

1 Accommodation

Speaking

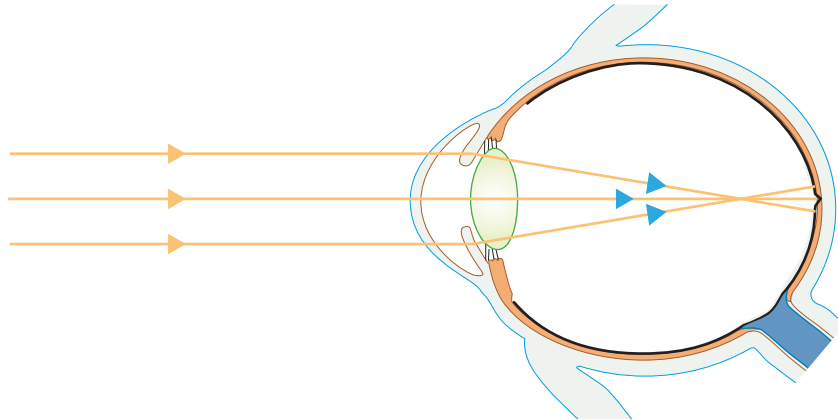
Try to look at an object near your eye (eg, a pen or a pencil in your hand stretched in front of you). *At the same time* try to look through a window at another object far away (eg, a tree, house, or wall). Can you do that? Explain.

Have you ever looked out the window on a fast-moving bus/car/train? Did changing your focus from the near to distant make you feel sick? Describe why your brain gets confused if you read in a moving vehicle.

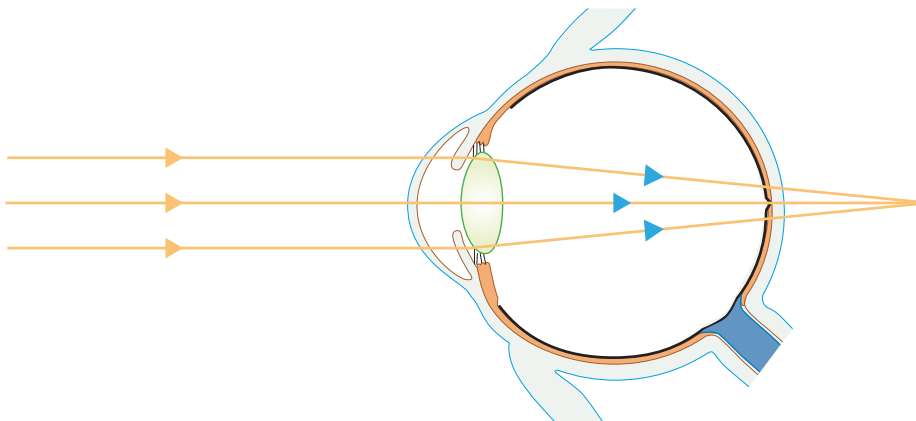
2 Short-sightedness and long-sightedness

Speaking

Work in pairs. Look at the pictures and describe what causes short-sightedness and long-sightedness.



Short sight (myopia)

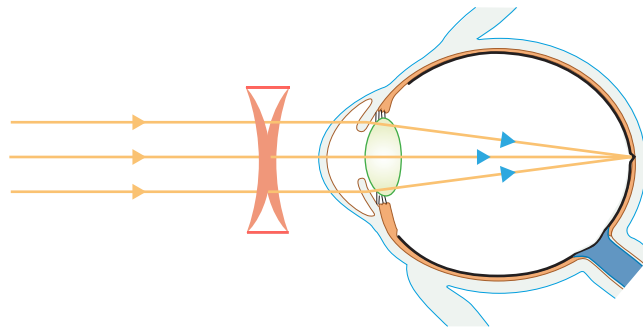


Long sight (hyperopia)

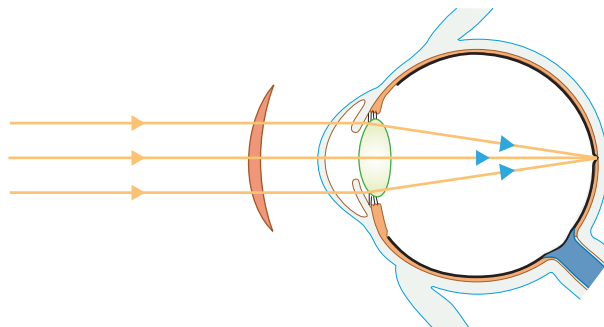
Useful language

parallel	refract	diverge
converge	elongated	compressed
focal point	convex	concave

Now look at these diagrams and explain how problem of short-sightedness and long-sightedness can be solved.



Short-sightedness being corrected by a double concave lens



Long-sightedness being corrected by a convex lens.

Read the text and fill in the blanks from the list below:

Conjunctivitis is a very common problem. People sometimes call it 'pink-eye', because the eye looks pink when the thin film over the (1) _____ inside the (2) _____, which is called the (3) _____, becomes inflamed.

Conjunctivitis is classified as infectious, allergic or chemical, depending on its cause. (4) _____ conjunctivitis is carried by (5) _____, or by a virus. People can develop allergic reactions to particular pollens or (6) _____, or to fabrics or cosmetics. Causes of (7) _____ conjunctivitis include air pollution and the (8) _____ used in swimming pools.

The symptoms are an itchy irritation in the eye, which waters and looks red. The inner eyelid becomes (9) _____, vision may be blurred, and sometimes a thicker liquid is produced as well.

If you can identify the cause of your conjunctivitis, you should simply keep away from it. It is important not to share towels or cosmetics, and to wash your (10) _____ regularly especially after they have touched your eyes, so that the infection does not (11) _____ to those around you. If the conditions persists, you should consult an (12) _____.

animals	bacteria	chemical	chlorine	conjunctiva	eyeball
hands	infectious	inflamed	ophthalmologist	spread	eyelid

Teacher's Notes and Answer Key

This worksheet will take about 45 minutes to complete. It is suitable for secondary school students of general science, biology or physics and could follow on from a general introduction to light and vision.

1 Accommodation**Speaking****Aims**

- to focus students' attention on the mechanism of their own eyesight
- to evaluate students' initial competence with spontaneous conjecturing and hypothesizing in English

These questions can be asked to the whole class and a short open discussion can develop.

Key

It is not possible to focus simultaneously on near and distant objects because the shape of the lens in the eye needs to change. This ability weakens with age so that by the age of 60 everyone finds that they can no longer focus well on very close objects. The process of refocusing the eye is called accommodation.

Motion sickness in general is caused by the contrast between information being received through the eyes and through the balance and motion sensors in the inner ear. For this reason, it is helpful to look out of the window, and to open the window so that a breeze can be felt and the body realizes it really is moving.

2 Short-sightedness and long-sightedness**Speaking****Aims**

- to present two very common eye problems and their remedies
- to describe a diagram and explain its meaning

Talk through the words in the useful language box, explaining their meaning.

Parallel	straight lines that will never meet
Refract	to bend a beam of light
Diverge	to move apart
Converge	to move together
Elongated	stretched out into a longer shape
Compressed	pushed together into a shorter shape
Focal point	where beams of light cross and an image is focused
Convex	curved outwards
Concave	curved inwards

Students work in pairs so that they can help one another to describe the diagrams and work out their meaning.

Key

In short-sightedness the eye ball is elongated, so that the focus of the image is not on the retina but in front of it. Using double concave glasses we move the focus back onto the retina.

In long-sightedness the eye ball is compressed and the focus of the image is behind the retina. By using double convex glasses we shorten the focus and the image moves back onto the retina.

3 Conjunctivitis

Reading

Aims

- **to understand conjunctivitis** (/kənˌdʒʌŋktɪˈvaɪtɪs/)
- **to demonstrate understanding of the context by selecting the correct words to complete the text**

Students initially work alone, but should then check in pairs before whole-class feedback.

Key

1 eyeball; 2 eyelid; 3 conjunctiva; 4 Infectious; 5 bacteria; 6 animals; 7 chemical; 8 chlorine; 9 inflamed; 10 hands; 11 spread; 12 ophthalmologist

Conjunctivitis is a very common problem. People sometimes call it 'pink-eye', because the eye looks pink when the thin film over the eyeball inside the eyelid, which is called the conjunctiva, becomes inflamed.

Conjunctivitis is classified as infectious, allergic or chemical, depending on its cause. Infectious conjunctivitis is carried by bacteria, or by a virus. People can develop allergic reactions to particular pollens or animals, or to fabrics or cosmetics. Causes of chemical conjunctivitis include air pollution and the chlorine used in swimming pools.

The symptoms are an itchy irritation in the eye, which waters and looks red. The inner eyelid becomes inflamed, vision may be blurred, and sometimes a thicker liquid is produced as well.

If you can identify the cause of your conjunctivitis, you should simply keep away from it. It is important not to share towels or cosmetics, and to wash your hands regularly especially after they have touched your eyes, so that the infection does not spread to those around you. If the conditions persist, you should consult an ophthalmologist.