

Topic 2: Organisation

AQA GCSE Biology 8461 · spec 4.2 · sheets 2.1–2.4

From cells to systems

- Cells build tissues; tissues build organs; organs build systems.
- The digestive system is the named organ system.
- Enzymes, blood and plants all show the pattern.

Principles of organisation

- Cell → tissue → organ → organ system → organism.
- A tissue: cells with similar structure and function.
- The digestive system is the named organ system.

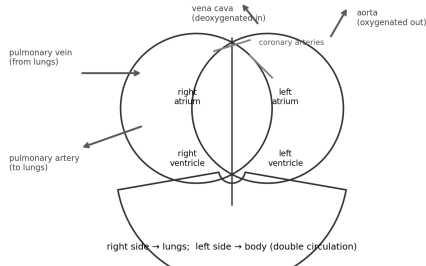
Enzymes and digestion

- Lock and key: one substrate fits the active site.
- Amylase, protease, lipase — sites and products.
- Bile neutralises acid and emulsifies fat.

Your turn: pH on amylase

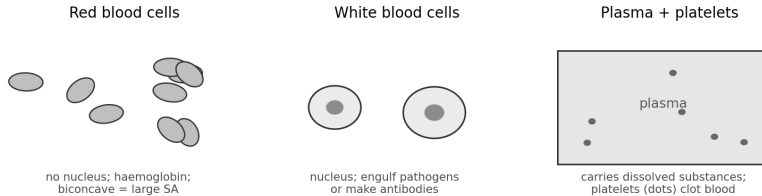
- The human digestive system (4.2.2.1): design the pH investigation.
- Buffers, iodine, timing.
- How is the rate judged? What are the controls?

The heart: a double pump



- Right ventricle to the lungs; left ventricle to the body.
- Five vessels: aorta, vena cava, pulmonary artery and vein, coronaries.
- Arteries out, veins back, capillaries exchange.

Blood: four components



- Plasma carries dissolved substances.
- Red cells: no nucleus, full of haemoglobin.
- White cells defend; platelets clot.

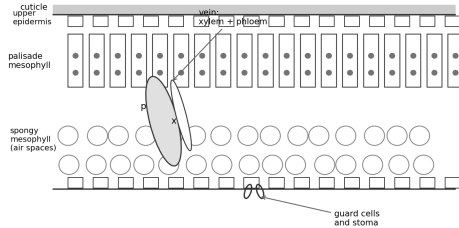
Evaluate every treatment

- CHD: fatty layers narrow the coronary arteries.
- Stents, statins, valves, transplants, artificial hearts.
- Every answer pairs a benefit with a risk.

Risk and cancer

- Health is physical and mental well-being.
- Risk factors: proven mechanisms for some, correlation for others.
- Benign stays put; malignant spreads.

Plant transport



- Xylem: water up, lignin tubes. Phloem: sugars both ways.
- Guard cells open and close stomata.
- Transpiration rises with temperature, wind and light.

Check yourself

- Checklist before you call this topic done.
- Enzyme table by heart; heart with five vessels.
- Risk data both ways; xylem vs phloem; four transpiration factors.