*This is the **Higher Separate** version — includes all Higher Tier content (marked ★) and all Separate Science content.*

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).