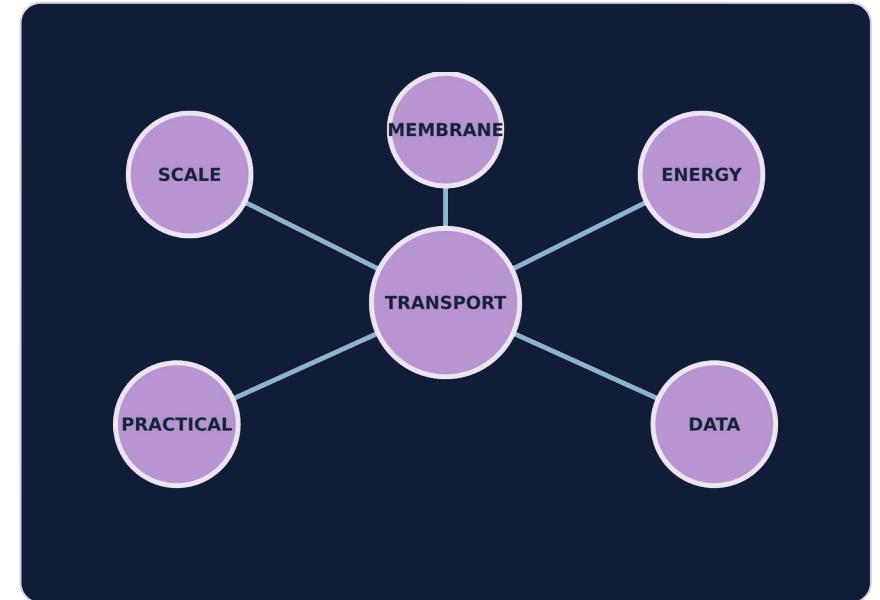


Connect your knowledge

I can retrieve and connect microscopy, transport, practical and data ideas before choosing what to revisit.

Notice. Recall. Be ready to explain.

- 1 Write the magnification relationship.
- 2 State one difference between osmosis and active transport.



Retrieval answers

Make a prediction

Which link is strongest: magnification ↔ unit conversion, osmosis ↔ percentage change in mass, or active transport ↔ respiration?

A Only the first

B Only the second

C Only the third

D All three are valid links

Commit, then check

Watch the model

- 1 Retrieve an idea before opening its support card.
- 2 Link concepts using a reason, not only a line between labels.
- 3 Use any mistake to choose what to practise next.

Build a connected explanation

Recall Name the idea

Connect Give a reason

Improve Repair one step

View labelled diagram

Optional video

Choose and justify

Which connection is scientifically justified?

A A thinner alveolar wall shortens diffusion distance

B Higher magnification always increases resolution

C An anomaly must be deleted

D Active transport is fast osmosis

Give the deciding clue before checking.

Check the reasoning

Connect the science

- 1 Microscopy links to magnification, units, scale and measurement uncertainty.
- 2 Transport links to gradients, membranes, surface area, distance and energy.
- 3 Practicals link variables to raw data, calculations, graphs, conclusions and evaluation.

Choose the answer shape

Describe: pattern + relevant evidence

Explain: cause → mechanism → consequence

Calculate: relationship → units → working

Repair the knowledge map

Choose two ideas. Connect them using because or whereas. Your partner checks the science.

- 1 Magnification Units Resolution
- 2 Osmosis Membrane Percentage change
- 3 Active transport Respiration Uptake

Reveal shared reasoning

Your independent evidence

Create a connected explanation using at least five of these ideas: magnification, micrometre, diffusion, concentration gradient, osmosis, percentage change, active transport, respiration, anomaly and control variable. Explain each link rather than listing terms.

Optional support

Choose two ideas. Link them with “because” or “whereas”. For a cell adaptation, name the feature and what it helps the cell do.

Make one precise correction to the same work after feedback.

[Open worksheet pages](#)[Model after first attempt](#)

What changed in your thinking?

Which single connection do you now need to practise next, and what evidence led you to choose it?

- 1** Point to one improvement in your work.
- 2** Choose what you want to revisit.
- 3** Tell your teacher; agree the next step together.

Retrieval and prediction check

- 1 $M = I \div A$.
- 2 Osmosis: water through a partially permeable membrane without energy from respiration. Active transport: against-gradient movement using that energy.

All three are valid links

[Return to Starter](#)

Check the deciding clue

A thinner alveolar wall shortens diffusion distance

Correct causal link.

Compare your reason. Correct one step if needed.

[Return to We Do](#)

Our shared reasoning

Matching units makes a magnification ratio valid.
Mass change can provide evidence of net water movement by osmosis.
Respiration releases energy for active transport.
Accept other accurate, explained links.

[Return to shared task](#)

Compare after your first attempt

Magnification calculations require image and actual size in matching units, often millimetres and micrometres. Diffusion is net movement down a concentration gradient, while osmosis is net water movement through a partially permeable membrane. Potato mass percentage change provides evidence about osmosis when control variables are kept constant. Active transport can move substances against a gradient using energy from respiration. An anomalous result should remain visible and be investigated before deciding whether to include it in a mean.

Use the model to improve your explanation in your own words.

[Return to independent task](#)

Your lesson resources

Worksheet pages are stored inside this PowerPoint.

[Worksheet · page 1](#)[Worksheet · page 2](#)[Standard PDF](#)[Supported PDF](#)[Depth PDF](#)[Editable Word worksheet](#)[Open online lesson / model](#)

Named files are in this week's folder. Online lesson and video need internet.

[Optional concept video](#)

Worksheet · page 1

Use your printed copy.
 Keep the first attempt.

MADE BY MATT / LAUNCH SCIENCE

W7L1 | Repair the knowledge map

Monday | 09:30–10:10 | Introduce | Editable pupil sheet

Name: _____ Date: _____

Core first. Write, speak, point or dictate your own words. Keep the first attempt so you can improve it.

Optional support: Choose two ideas. Link them with “because” or “whereas”. For a cell adaptation, name the feature and what it helps the cell do.

Work together

Teach the three cell adaptations below before using them in the map.

Cell	Feature	Function
Sperm	Tail; many mitochondria	Movement towards the egg; energy for movement
Egg	Nutrient-rich cytoplasm	Supports early development after fertilisation
Ciliated epithelial cell	Beating cilia	Moves mucus and trapped particles along the airway

1. Explain one of the cell adaptations using feature → function.

2. Correct: “A larger image always has more resolution.”

Return to task

Worksheet · page 2

Continuation is optional.
Improve the same work.

MADE BY MATT / LAUNCH SCIENCE

W7L1 | Continue and improve

Use after the core questions when directed

3. Write three reasoned links between magnification, units, osmosis, percentage change, active transport and respiration.

Optional transfer

Choose a review priority and quote one piece of your work as evidence.

Depth: name an assumption or limit, then say what evidence would strengthen your answer.

Improve the same work

One correction I made, and why:

My request for next time: _____

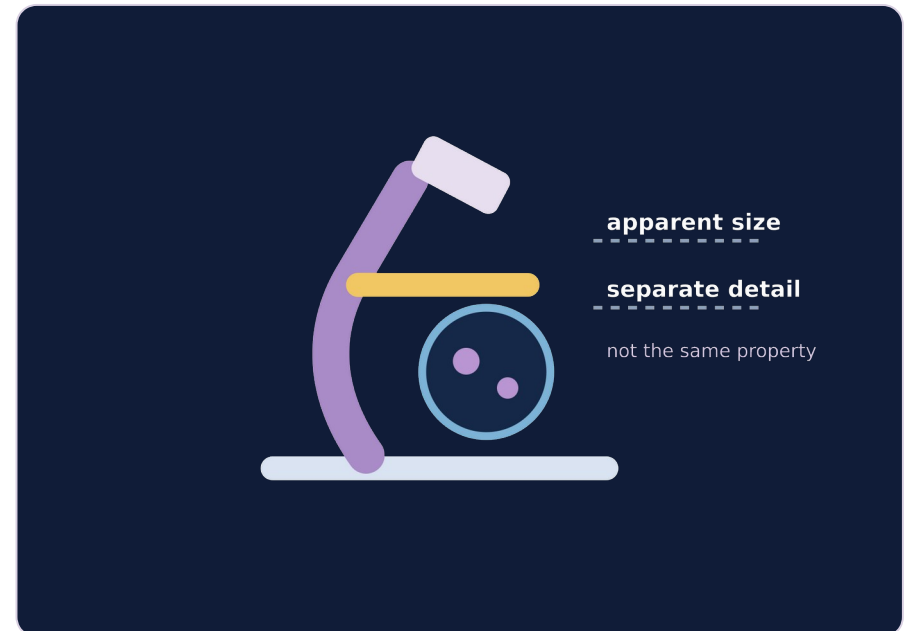
Return to task

Watch, pause and explain

Microscopy

What is the difference between making an image bigger and resolving more detail?

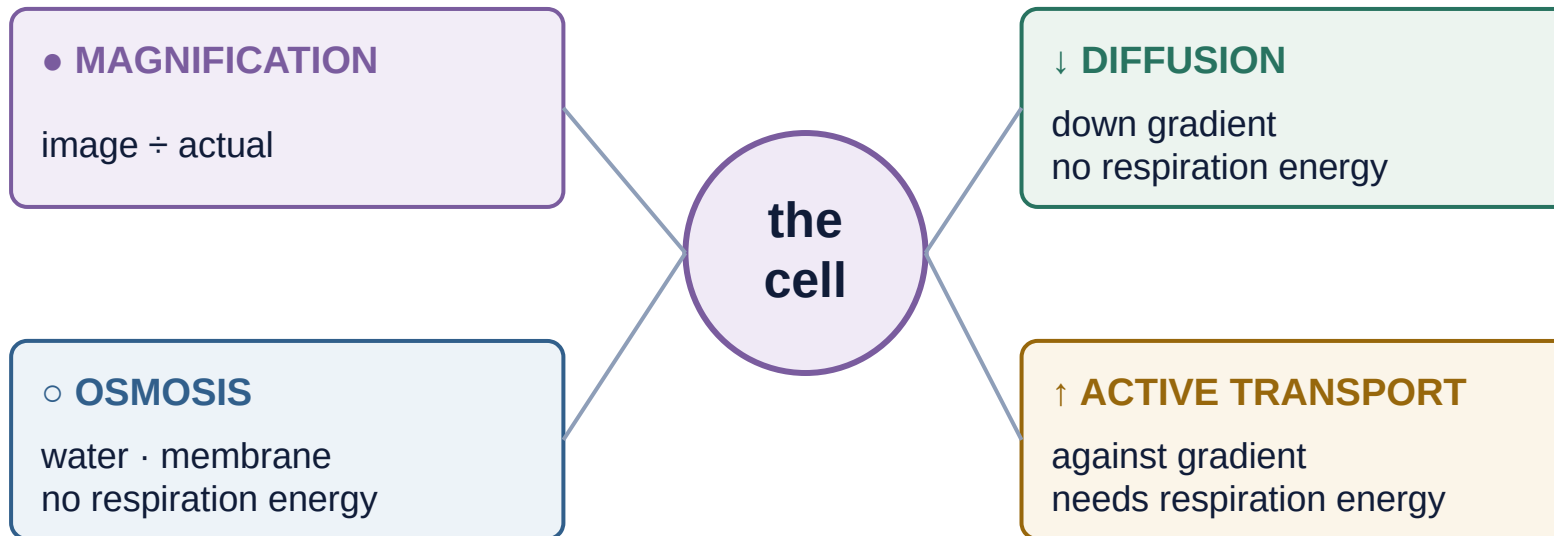
Play freesciencelessons video



No connection? Use the still model and explain the same question.

Look closely at the model

Cells, scale and transport



A model illustration: use the stated data for calculations.

[Return to I Do](#)