3D vision, Anaglyph procedure

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/671794562787770002d59b78

PHYWE
Robert-Bosch-Breite 10
37079 Göttingen
Tel.: 0551 604 - 0
Fax: 0551 604 - 107
info@phywe.de
www.phywe.de

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Teacher information

Application

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3D glasses

The anaglyph process is used to create three-dimensional effects on two-dimensional media. It is used in various areas such as film and television, where it enables cost-effective 3D experiences, as well as in print media to depict complex structures in 3D. In science, it is used to visualise medical images or astronomical data. The process is also used in virtual reality and computer games to create 3D effects without expensive hardware.

PHYWE

Robert-Bosch-Breite 10
37079 Göttingen

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Other teacher information (1/2)

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Prior knowledge

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

Principle

The anaglyph process is based on the superimposition of two images that are coloured in different colours, typically red and cyan. Each image is optimised for one eye: The red image is visualised through a red filter and the cyan image through a cyan filter. By wearing anaglyph glasses containing these filters, the images are projected separately onto each eye. The brain combines these separate images into a single three-dimensional image, creating the impression of depth.

Other teacher information (2/2)

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Learning objective

Pupils should be able to understand and use the anaglyph process. They will learn how to create a three-dimensional effect by superimposing two images in different colours, combined with special anaglyph glasses.

Tasks

The pupils look at the various combined anaglyph images through the anaglyph glasses.

Watch the 3D effect and check whether the image conveys the desired spatial impression.

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info@phywe.de
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Safety instructions

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

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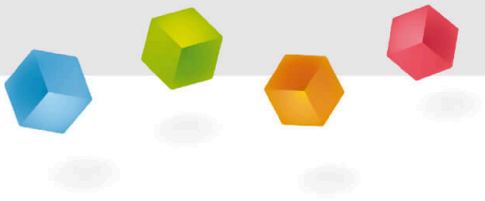

Student information

PHYWE

Robert-Bosch-Breite 10
37079 Göttingen

Tel.: 0551 604 - 0
Fax: 0551 604 - 107

info@phywe.de
www.phywe.de

Motivation

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Schoolgirl with 3D glasses

Imagine being able to create images that appear vivid and three-dimensional on a normal screen as if by magic! The anaglyph process teaches you how to create impressive 3D effects using simple colours and special glasses. This is not only fun, but also helps you to understand how our brain processes spatial impressions. You will see how art and science come together to create fascinating visual experiences.

Tasks

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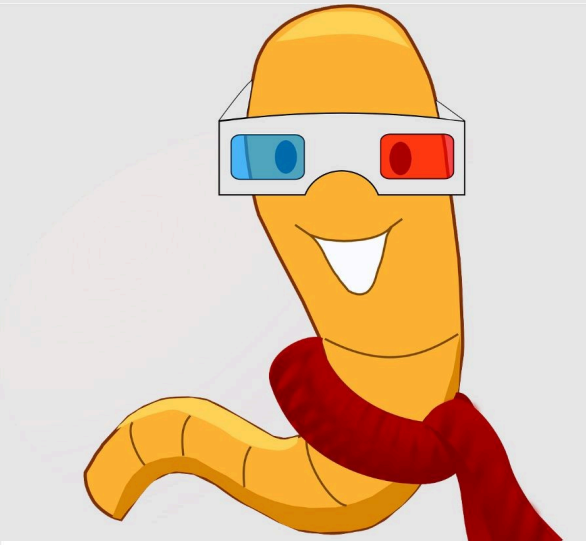

Worm with 3D glasses

- Look at the various combined anaglyph images through the anaglyph glasses (3D glasses).
- Pay attention to the 3D effect and check whether the image conveys the desired spatial impression.

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Robert-Bosch-Breite 10
37079 Göttingen

Tel.: 0551 604 - 0
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info@phywe.de
www.phywe.de

Material

Position	Equipment	Item no.	Quantity
1	3D glasses	64954-00	1

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Robert-Bosch-Breite 10
37079 Göttingen
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www.phywe.de

Set-up

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- Learn how 3D glasses work.
- Look at anaglyph images with the help of 3D glasses.

3D glasses from the experiment set:

"The eye"

Procedure (1/2)

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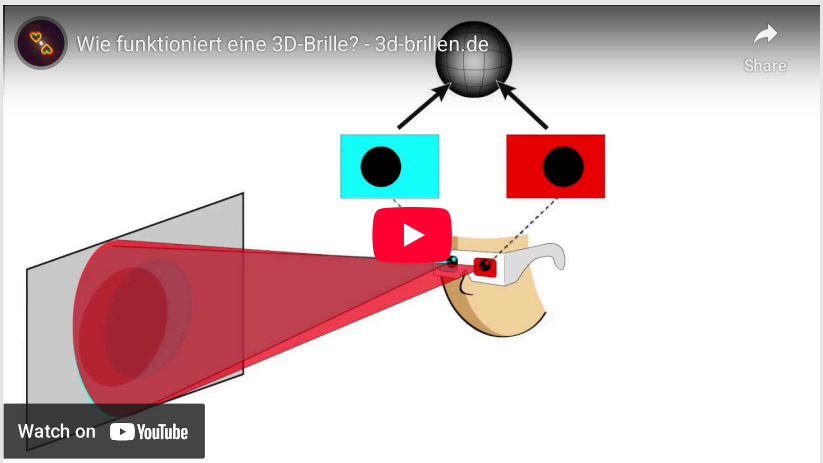
Watch the video to understand how 3D glasses work.



Source: YouTube - The heart glasses

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Robert-Bosch-Breite 10
37079 Göttingen

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Fax: 0551 604 - 107

info@phywe.de
www.phywe.de

Procedure (2/2)

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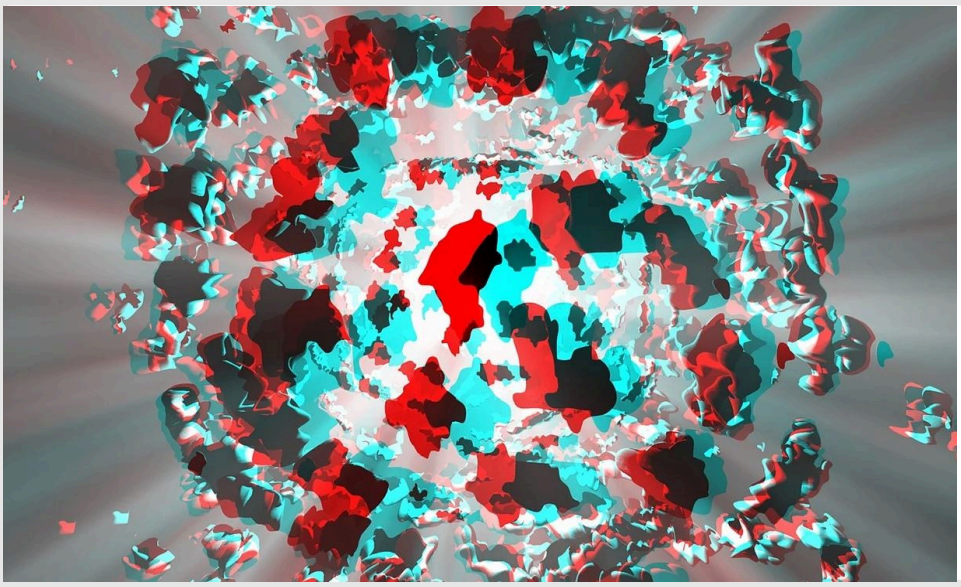

You can find more examples by clicking on the following link:

> See 3D: Anaglyph process <

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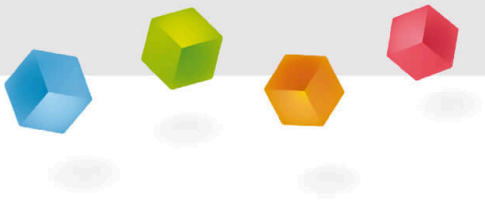

Report

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Robert-Bosch-Breite 10
37079 Göttingen

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Task 1

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Drag the correct words into the gaps.

The anaglyph process is a technique for creating _____ on two-dimensional media. In this process, two images taken from slightly different _____ are used. In order to perceive the 3D effect, you need special _____ with different colour filters. These glasses separate the two colours so that each eye only sees the image intended for it. The brain combines these two images into a _____ image, which creates the impression of depth and spatial depth.

glasses
perspectives
3D effects
three-dimensional

Check

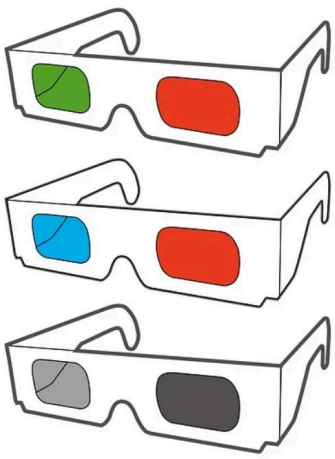
Task 2

PHYWE

Which two colours are typically used in the anaglyph process to create 3D images?

- Black and white
- Red and cyan
- Red and blue
- Yellow and green

Check



Various glasses

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Robert-Bosch-Breite 10
37079 Göttingen

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Task 3

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What function do the filters in anaglyph glasses have?

- ○ They separate the two colours of the anaglyph image so that each eye only sees the corresponding image
- ○ They sharpen the image
- ○ They enhance the colours of the image
- ○ They reduce the brightness of the image

Check

3D View

Slide	Score / Total
Slide 14: Anaglyph process	0/4
Slide 15: 3D glasses	0/1
Slide 16: How the glasses work	0/1

Total amount 0 / 6

Solutions Repeat

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