Eye structures and their functions

Student activity • observation and reasoning

YEAR 11 / LESSON 76 / BIOLOGY + SCIENCE (DOUBLE AWARD)

The question

How do the eye's structures help form and detect an image?

Use the supplied examples, record your reasoning and correct it using evidence.

Equipment

- Student booklet, pencil and ruler
- Eye cross-section reference and unlabelled diagrams

Paper, modelling and written reasoning only. No chemicals or biological samples are handled. Do not shine bright lights into eyes.

Course coverage: Shared Biology / Double Award: 2.91. The eye as a receptor.

Plan, model or apparatus sketch

Draw and label the apparatus or biological model; identify one limitation.

Method and reasoning

Read the whole sequence before starting

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1. Label cornea, iris, pupil, lens, ciliary muscle, suspensory ligaments, retina, optic nerve and sclera.

2. Trace light through cornea, pupil and lens to the retina; identify refraction rather than reflection as the main focusing process.

3. Distinguish the pupil opening from the coloured iris controlling its size.

4. Explain the retina’s light-sensitive receptor cells and the optic nerve’s signal pathway.

5. Use a cross-section to explain why an image forming on the retina is not the same as perception by the brain.

6. Check a partner’s diagram and correct two structure-function mismatches.

Cleanup

- Return models and keep the corrected work.

Record your evidence

Blank spaces are for your own work

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Reference and task data

The cornea provides much of the eye's refraction; the lens adjusts focus. The iris regulates pupil size. Receptors in the retina convert light stimulation into signals that travel towards the brain. This is a diagram activity; no bright light is shone into eyes.

Example / trial	Observation / evidence	Explanation / limit
Evidence / comparison		
Explanation		
Limit / correction		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

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1. Which opening admits light?

2. Which structure controls that opening?

3. Where are the receptors?

4. What carries signals towards the brain?

5. Does the lens provide all refraction?

6. What is the sclera’s broad role?