

This is the **Higher Combined** version — includes Higher Tier content. Some Separate-only details are omitted.

The eye is a sense organ that detects light and sends electrical signals to the brain for interpretation.

- ★ **HT** Main structures: cornea (refracts/bends light), lens (focuses light), iris (controls pupil size), retina (contains photoreceptors), optic nerve (carries signals to brain).
- ★ **HT** Accommodation: the lens changes shape to focus on objects at different distances.
- ★ **HT** Focusing on near objects: ciliary muscles **CONTRACT** → suspensory ligaments relax → lens becomes **FAT** (more curved → greater refraction).
- ★ **HT** Focusing on distant objects: ciliary muscles **RELAX** → suspensory ligaments **TAUT** → lens becomes **THIN** (less curved → less refraction).
- ★ **HT** Rods: photoreceptors in retina sensitive to light intensity — allow vision in dim light, not colour.
- ★ **HT** Cones: photoreceptors sensitive to colour — three types (red, green, blue). Concentrated in the fovea (central vision).
- ★ **HT** Short sight (myopia): image forms in front of retina (eyeball too long or lens too curved). Corrected with a **CONCAVE** (diverging) lens.
- ★ **HT** Long sight (hyperopia): image forms behind retina (eyeball too short or lens too flat). Corrected with a **CONVEX** (converging) lens.

Key Terms

Accommodation	The process by which the lens changes shape to focus on objects at different distances
Retina	The light-sensitive layer at the back of the eye — contains rods and cones
Short sight	Condition where distant objects appear blurry — corrected with concave lens
Long sight	Condition where nearby objects appear blurry — corrected with convex lens
Fovea	Region of retina with highest concentration of cones — point of sharpest vision

■ **Exam Tip:** The accommodation rule: near → ciliary muscles **CONTRACT**; far → ciliary muscles **RELAX**. And lens: near → **FAT**; far → **THIN**. For sight correction: short sight = concave lens (diverges light); long sight = convex lens (converges light).