Cell images are evidence

Start with the caption, image type and scale. Identify structures from resolved patterns and boundaries; do not rely on colour, shape or one isolated dark spot alone.

LIGHT IMAGE

Larger features: cell walls, nuclei or chloroplasts may be visible with suitable preparation.

TEM IMAGE

A thin-section view of internal ultrastructure, including fine membrane arrangements.

SEM IMAGE

Surface form and texture. A 3D-looking view does not show all internal structures.

STRUCTURE	LOOK FOR A COMBINATION OF FEATURES
Nucleus	A relatively large compartment; an envelope and dense nucleolus may be visible if the image resolves them.
Mitochondrion	An outer boundary plus folds of the inner membrane, called cristae. An oval shape alone is insufficient.
Chloroplast	Internal thylakoid stacks (grana) in a resolved electron image; colour alone is not diagnostic.
Rough ER	Membrane cisternae with attached ribosomes visible as small particles on the cytoplasmic surface.
Golgi body	Stacks of flattened sacs with nearby vesicles; unlike rough ER, no ribosomes attached to the sacs.
Plant-cell features	A wall outside the cell surface membrane and often a large vacuole. Chloroplasts occur in photosynthetic cells.

OBSERVATION FIRST, INFERENCE SECOND

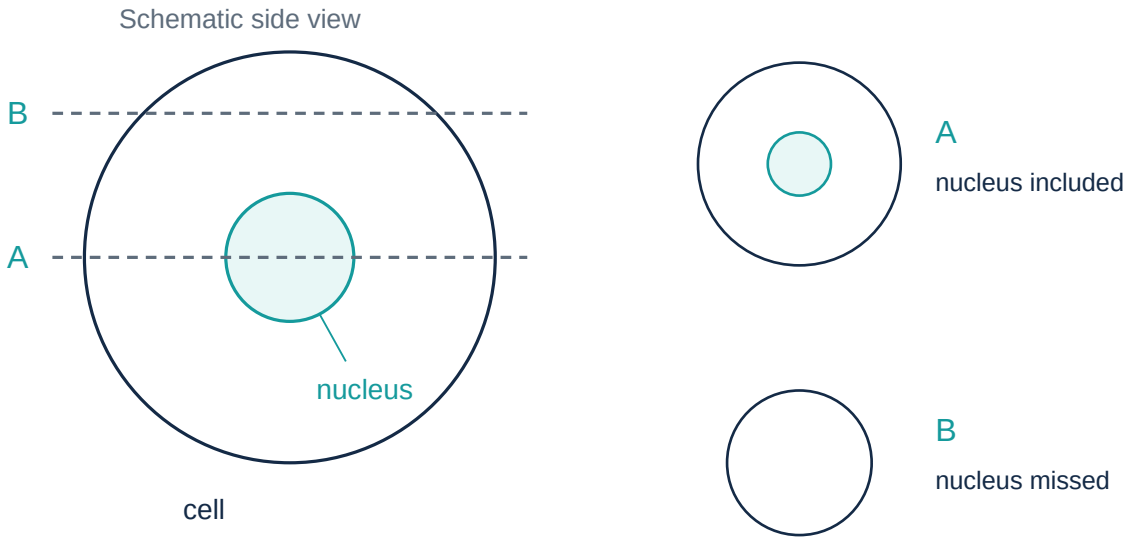
“Internal folds are visible” is an observation. “This is a mitochondrion” is an interpretation supported by those folds and the surrounding boundary. Explain the evidence behind a label.

Cambridge Biology 9700 syllabus: section 1.2, outcomes 1-2, pp. 15-16.

A section is not the whole cell

A thin section samples only part of a three-dimensional cell. An organelle may be present in the cell but missing from the particular plane that was imaged.

TWO CUTS THROUGH THE SAME SPHERICAL CELL



1. NOT VISIBLE DOES NOT MEAN ABSENT

A nucleus may be outside the section, poorly contrasted or below the image's useful detail. Do not classify a cell as prokaryotic simply because a nucleus is not visible. Use several diagnostic features.

2. QUESTION UNUSUAL MARKS

Folds, tears, shrinkage, knife marks, uneven staining or debris can come from preparation. Air bubbles can occur in wet mounts. Compare several cells or fields before treating an isolated mark as a real structure.

3. USE THE WHOLE PATTERN

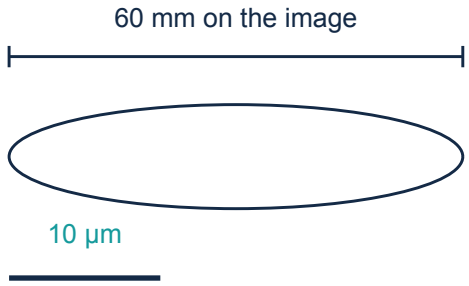
A cell wall plus chloroplasts strongly supports a plant-cell interpretation in a plant-versus-animal task. A wall alone is not unique to plants. A plant root cell may lack chloroplasts; a large pale region alone does not prove a vacuole.

Cambridge Biology 9700 syllabus: interpreting plant and animal cell images, outcome 1.2.2.

Measure, then draw faithfully

Keep the interpretation separate from the drawing: record the visible evidence and label only structures you can identify confidently. Follow the requested region and number of cells.

SCALE-BAR EXAMPLE



The bar measures 20 mm and represents 10 µm. Measure the cell and bar on the same copy.

$$\text{Actual length} = \frac{60\ \text{mm}}{20\ \text{mm}} \times 10\ \mu\text{m} = 30\ \mu\text{m}$$

Illustrative outline, not a micrograph. Resizing both lengths preserves their ratio.

1. SELECT AND KEEP PROPORTIONS

Choose the specified cells or region. Make a large drawing that uses the available space, leaving room for labels. Keep the relative sizes, arrangement and positions of visible contents accurate.

2. DRAW CLEAR STRUCTURAL LINES

Use a sharp pencil and fine, unbroken lines with no shading or sketchy retracing. Show wall thickness where visible. In a plan diagram, show tissue boundaries and proportions rather than individual cells.

3. LABEL AND CHECK

Use straight ruled label lines that touch the named structure and do not cross. Add the requested title or scale information. Compare the finished drawing with the source image; remove any guessed details.

Cambridge Biology 9700 syllabus: practical observation and drawing guidance, pp. 53-55.