

Part 2 - Accommodation

Note: In OneNote, set this worksheet as background. Use the simulation's "Export" button to save an image and insert it at the marked place in the worksheet.

Accommodation is the adjustment of the refractive power of the eye lens so that objects at different distances are focused sharply on the retina. This happens through the interaction of the ciliary muscle and the zonular fibres: depending on whether the ciliary muscle is contracted or relaxed, the zonular fibres change their pull and the lens therefore changes its shape and refractive power (= how strongly it changes the direction of light rays).

Task 1: Eye structures during near and far accommodation

Set the minimum and maximum object distance once in the accommodation view. Export both states. Then enter the correct terms for the lens, ciliary muscle and zonular fibres from the box into the blanks.

contracted - relaxed - taut - slack - rounded - flattened

Near

Far

Insert here

Insert here

Lens: _____

Ciliary muscle: _____

Zonular fibres: _____

Lens: _____

Ciliary muscle: _____

Zonular fibres: _____

Task 2: Comparing refractive power and angle of incidence

Describe how (a) the refractive power of the lens and (b) the angle of incidence of light rays change for near and far objects. Use the value displays in the simulation.

Near: _____

Far: _____

Task 3: Adjustment of the eye to different light conditions

Change the brightness and describe how the pupil diameter changes. Use the cross-section and top view for this (activate the iris). Then formulate a hypothesis explaining why this function is important for protecting the eye.

