

Activity 2 – Cell structure

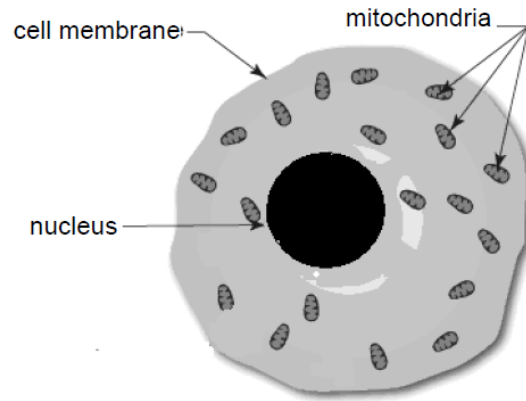
NAME _____

NAME _____

NAME _____

GCSE TASK:

The diagram shows an animal cell.



(a) Write down the function of mitochondria in the cell.

..... [1]

(b) (i) It is possible to work out the volume of the cell shown in the diagram.

One millimeter on the diagram equals one micrometer in real life.

Assuming it is a sphere, the volume is $\frac{4}{3} \pi r^3$, where r is the radius.

So the cell volume = $\frac{4}{3} \times 3.14 \times 23^3 = 50939 \text{ micrometers}^3$

Measure the radius of the **nucleus** and work out the volume of the nucleus using the same formula.

.....
.....
.....

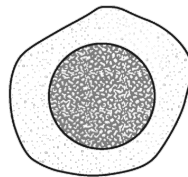
answer = micrometres³ [2]

A LEVEL TASK:

Calculating the size of a cell

Calculating the magnification when, you are given the actual size of an image.

You have to be supplied with an image with a given magnification, such as the one given below.



Actual size is 6 μm

- Measure the maximum diameter of the cell on your sheet in millimetres

..... mm

- Convert the millimetres to micrometers, as this makes the calculations easier to do. There are 1000 μm in every mm.

..... μm

You know that the length (6 μm) has been multiplied by the magnification to get the measured length. The magnification is what you are trying to find out.

- Magnification \times actual length = measured length

Magnification \times 6 μm = μm

Magnification = μm / 6

Magnification = X

Activity 2 – Cell structure

Calculate the magnification of the following images.

a) Sperm cell



40 μm

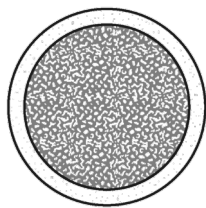
- Magnification \times actual length = measured length

Magnification \times 40 μm = μm

Magnification = μm / 40

Magnification = X

b) Lymphocyte



7 μm

- Magnification \times actual length = measured length

Magnification \times 7 μm = μm

Magnification = μm / 7

Magnification = X