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One of your required practicals is to prepare a slide to view under a microscope

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Describe how to prepare a slide to view a plant epidermis under a microscope

[5 marks]

use tweezers [1] to peel a thin layer of epidermis off some onion skin [1]

lay this flat onto a slide [1]

place a drop of iodine/stain onto this (to pick up starch in the cell) [1]

use a mounted needle [1] to slowly lower a coverslip on top (of the onion specimen) [1]

view under a microscope [1]

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The light microscope below has one eyepiece lens and 3 objective lenses and the magnification of each has been labelled. When viewing the specimen for the first time which objective lens should a student use? Give a reason for your choice.

[2 marks]

the lowest magnification/x4 [1]

to give the widest field of view (to find specimen in) [1]



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Under this magnification the student begins to draw a low power microscope drawing. State the total magnification she is viewing the specimen at

[2 marks]

x4 (objective lens) multiplied by x10 (eyepiece lens) [1]
= x40 [1]

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Evaluate the use of light microscopes over electron microscopes

[4 mark]

There must be an advantage and disadvantage for each microscope to get full marks

light microscope:

advantages: cheap/ portable /specimens can be viewed alive[1]

disadvantages: low magnification/low resolution [1]

electron microscope:

advantages: high resolution/high magnification/can see cell ultrastructures [1]

disadvantages: expensive/not portable/cannot view specimens alive [1]

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If you have an image of a cell that is 10mm wide and it is magnified by x400, what is the real or actual size of the cell in mm?

[2 marks]

actual size = image size/magnification

actual size = 10mm/400 [1]

actual size = 0.025mm [1]

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The drawing of a muscle cell below has a scale bar that represents 0.1mm in length. Calculate the magnification of the muscle cell drawing.

[2 marks]

width of scale bar measured using a ruler in mm (results will vary depending on screen/print size) [1]

magnification = image size (scale bar measured with ruler)/actual size (0.1mm) [1]

results will vary based on image size. Award full marks for the process/calculation

