A8 · The eye and how we see · Practice key

This is the worked key. Every practice question is worked step by step.

Worked examples

Read these first. There is one for each kind of question in this lesson.

Example 1 · Trace light through the eye

List the parts light passes on its way to the retina, in order.

1. Light enters through the cornea and is bent.
2. It passes through the pupil.
3. The lens focuses it.
4. It reaches the retina.

Answer: Cornea, pupil, lens, retina.

Example 2 · Name a vision defect and its correction

A person sees far objects clearly but cannot read small print. Name the defect and the correcting lens.

1. The person sees far objects clearly, so the person is farsighted.
2. This is hyperopia: the eyeball is too short.
3. A convex lens bends light inward.

Answer: Hyperopia, corrected by a convex lens.

Practice

Questions 1 to 4 are easy. Questions 5 to 8 are medium. Questions 9 and 10 are harder.

EASY

1. Name the white outer layer of the eye.

1. It protects the eye and keeps its shape.
2. It is the sclera.

EASY

2. Name the opening in the middle of the iris.

1. Light passes through it.
2. It is the pupil.

EASY

3. Name the photoreceptors that detect colour.

1. They need bright light.
2. They are the cones.

EASY

4. Name the nerve that carries action potentials from the retina to the brain.

1. It leaves at the back of the eye.
2. It is the optic nerve.

MEDIUM

5. State the job of the choroid.

1. It is the middle layer of the eye.
2. Its blood vessels feed the retina.

MEDIUM

6. Explain what the iris does in bright light.

1. The iris is a ring of muscle.
2. It makes the pupil smaller, so less light enters.

MEDIUM

7. Explain why you cannot see colours well in very dim light.

1. Cones detect colour, and they need bright light.
2. In dim light only the rods work. Rods see in black and white.

MEDIUM

8. Explain what accommodation is.

1. It is the adjusting of the lens to focus on near or far objects.
2. The ciliary muscle changes the shape of the lens.

HARDER

9. A hiker looks at a far mountain and then at a map in her hand. Describe what the ciliary muscle and the lens do. Explain why.

1. The ciliary muscle contracts.
2. The lens becomes thicker.
3. A thicker lens bends light more, which is needed for a near object.

HARDER

10. A person has myopia. Describe where light meets in the eye without glasses, and explain how a concave lens corrects this.

1. The eyeball is too long, so light meets in front of the retina.
2. A concave lens spreads the light out before it enters the eye.
3. The light then meets on the retina.