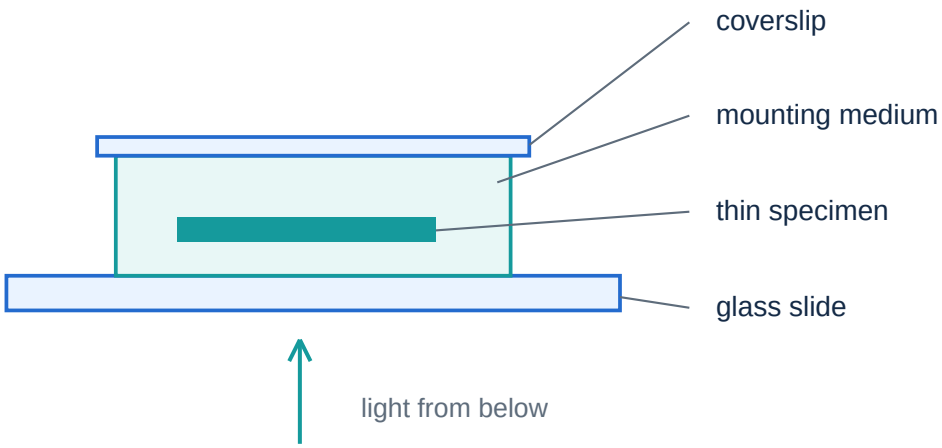
Temporary preparations

Prepare cellular material so transmitted light reveals useful detail. A temporary slide is made for short-term observation, not long-term preservation.

A WET MOUNT IN SIDE VIEW

Schematic: layer thicknesses are exaggerated.



1. THIN, FLAT MATERIAL

Use a small, thin specimen, such as one layer of onion epidermis. Light passes through more easily and cell layers do not overlap. A thick or folded sample produces a dark, confusing image.

2. LIQUID AND CONTRAST

A suitable mounting medium supports the specimen and limits drying. A stain can make transparent structures stand out. Staining increases contrast; it does not increase magnification or the microscope’s resolving power.

3. A COVERSLIP

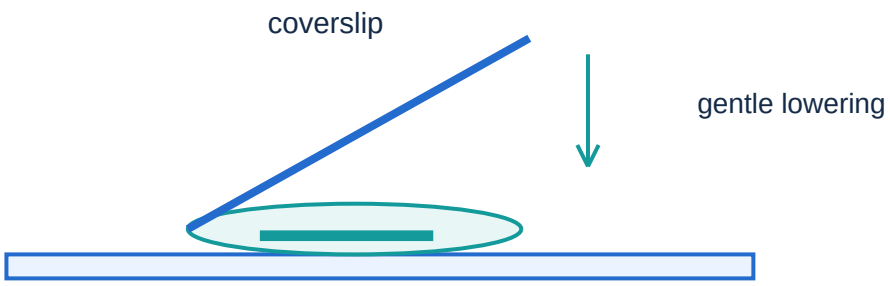
A coverslip holds a shallow, even mount and helps keep liquid off the objective. Lower it gently: force can crush the specimen or break the glass.

Syllabus link: Cambridge Biology 9700 (2025-2027), section 1.1, outcome 1.

Make a clear wet mount

Example: onion epidermis. Use the mounting liquid and stain specified by your teacher; the appropriate preparation depends on the specimen and the purpose.

LOWER ONE EDGE FIRST, THEN LOWER SLOWLY



one edge touches the liquid first

1	CLEAN	Use a clean slide and coverslip; handle their edges.
2	MOUNT	Place a drop of suitable liquid at the centre of the slide.
3	SPREAD	Lay a small epidermal peel flat in the drop; remove folds.
4	STAIN	Add the prescribed stain if needed. Dilute iodine is one option for onion tissue.
5	COVER	Touch one coverslip edge to the liquid. Support it with a mounted needle and lower gently.
6	CHECK	Blot excess liquid at the edge, without pressing on the coverslip. Observe before the mount dries.

Alternative stain method: add stain at one coverslip edge and draw it underneath using absorbent paper at the opposite edge, if your protocol calls for it.

Method reference: The Open University, Working with onion cells.

Check the image, then improve it

Start with the low-power objective. Centre and focus the specimen, adjust illumination, and only then move to higher power; use fine focus at high power.

OBSERVATION	LIKELY CAUSE AND RESPONSE
Dark, layered image	Tissue is too thick or folded. Remake the mount with a thin, flat layer.
Large circular rings	Likely trapped air. Remake the mount and lower the coverslip gradually at an angle.
Very pale structures	Low contrast. Adjust illumination or use an appropriate stain; more magnification alone will not fix it.
Specimen dries or moves	Too little liquid or excess liquid. Restore the correct amount at the edge and avoid disturbing the coverslip.
Blurred or empty field	Check specimen position and focus at low power. Do not drive the objective into the slide.
Specks outside the tissue	Possible debris. Check a clear part of the slide; use clean glass and fresh mounting liquid.

OBSERVATIONS ARE EVIDENCE

Look for repeated cell boundaries and structures within cells, not just isolated rings or specks. Record only what you can see. Stains and mounting conditions may alter cells, so a stained preparation is not automatically suitable for studying living behaviour.

Safety: follow the school risk assessment. Wear eye protection as instructed, handle needles and glass carefully, and dispose of broken glass and stains as directed.

Practical context: Cambridge International, Biology 9700 lab technician resources.