

Name:

Class:



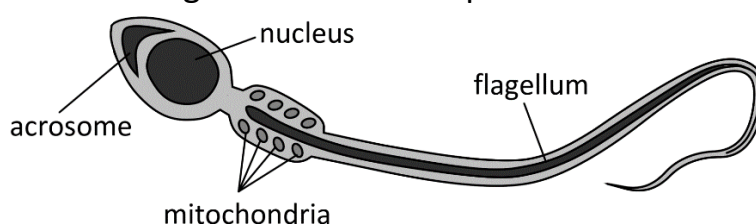
Biology is the study of living things.
Which characteristic applies to all forms of life?

- A** Able to move from place to place
- B** Able to reproduce
- C** Carry out photosynthesis
- D** Possess a nervous system

When a food substance is tested with iodine solution, which colour shows the presence of starch?

- A** Blue-black
- B** Brown
- C** Orange
- D** Purple

The figure below shows is a diagram of a human sperm cell.



- i. Write the formula that would be used to calculate the magnification of the diagram.

$$\text{Magnification} = \text{image size} \div \text{actual size}$$

Accept any correct variation of the formula.

- ii. The actual length of the sperm cell in the figure above is 0.055 mm.
Convert this value to micrometres (μm). You must show your working.

$$0.055 \text{ mm} \times 1000 = 55 \mu\text{m}$$

55 μm

- iii. The size of the image is 99 mm. Calculate the magnification of the sperm cell.

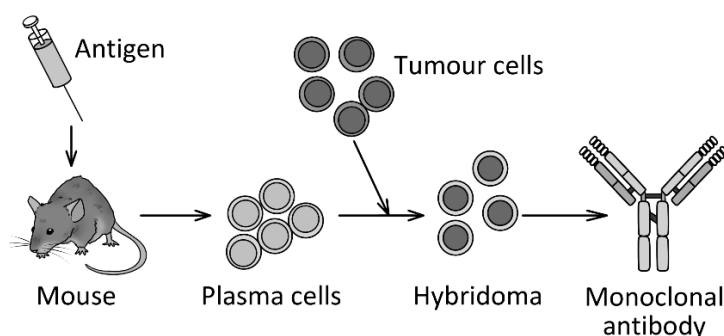
$$\text{Magnification} = \text{image size} \div \text{actual size}$$

$$\text{Sperm cell image length} = 99\text{mm} = 99000 \mu\text{m}$$

$$\text{Magnification} = 99000 \div 55$$

$$\text{Magnification} = \times 1800$$

Large quantities of one type of antibody can be made by the process shown in the figure below. These antibodies are called monoclonal antibodies.



Give **two** uses of monoclonal antibodies.

Any **two** from:

Pregnancy testing. Detecting diseases/cancer. Treating disease/cancer.