

Cataract



Cataract is an eye disease in which the lens of the eye becomes cloudy. Normally, the lens is clear and allows light to reach the retina unhindered, where it is converted into nerve signals that the brain interprets as images.

Physics

Light & Optics

Dispersion of light

Biology

Human Physiology

Hearing & Seeing



Difficulty level

-



Group size

-



Preparation time

-



Execution time

-

This content can also be found online at:



<https://www.curriculab.de/c/6729f53226998c0002679ed7>

PHYWE



Teacher information

Application

PHYWE



The human eye

A cataract is a clouding of the natural lens of the eye. Normally, the lens is clear and allows light to reach the retina unhindered, where it is converted into nerve signals that the brain interprets as images.

However, with a cataract, the lens becomes cloudy, which means that light can no longer reach the retina clearly. This can severely impair visual acuity and cause symptoms such as blurred vision, sensitivity to glare, reduced intensity of colours and difficulty seeing at night.

Cataracts are mostly age-related and typically occur after the age of 60, but can also be caused by injury, certain diseases such as diabetes, or medication.

Other teacher information (1/2)

PHYWE

Prior knowledge



The structure of a human eye should be discussed in class beforehand.

Principle



Cataracts are an eye disease in which the lens of the eye becomes cloudy. Normally, the lens is clear and allows light to reach the retina unhindered, where it is converted into nerve signals that the brain interprets as images.

Other teacher information (2/2)

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Learning objective



Students should develop an understanding of the eye disease cataract.

Tasks



- Pupils learn about cataracts and experience how the vision of a person with this condition changes by wearing simulation glasses.

Safety instructions

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The general instructions for safe experimentation in science lessons apply to this experiment.

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Student information



Motivation

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The human eye

A cataract is a clouding of the natural lens of the eye.

Cataracts are mostly age-related and typically occur after the age of 60, but can also be caused by injury, certain diseases such as diabetes, or medication.

The treatment of cataracts usually consists of an operation in which the clouded lens is replaced with an artificial lens. This is a routine procedure with a high degree of success and can significantly improve vision.

However, it is important to note that symptoms that could indicate cataracts require an eye examination, as they could also be caused by other serious eye conditions.

Tasks

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Simulation glasses

- Find out how the vision of a person with this condition changes by wearing simulation glasses.

Material

Position	Equipment	Item no.	Quantity
1	Simulation glasses eye diseases, set consisting of 5 glasses	64956-00	1

Procedure

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Put on the grey simulation glasses to simulate the eye disease "cataract" and look around you.

Take the glasses off again to see the difference.



Simulation goggles "cataract" and eye shell

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Report



Observation

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Click on the following link to see another example of how cataracts can affect a person's vision.

Move the slider in the centre to the left and right to see the comparison with and without illness directly.

[>> Cataract simulation \(cataract\) <<](#)



The eye model and simulation glasses

Task 1

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Insert the words in the correct places.

Cataracts are a condition that causes the of the eye to become cloudy. This can cause vision problems such as blurred vision, sensitivity to glare, reduced intensity of colours and difficulty seeing at night. The condition usually occurs , but can also be caused by injury, certain diseases or medication. Treatment usually consists of , in which the clouded lens is replaced with an artificial lens.

 Check

Task 2

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What is a cataract?

- A disease in which eyesight is completely lost.
- A disease in which the eye changes colour to grey.
- A clouding of the lens of the eye that impairs vision.

✓ Check



The human eye

Task 3

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Which statement about cataracts is correct?

- Cataracts are a disease that cause clouding of the lens of the eye and impairs vision.
- Cataracts are a disease that usually only occur in young people.
- Cataracts are a disease that cannot be treated.

✓ Check



The eye

Slide	Score / Total
Slide 13: Eye disease cataract	0/3
Slide 14: Consequence of cataract	0/1
Slide 15: Statements on cataracts	0/1

Total amount  0/5

 Solutions

 Repeat