

## Calculating Actual Size of Cell and Magnification

You need to know:

Microscope F.O.V.

	Power (ocular lens X objective lens)	F.O.V.( $\mu\text{m}$ )
Low		4200
Medium		1600
High		420

a) Show calculations to estimate the size of the cell.

$$\begin{aligned} \text{Actual Size of cell} &= \frac{\text{F.O.V. } (\mu\text{m})}{\# \text{ of cells that fit across the F.O.V.}} \\ &= \underline{\hspace{2cm}} \mu\text{m} \end{aligned}$$

b) Show calculations to determine the magnification of your diagram.

$$\begin{aligned} \text{Magnification} &= \frac{\text{size of cell in diagram (cm)}}{\text{Actual size of cell } (\mu\text{m})} \\ &= \frac{\underline{\hspace{2cm}} \text{ cm}}{\underline{\hspace{2cm}} \mu\text{m}} \\ &= \underline{\hspace{2cm}} \times \end{aligned}$$

### NOTE:

- use a ruler to measure
- convert to  $\mu\text{m}$

$$1 \text{ cm} = 10\,000 \mu\text{m}$$

$$\xrightarrow{\times 10\,000}$$

$$\xleftarrow{\div 10\,000}$$

E.g.

$$0.0004 \text{ cm} = \underline{\hspace{2cm}} \mu\text{m}$$

$$2 \text{ cm} = \underline{\hspace{2cm}} \mu\text{m}$$