

Life Processes

Teacher notes

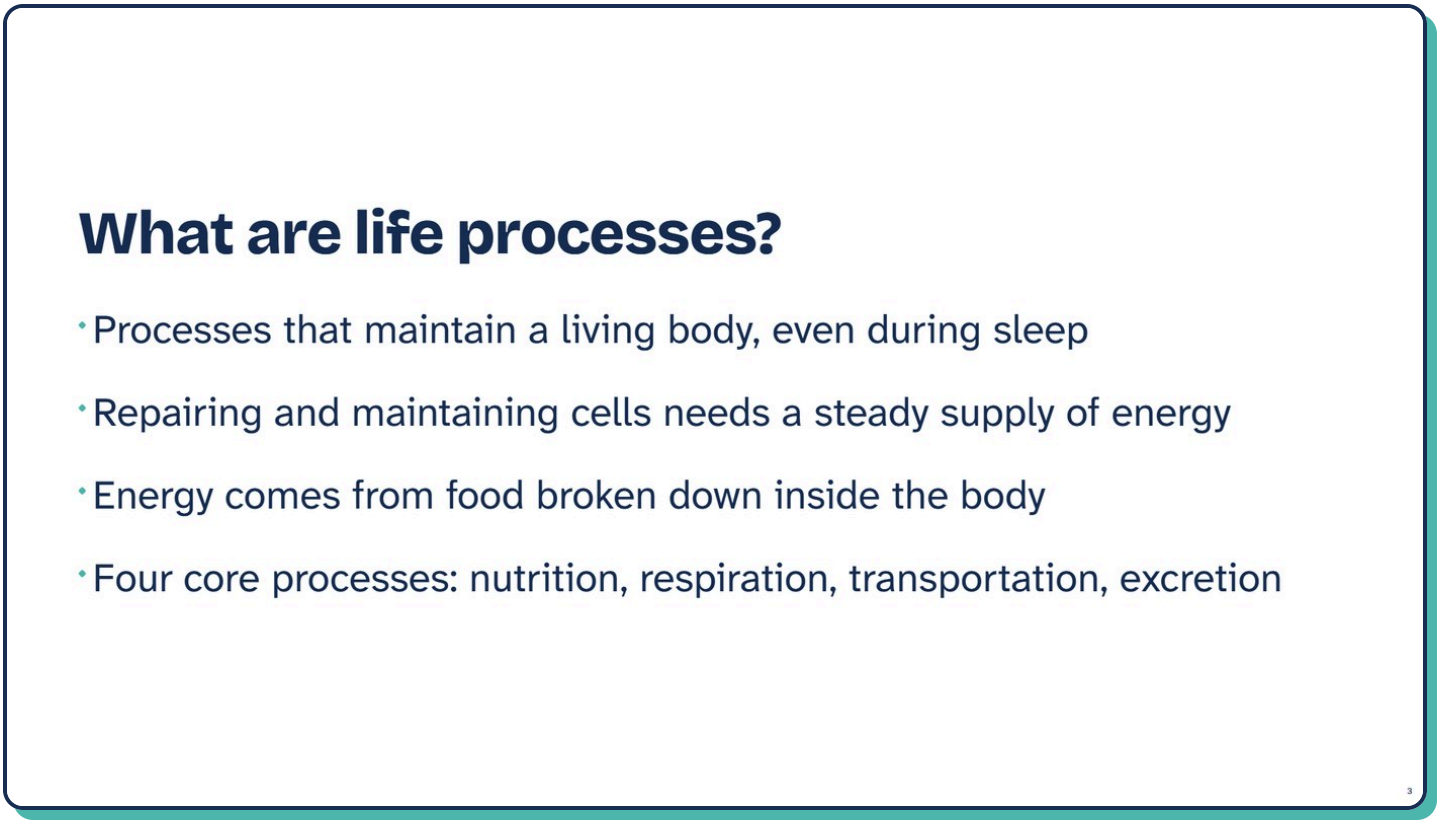
Open by asking: how can we tell that something is alive? Collect answers such as movement, growth and breathing, then say that today we look at the processes that keep every living thing alive, even when it seems to be doing nothing.



By the end of this lesson you can

Teacher notes

Read the objectives aloud. Tell students there will be a five-question quiz at the end, so they should note one key idea from each section.

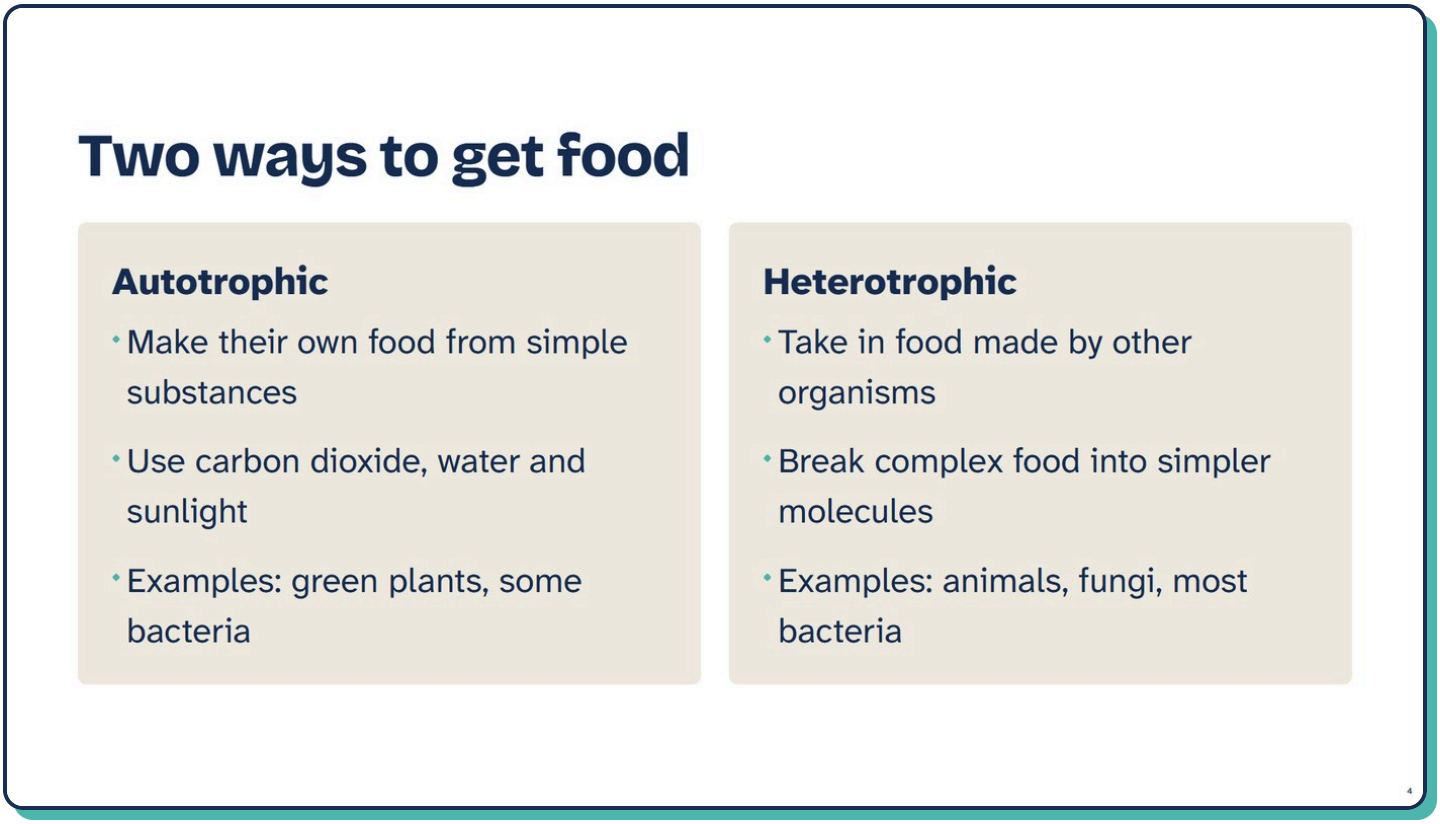


What are life processes?

Teacher notes

Stress that maintenance never stops: cells are repaired and replaced even while we sleep. Ask a student to name the four processes back to you before moving on.

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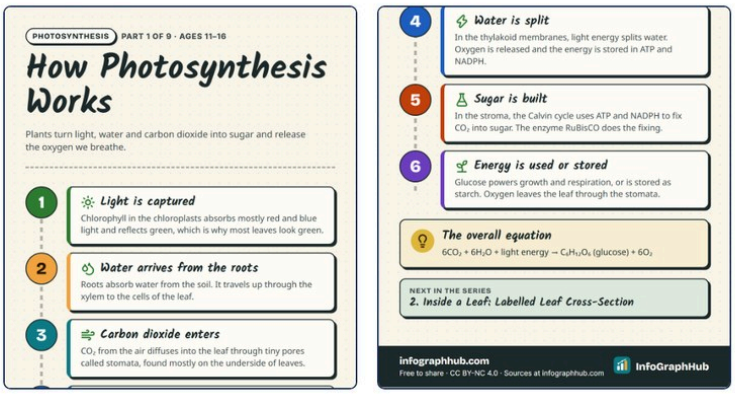
Two ways to get food

Teacher notes

Autotroph means self-feeder. Ask for examples of heterotrophic nutrition in daily life: a cow grazing, bread mould growing, a tapeworm living inside a host.

Photosynthesis: how plants make food

- Chlorophyll absorbs light energy
- Light splits water and releases oxygen
- Carbon dioxide is fixed into glucose



Poster: How Photosynthesis Works: From Sunlight to Sugar

Photosynthesis: how plants make food

Teacher notes

Use the infographic to walk through the steps. Write the balanced equation on the board: 6CO2 + 6H2O + light → C6H12O6 + 6O2. Point out that CO2 enters through the stomata.

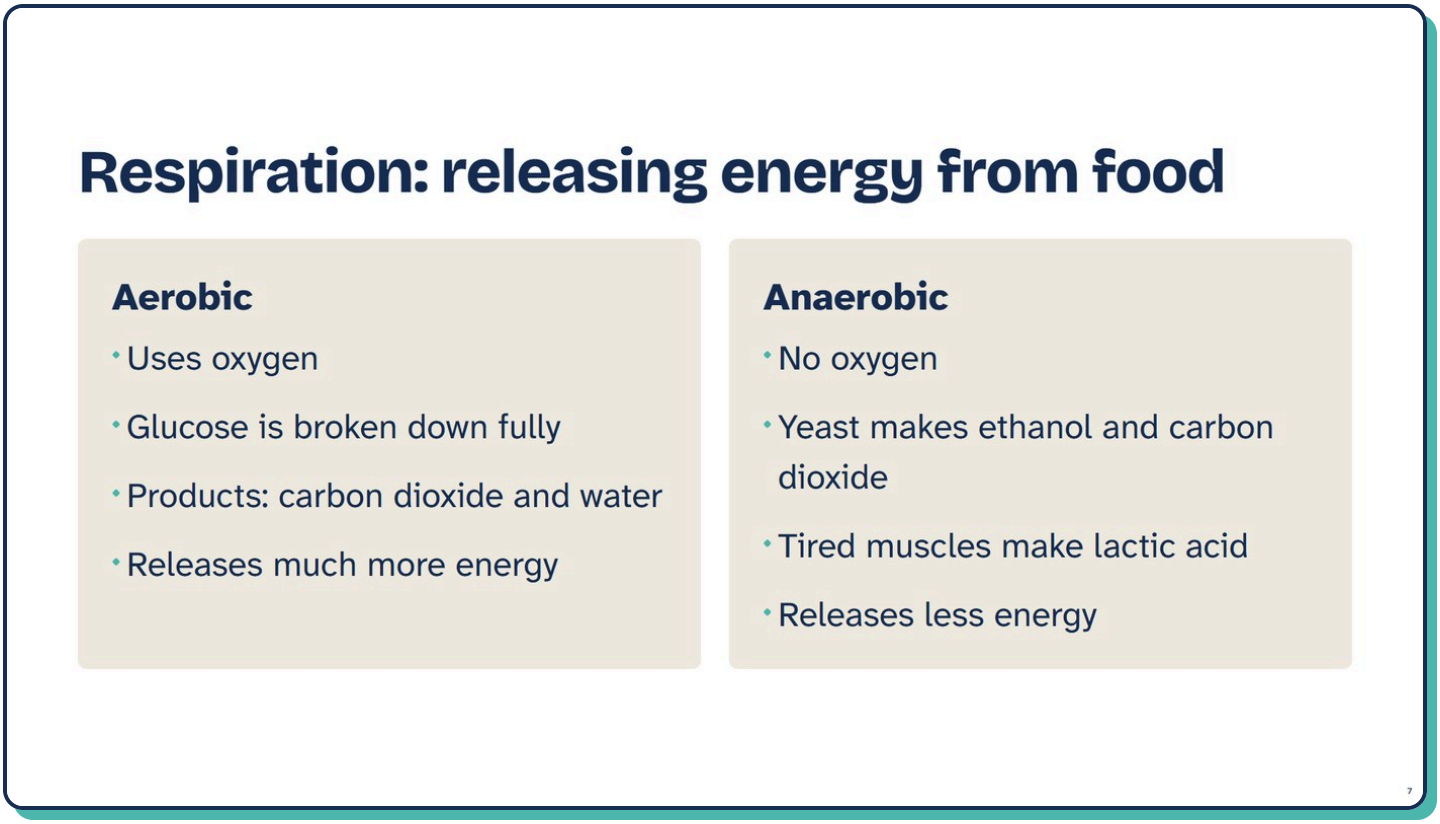


Nutrition in humans

Teacher notes

Trace a bite of a sandwich through the alimentary canal. Mention the liver (bile) and pancreas (pancreatic juice) as helpers that pour secretions into the small intestine.

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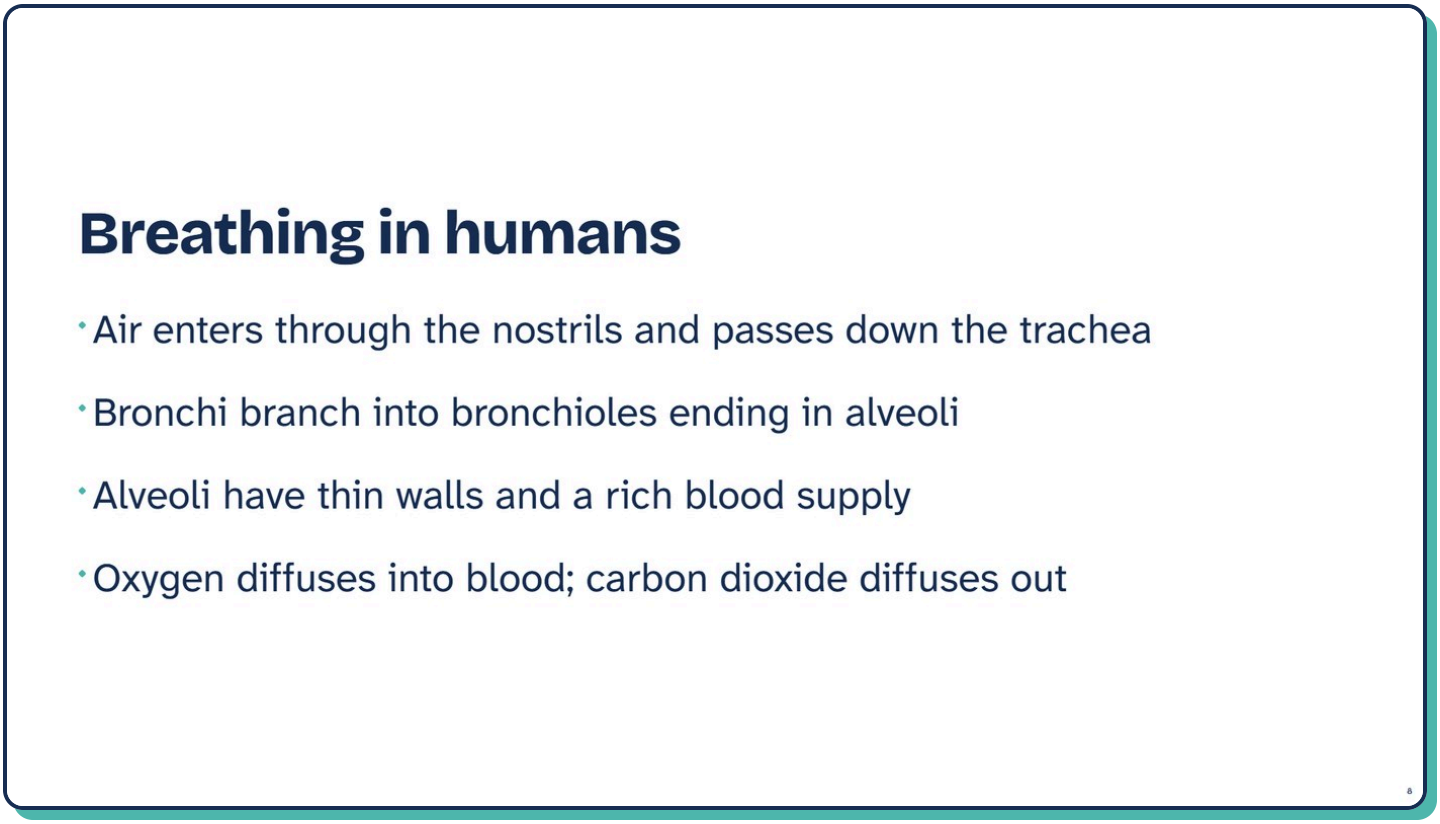


Respiration: releasing energy from food

Teacher notes

Both start by breaking glucose into pyruvate in the cytoplasm. Aerobic respiration continues in the mitochondria. Many syllabuses still teach that lactic acid build-up after a sprint causes cramps, so students may meet that answer in exams. Science has moved on, though: current research links cramps mainly to faulty nerve–muscle signalling in tired muscles, and lactic acid is no longer thought to cause them.

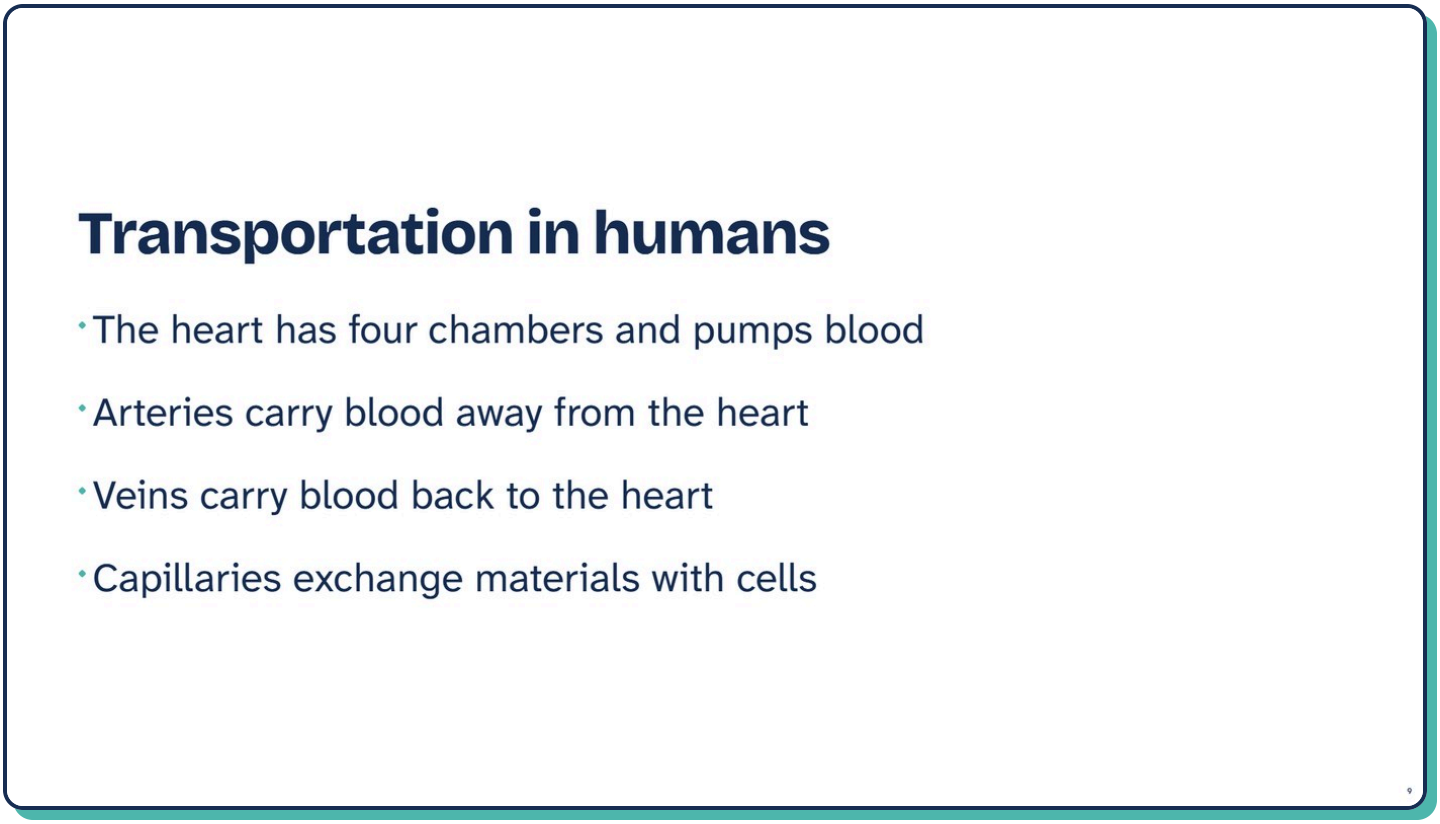
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Breathing in humans

Teacher notes

Clarify that breathing is the physical movement of air, while respiration is the chemical release of energy in cells. Many students confuse the two.



Transportation in humans

Teacher notes

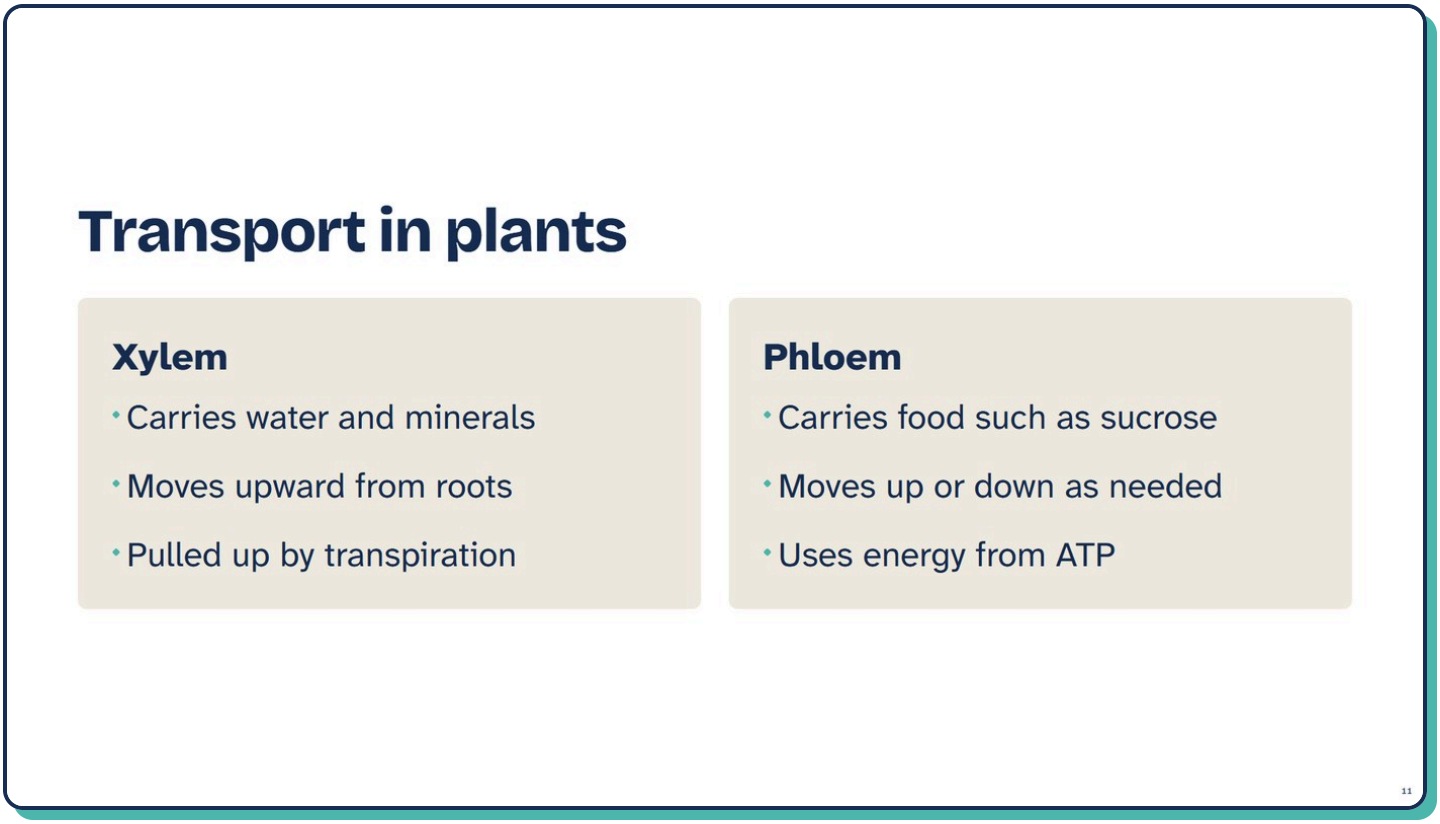
Explain double circulation: blood passes through the heart twice in one full circuit, once to the lungs and once to the body. This keeps oxygenated and deoxygenated blood separate.



The heart never rests

Teacher notes

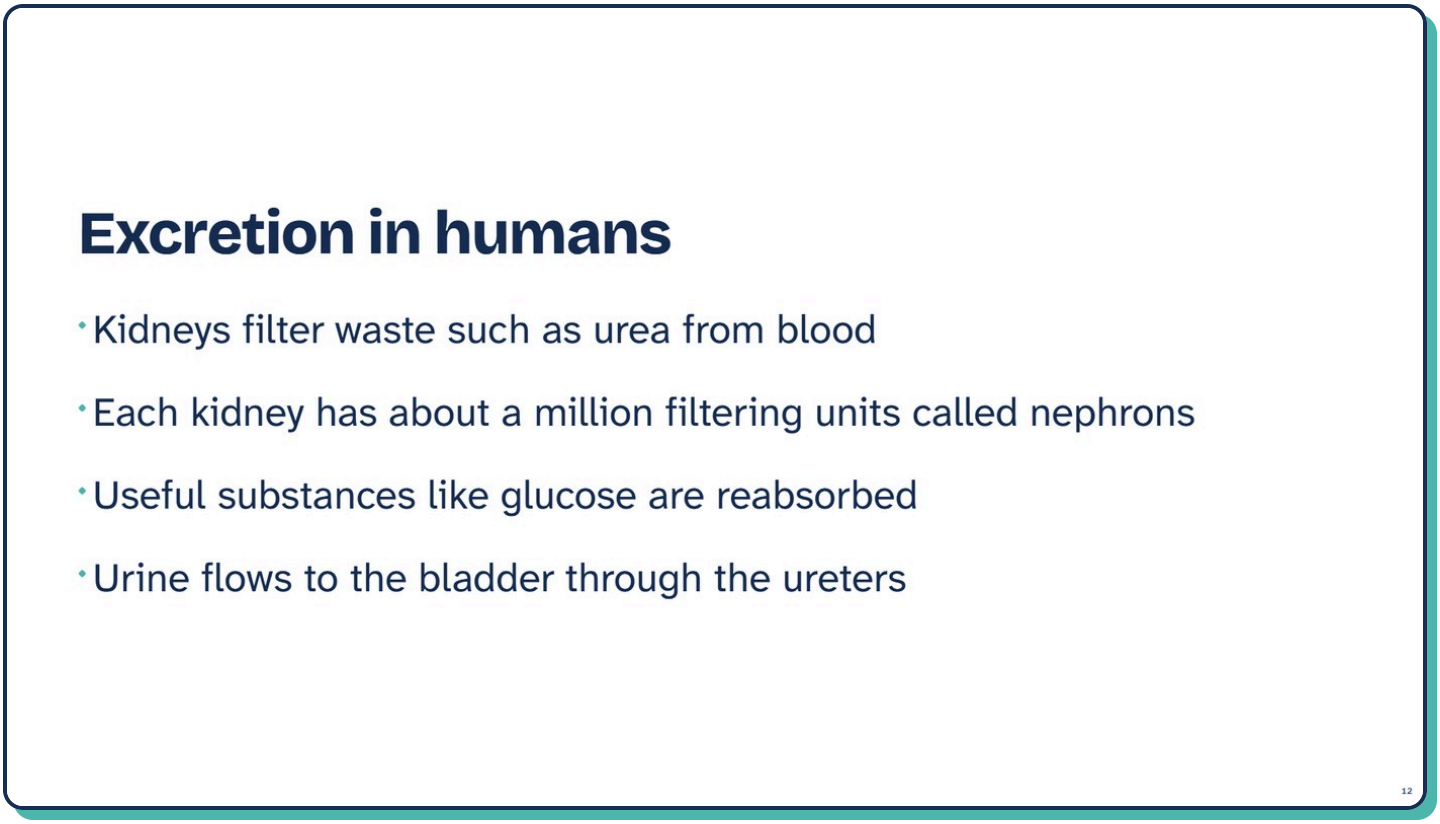
Mammals and birds need a lot of energy to keep a constant body temperature, so separating oxygenated blood from deoxygenated blood matters. Compare with the three-chambered heart of frogs.



Transport in plants

Teacher notes

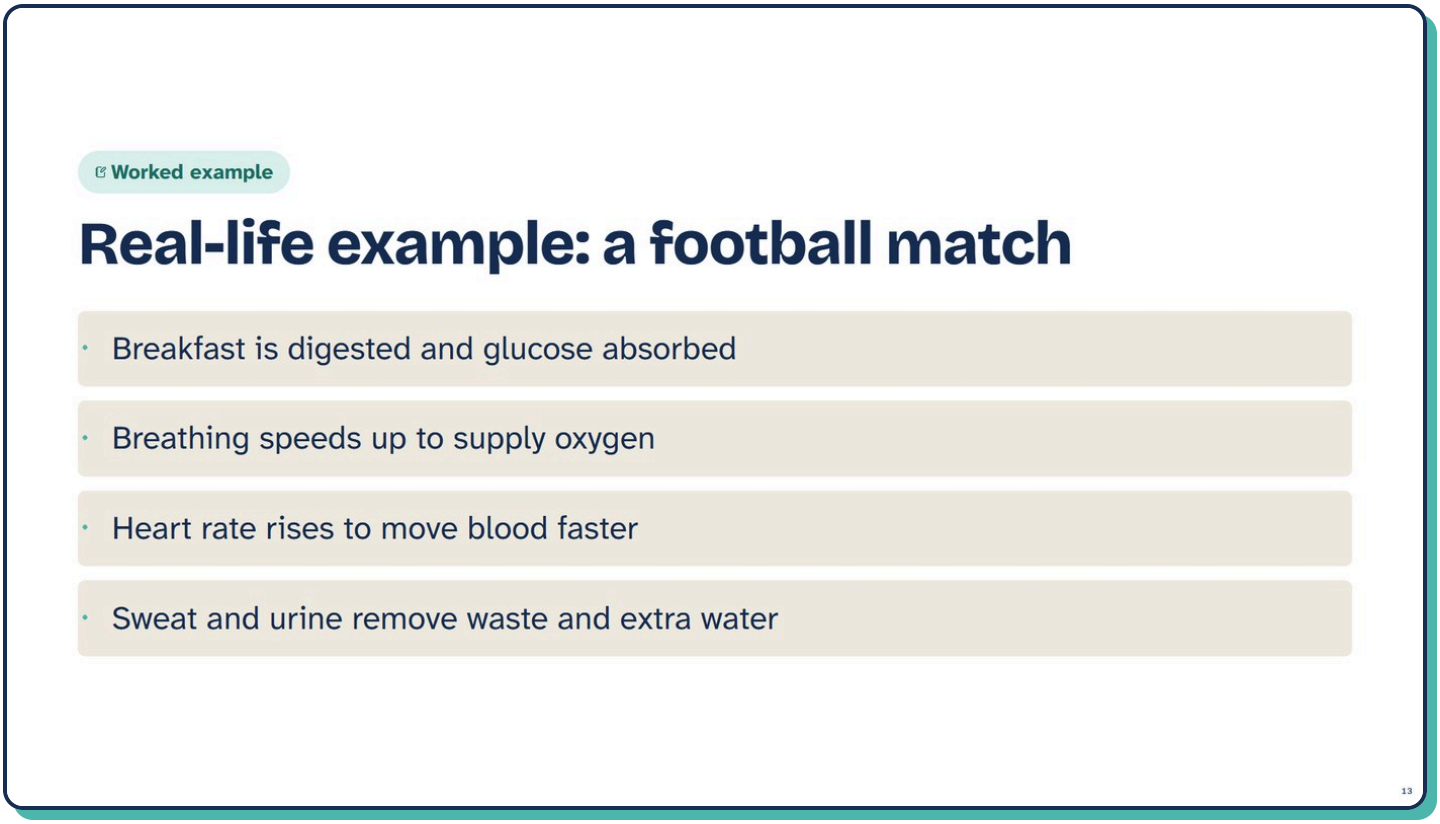
Transpiration, the loss of water vapour from leaves, creates a suction that pulls water up. Moving food in the phloem is called translocation.



Excretion in humans

Teacher notes

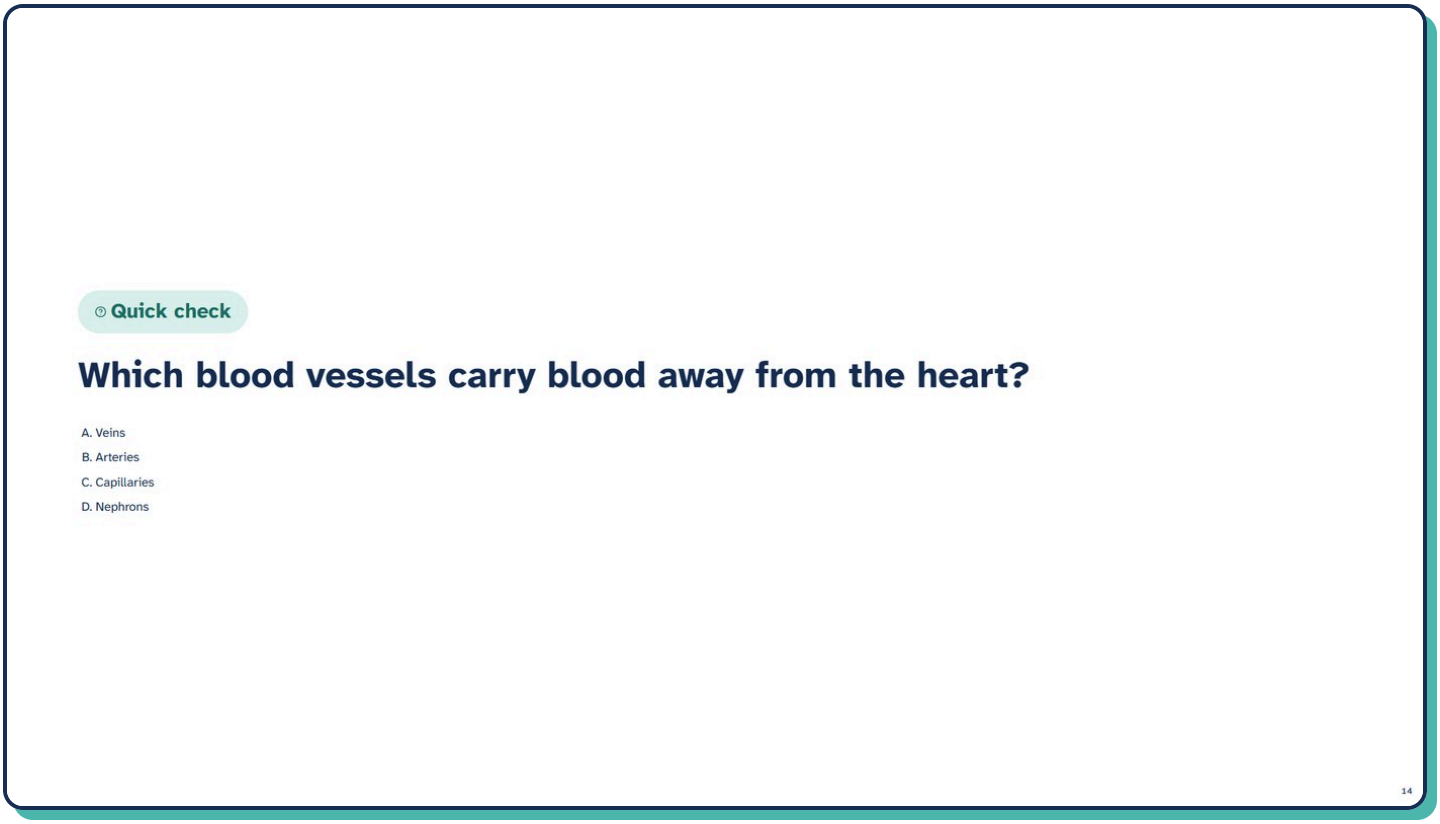
Draw a simple nephron: Bowman's capsule, the tubule and the collecting duct. Mention dialysis as an artificial kidney used when kidneys fail.



Real-life example: a football match

Teacher notes

Use a familiar situation: a student playing football (soccer) on a hot afternoon. Ask the class to name which life process is at work for each bullet.



Quick check

Teacher notes

Answer: arteries. Take a show of hands before revealing the answer. Remind students that nephrons are not blood vessels at all.



Key takeaways

Teacher notes

Recap with a one-line summary per process, then move to the five-question quiz on the page. Set homework: draw and label the human heart.