MY BRIGHT WORLD

Purpose Of The Activity:
Observing light is necessary for seeing process to happen through experimenting. Producing by using the creativity of Ames's room (distorted room)

Theme Beyond Disciplinaries:
The Ways We Express Ourselves

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

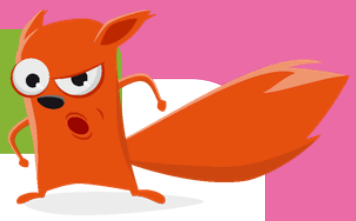
TAKING ACTION

Question Of The Day?

CURIOUS BOX

MY BRIGHT WORLD

Let's Arouse Curiosity



Students are directed the following questions:

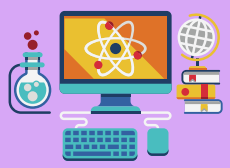
- Can we see what is around us in the dark?
- Why do we need light in order to see?
- What is an illusion? Can you give examples?

They are asked "We need light in order to see what is around us. Seeing process doesn't happen in dark places. In order for the seeing process to happen the light in our surroundings should reflect from the objects around us and reach our eye. Everything we see with our eyes usually don't look like what they really are. Eye collects viusal information from our surroundings and transmits them to our brain but some changes might happen in the process. Some changes might happen in sight and regarding the color of the object. The wrong evaluation of a real object on senses (illusion) might happen. Should we try an illusion with you?" 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 before proceeding with the activity. All the lid and package opening steps are done simultanously with the students.

Watch The Video By Pausing!



Content Of The Set

- [ ] 4 pieces of ames room template
- [ ] Scissors
- [ ] Led
- [ ] Battery
- [ ] Two figures at the same size
- [ ] "How Did You Feel?" activity page
- [ ] Thomas Edison science person card

How Do We Do It?

1. Pieces are taken out from the template with the help of the scissors.
2. The long and short legs of the led are examined. Long leg will face the positive magnetic pole and the short leg will face the negative magnetic pole.
3. Battery and led is placed in the led holder.
4. Double sided tapes are taken out from the cut out template pieces and next they are sticked again from the same places consisting the letters. (The letter A is sticked to the place, where letter A is written.) The body of the Ames room is ready!
5. The part which is corresponding to each word is sticked on the top (roof). Ames room is ready!
6. Two figures of the same size are placed in the corners.
7. The figures are observed from the Ames room and one seeming small the other seeming big (illusion) is observed.
8. The light in the room is darkened and we look through the hole in the ames room.
9. Students are asked whether they see the figures or not.
10. This time the observation is done in the dark room by holding led from the roof of the ames room.
11. Students are asked whether they see the figures or not and it is discussed.

What Should Future Science People Discover?

Students are asked the following questions:

- How do we see our surroundings? Is it possible for us to see in the dark?

How do we see?

We need luminous energy to be able to see our environment well. If there is not light at a place, and it is quite difficult for us to see any longer, this place is called the "dark place." Places in which the light is enough, and we can easily see is called "bright place."

The intenseness of the light effects how much we see. The weakness of light makes it hard for us to see. Increasing the amount of light constantly will prevent us from seeing and also harm our eyes. The place or object that gives light is called the light source. We can analyse light sources under two topics:

Natural Light Sources: It exists in nature on it's own, people don't have intervene. Light coming from the sun, firefly, lightning and widegab can be placed in this group. **Artificial Light Sources:** It's produced by humans, it needs several resources. For example; lamps, headlamps, and candle lights.

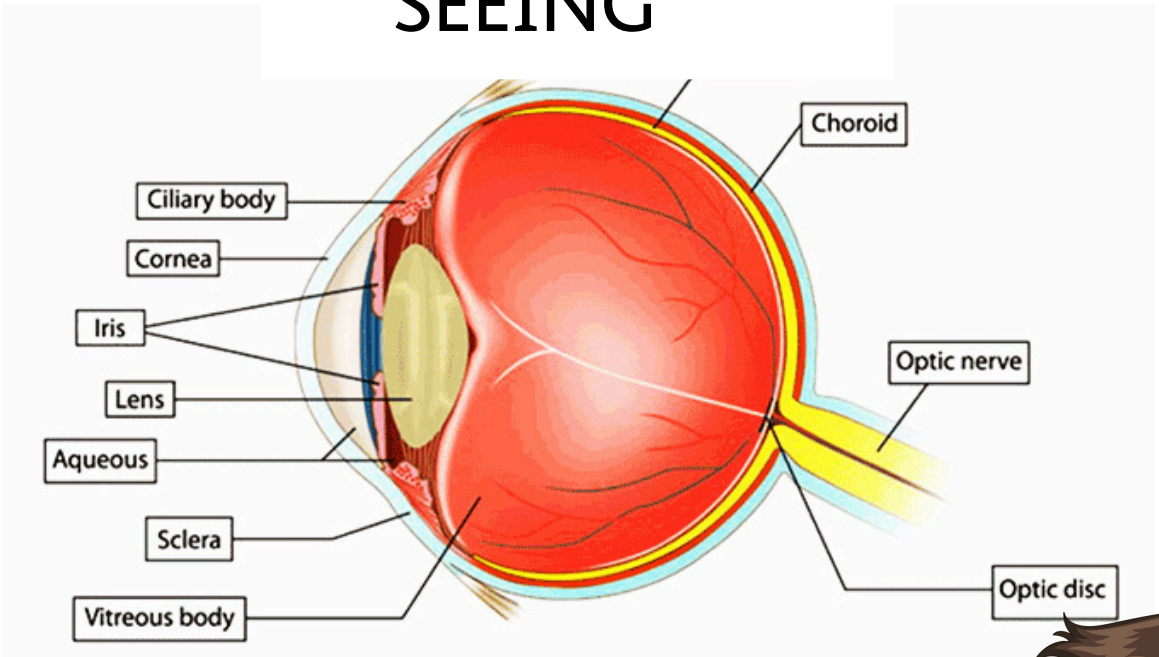
Scientific Explanation For The Curious

We have five sense organs. One of these sense organs are eyes. We are aware of our surroundings thanks to our eyes. There are many parts in our eyes which allow us to see. When we look at the parts that play a role majorly in the seeing process we can sort them like this; cornea, pupil, iris, ocular and retina.

When we look at any object the light reflecting from it first hits the cornea. Cornea is a transparent layer shaped like a dome. Some of the light that enters the cornea gets in from the pupil. The pupil is the black part located in the middle of the colored section (iris). Iris uses the muscles in the eye and tightens and loosens the pupil. This way the light getting through your pupil is controlled.

The light that gets through the pupil reaches the retina. The retina located at the back of the eye has millions of nerve cells that are responsive to light. When light stimulates the nerve cells in the retina some messages are created about seeing. These messages are send to the occipital lobe which reads and processes the visual information. Brain uses this information to combine two images coming from two eyes into one. This way it allows us to understand what the object is.

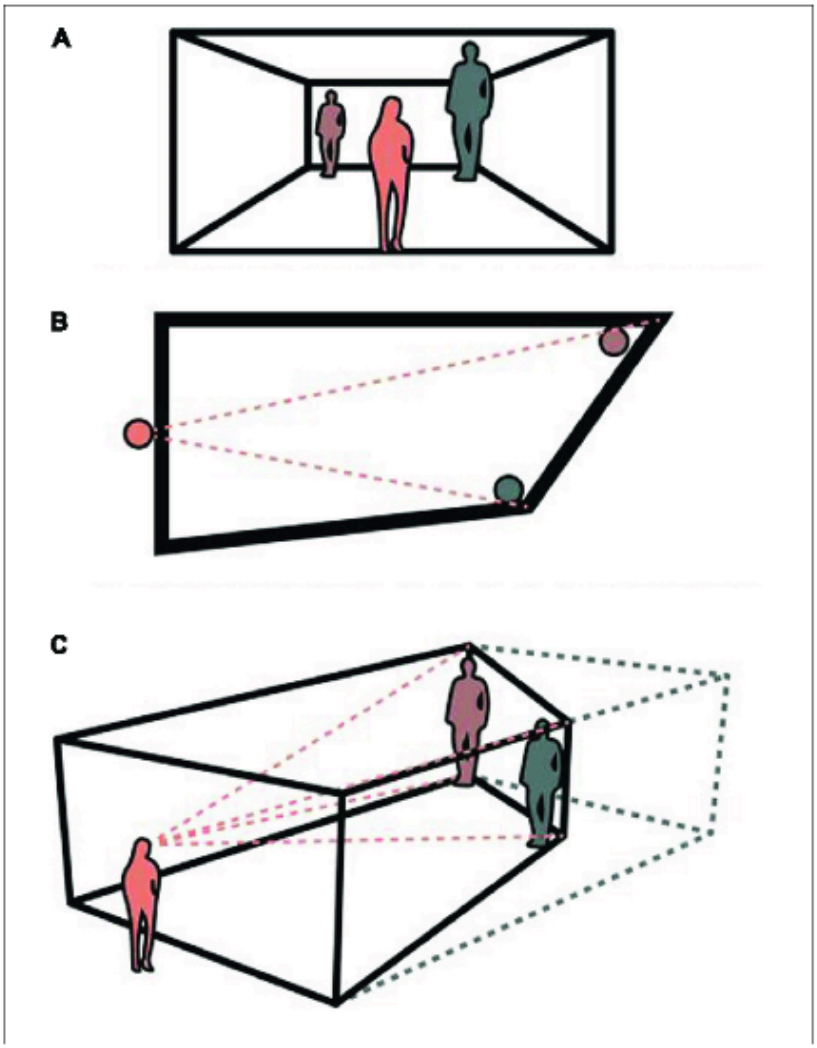
SEEİNG



What is Ames room? What is illusion?

Not everything we see around us is necessarily what we think they are. Sometimes what seems close may be distant, what seems big may be small and what seems flat may be bumpy. All this is about our perceptions and our perspective. With simple visual differences it is possible to see places and objects different from what they really are. These visual differences are **illusions**, just like Ames room.

Ames room or distorted room was designed by an american scientist named **Adelbert Ames** in 1956. The Ames room is shaped like a trapezoid in which one of the removed corners is more removed compared to the other one. In this room objects are made to be seen in a different size than they really are. But they are designed in a way in which if you look at it from a specific view they will seem to be normal. Due to this the perspective should be precisely arranged. Ames room is an interesting example of optic reflections and it is usually analyzed in the context of art and science.



What Else Can We Do?

Dear Teacher,
You have learned what we need in order to see with future science people.

So can we see sound? By doing the "Can We See Sound?" activity you can reinforce the topic.

Can We See Sound?

Materials:

- A plastic container
- A speaker or a phone that can fit in the plastic container
- Baloon (a big baloon can be used depending on the size of the plastic container)
- Scissors
- A small mirror piece
- Laser pen
- Double sided tape
- Pin or play dough

How it's done:

1. First the speaker is placed in the plastic container.
2. The tip of the baloon is cut with the help of the scissors.
3. The tipless baloon is stiffly put on the mouth of the container.
4. A small mirror piece is taped to the middle of the baloon with the help of the double sided tape.
5. The plastic container is tilted on it's side and in order for it to stay still on the ground tape is attached over it.
6. Beam coming out of the laser pen is placed in a position in which it will allign with the mirror.
7. You get help from the play dough or the pin while positioning.
8. The speaker is turned on and than we wait. In this stage the visuals of sound waves on the wall are observed.

CURIOUS BOX

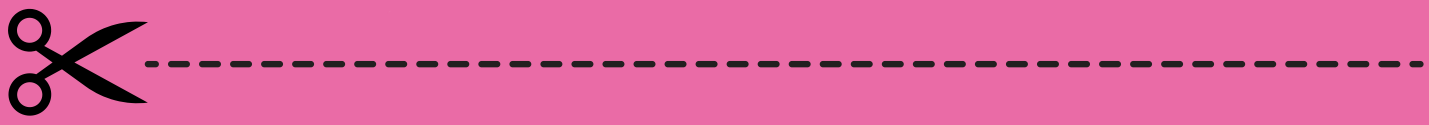
Exit Card

The students are asked "We have discovered so many things today, right? So what have we learned? That we need light in order to see objects, natural and artificial light sources, how the seeing event happens, what illusion is and the Ames room. How did you feel in this activity?"

"How Did You Feel?" exit card is done from the activity pages. Thomas Edison science people card is read.

Have you heard of "Nocturnal animals" before? How can these animals see at night?

Write three things you have learned today.



Write three things you have learned today.

www.curiousbox.co