3D GLASSES

The Purpose Of The Activity:
It discovers the tehcnology of 3D. They design a 3D goggle and observe their own design with their 3D goggle.

Theme Beyond Discilpinaries:
The Time And Place Are In

CURIOUS BOX

QUESTIONING CYCLE

TUNING IN

Let's arouse curiosity!

FINDING OUT

What Should Little Science People Discover?

SORTING OUT

Let's Start Discovering!, Scientific Explanation For The Curious, Video

GOING FURTHER

What else can we do? ?

MAKING CONCLUSIONS

Activity Pages, Exit Card

TAKING ACTION

Question Of The Day?

CURIOUS BOX

3D GLASSES

Let's Arouse Curiosity

Students are directed the following questions:

- Can we see their, front side, back side, left side, righ side and depth when we look at objects? What about when we look at pictures?
- Have you ever seen a picture as if it was moving?
- In what fields is 3D technology used?

They are asked " 3D represents a visual presentation of objects which involves their three fundamental dimensions like height, width and depth This allows objects to look more realistic and deep. **3D technology** is used in various fields like; cinema and television, video games, architectural designs, medicine and health, education and educational simulations, virtual reality (VR), augmented reality (AR), industrial design and prototyping.

Have you made an observation with 3 dimension goggles before? Should we do it together?" They are asked to take out the activity materials and examine them.

Let's Start Discovering!

The activity video is watched by pausing. The content of the set is checked prior to the activity. All the lid and package opening steps are done simultanously with students..

Content Of The Set

- [ ] Wooden goggle template
- [ ] 2 pieces of red acetat
- [ ] 2 pieces of blue acetat
- [ ] Rubber band for goggles
- [ ] Blue and red markers
- [ ] 3D goggles observation page

CURIOUS BOX

How Do We Do It?

1. The pieces of wooden goggle template are taken out.
2. Two square pieces written 1,2 and 3 on are attached to the number one piece.
3. Piece number 2 is attached and piece number 3 goes through it.
4. Rubber band goes through the holes placed in the corners of the goggle.
5. Red acetats are placed on the goggles and the activity page is observed.
6. Blue acetats are placed on the goggles and the activity page is observed.
7. The space at the back of the activity page are drawn with red and blue markers.
8. The desired design is made on the free space. Then you go through it with red and blue markers.
9. Blue acetat is placed to one side of the goggle, red acetat is placed to the other side and the activity page is observed again.
10. The visuals they have observed are discussed with students.

What Should Future Science People Discover?

Students are directed the following questions:

- Can 3D goggles only be used while watching cinema?
- Do you think we would be able to see objects in dimensions without 3D goggles? Do you think a technology like this exist?

When we look at a object we see it's length, width and depth. We call objects we are able to see like this "three dimensional." For example; pen, notebook, table, humans, dogs are three dimensional. What about a picture from the printer? Is it three dimensional? We can see the length and the width of the picture. But because it lacks depth, pictures are not three dimensional. But the paper that the picture is on is three dimensional. Because the paper has a depth. 3D means an object can be perceived as three dimensional or it can be made in a computer environment. 3D gives objects length, height and width and this way we can acquire more realistic and detailed images. 3D technology stands for a series of technologies for designing, creating and producing three dimensional objects. 3D technology is used is many industries especially in design, engineering, medicine, education, movies and gaming industry.

CURIOUS BOX

Goggles From The Past To This Day

Goggle technology has showed a great development in time, especially regarding 3D goggles. The first goggles were invented by an italian science person Salvino D'Armate in 1286. At first these goggles were used only to cure farsightedness (farsighted disorder.) In time different lens types were developed for other eye disorders like myope (shortsided disorder) and astigmatism. By the beginning of the 20th century sunglasses gained popularity.

They were started to be used to be protected from UV rays and also for fashion related reasons. One of the first techniques to be used in 3D cinema was anaglyph goggles, in other words goggles containing different color filters. These goggles combined different colored images on a screen and created a three dimensional effect. Later on polarized glasses were used. Polarized glasses are usually used in cinema rooms and 3D televisions.

The evolvement of 3D technology still continues today and now they are working on 3D screens which don't need goggles and contents for the screens. Technologies like VR and AR are creating images that look more realistic and dimensional.

Scientific Explanation For The Curious

Students are directed the following questions:

- How does it happen that images look like they are moving when looked at with 3D goggles?
- Do you know that movies and animations are made by using 3D technology?

Pictures are accepted to be two dimensional (2D) because they onlt have length and width. But in recent times artists and designers are using techniques which create a sense of depth to give pictures a feeling of three dimension These techniques allow the images to give the perception of sensing a three dimensional area to the viewer.

Besides a three dimensional model of an image can be created in computer environment and it can also be called a three dimensional image.But since images usually have two dimensions, 2D pictures and 3D models are usually categorized in two different groups.

The techniques used for pictures to look as if they are moving with 3D goggles are called **"parallax."** Parallax forms with our brain bringing images from two different perspectives together.

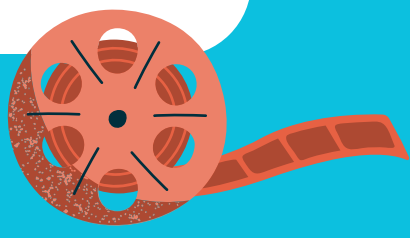
3D images are mostly formed of different perspectives for left and right eyes. 3D goggles reflect every image to your eyes from a different perspective and gives you brain a three dimensional effect. This increases an image's perception of depth and feels as if it's moving.

This techonolgy allows images to be used in many different sectors especially in education, computer games, architecture, medicine and movie industries.

Perspektive: It expresses how an image or objects in a drawing depend on how an eye perceives it.

Fields In Which 3D Technology Is Used

- **Design:** 3D technology is used to make the product designing process easier and faster. Designers can use the modeling software to create prototypes of their prodcuts and examine details of their product. This way they can get a better idea before making the physical prototype of the product.
- **Engineering:** 3D technology allow engineers to create prototypes of their products and test them. Thanks to 3D printers engineers can create their prototypes faster and in a more cheaper way. Also 3D modeling softwares give engineers the opportunity to examine the details of their product and make them better.
- **Medicine:** 3D technology is used in many fields like surgical planning, prototyping and education in the medical industry. For example surgeions can make a better surgical plan by creating a 3D model of their patients organs. Besides customized devices like prosthesis, implants and other medical devices can be produced in a faster and cheaper way.
- **Education:** 3D technology is used to improve students learning experience in education. For example students can gain a better understanding by examining 3D models. Besides thanks to 3D printers students can create their own designs and this way they can increase their learning experiences by using their creativity.
- **Movies And Games:** 3D technology is used to create realistic 3D charachters, scenes and objects in the movie and game industries. For example game developers create game charachters and objects by using 3D modeling softwares. Besides 3D animation softwares produce realistic animations for animation producers.



What Else Can We Do?

Dear Teacher,
You have observed images by using 3D goggles with the future science people. You can recommend them to learn programs like tinkercad and sketchup which will help them to create their own 3D models by using their imagination and also become familiar with 3D modeling.
Like the drawings in the activity pages you can create your own story and observe it with 3D goggles.

The Story Of The Future Science Person

Materials:

- Photocopying paper
- Blue-red markers
- 3D glasses
- Pencil

1. Students are asked " What would you like to invent for the good of humanity if you were a science person?
2. They are asked to create the story of this invention.
3. They are asked to draw the 4 scenes of the story with a pencil by dividing the paper in four).
4. You go over the pencil drawing with a blue marker, next you go over it with the red marker by leaving some.

Friends observe the story with 3D goggles amongst each other and tell each other about it.

Draw the first thing you have discovered today!

Exit Card

They are told “Today we have discovered what three dimension is, what three dimension technologies are and where they are used. We have created our own goggles and made observations You can experience the virtual reality glasses and share your experience in class.”

They are asked “How did this activity make you feel?” and the exit card is done.

How does the images in 3D movies are produced and combined while filming or later on?

www.curiousbox.co