Living/dead cells

Electron

Higher magnification/resolution – see smaller things in more detail Dead cells only

4. number/size/scale – estimations + when to use them

 $cm \times 10 = mm$

$$mm \times 1000 = \mu m$$

 $\mu m \times 1000 = nm$

 $image = actual\ x\ magnification$

1. Measure image

2. Put into equation

3. Convert units

Estimate by rounding numbers to check answer is right

5. relationship between quantitative units in relation to cells:

- a. milli 10⁻³
- b. micro 10⁻⁶
- c. nano 10⁻⁹
- d. pico 10⁻¹²
- e. calculations with numbers written in standard form

ation UK cotesale.co.uk 6. Core Practical: Investigate biological specimens using microscopes – magnification calculations

& labelled scientific drawings from observations

Light microscope

Thin slice – allows light to pass through it

If specimen transparent: add drop of this makes it easier to so over slip – press down and the state of the makes it easier to so Clean slide & use pipette to put drop of water on it— s

Place cover slip – press down can

Clip slide onto

Select lowest-powered objective lens

Focus: Coarse adjustment knob – move stage up so slide is just beneath objective lens

Look through eyepiece, move stage downwards until nearly in focus

Fine adjustment knob – until clear image

Calculate field of view: position clear ruler on stage, measure diameter of circular area visible

For greater magnification – swap to higher-powered objective lens, refocus & recalculate field of view

Scientific drawing

Sharp pencil – outlines of main features (no colouring/shading)

Keep in proportion

Label important features – straight lines that don't cross

Include magnification used and scale

7. Enzymes

Biological catalyst – large protein molecules that speed up reactions

Lowers activation energy required for reaction to start

control: digestion / respiration / photosynthesis