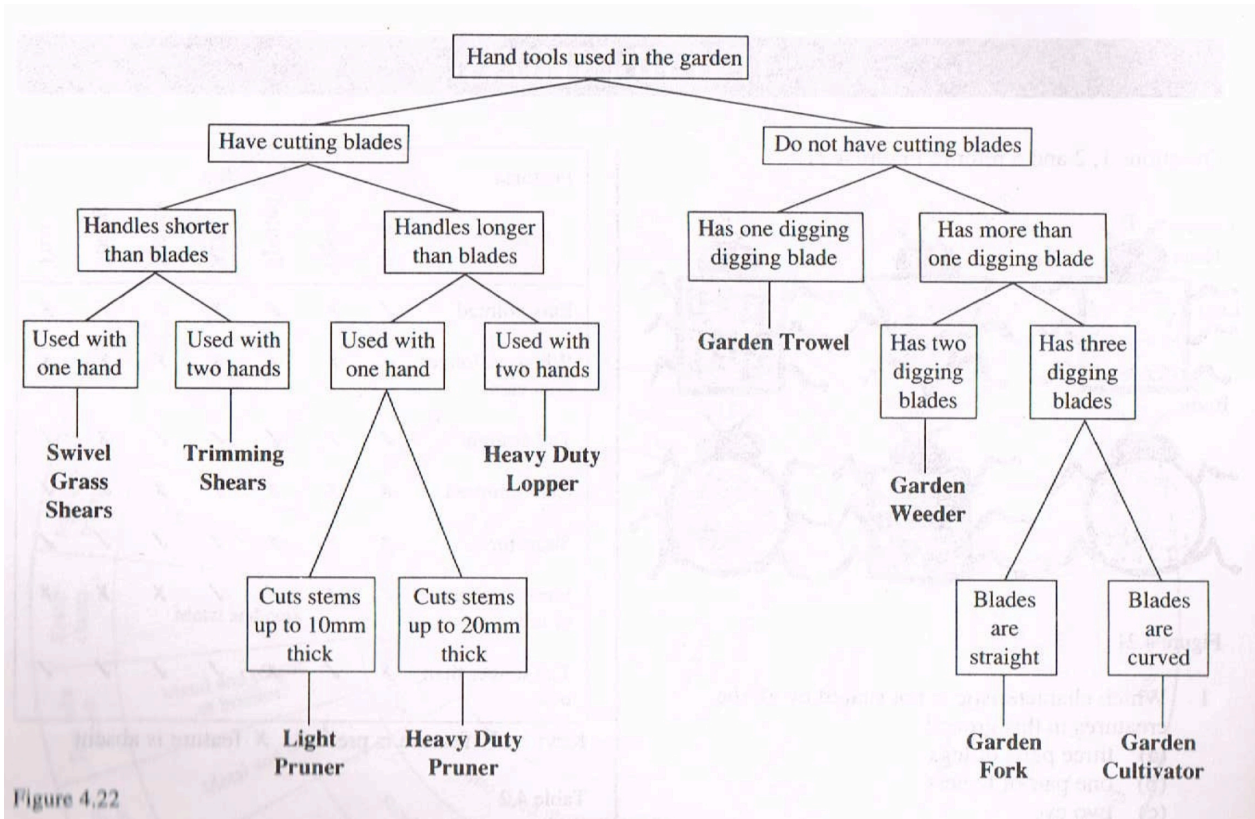
- 2) Etienne sets up an experiment on filter paper. She used four strips of filter paper. Each was the same length and width. She put the bottom 3 cm of each strip in four beakers containing 100 mL of water. She then measured and recorded the temperature of the water in each beaker. After 5 minutes, Etienne removed the strips and measured the height the water had moved up the filter paper. The results are shown below.

| Beaker | Temperature of Water (°C) | Starting height of water on strip (cm) | Final height of water on strip (cm) | Distance water moved in 5 mins (cm) |
|--------|---------------------------|--|-------------------------------------|-------------------------------------|
| 1 | 0 | 3 | 4.5 | 1.5 |
| 2 | 30 | 3 | 6.0 | 3.0 |
| 3 | 60 | 3 | 7.5 | 4.5 |
| 4 | 90 | 3 | 9.0 | 6.0 |

- a) What is Etienne's hypothesis that she was trying to investigate?
- b) Identify the independent variable.
- c) Identify the dependent variable.
- d) List all the variables that Etienne controlled.
- e) Draw a graph of the temperature of the water against the distance the water moved in 5 minutes.
- f) Draw a line of best fit for this graph.
- g) Predict the distance that the water would have moved up the paper strip if the temperature were 50°C and 95°C.

Section 2) Drawing and Interpreting Keys

Questions 1 – 3) refer to the branching key shown below:



- Which statement below is a feature of a heavy-duty pruner?
 - cut stems up to 10 mm thick
 - handles shorter than the blades
 - used with two hands
 - handles longer than blades
- Which statement below is a feature that trimming shears and heavy-duty loppers have the same?
 - handles shorter than blades
 - used with two hands
 - handles longer than blades
 - used with one hand
- Use the key to identify the garden tool shown:
 - garden fork
 - garden weeder
 - garden cultivator
 - garden trowel





4) Create your own branching key so that the following laboratory equipment can be identified correctly.

| | |
|----------------------|--------------------|
| Round-bottomed flask | Measuring cylinder |
| Conical flask | Tripod |
| Filter funnel | Evaporating dish |
| Test tube | Crucible |
| beaker | boss head |

