



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at www.projectexploration.org/stemathome.

In this activity, you will:

Learn about your eyes and how they let in light!



Supplies Required:

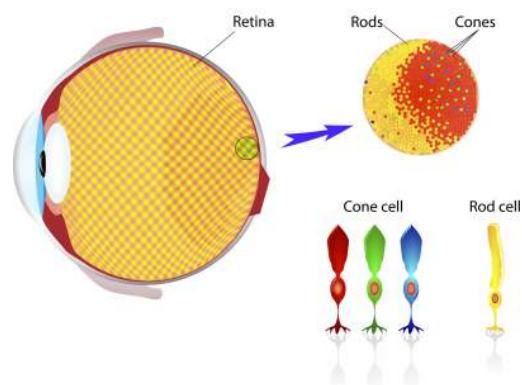
Dark room
Various objects
Stopwatch

Video

Watch and learn about vision! <https://tinyurl.com/ll4mwy9>

Overview

The dark circle in the center of your eyes is called a pupil. The pupil can get bigger or smaller depending on how much light it wants to let in. If it is a bright day, the pupil gets smaller to let in less light. If you're in the dark, the pupil gets bigger to let in more light so that you can see better. After the light passes through your pupil, it hits the back of your eye, which is called the retina. The retina is covered in receptors called rods and cones. Rods are more sensitive to light and work better in the dark, but cones allow you to see color!



Instructions

1. Have a family member or friend place a couple of objects in a dark room or closet. Make sure there is no light and that you do not know what the objects are beforehand.
2. Have the family member or friend lead you into the room with your eyes closed.
3. Start the stopwatch once you open your eyes inside the dark room!
4. Without touching or moving around the room, try to guess what the objects are. Have your friend or family member record how long it took you to recognize each item.
5. Once ten minutes have passed or you have recognized everything in the room, turn the lights on! Why did it take you a certain amount of time to recognize everything? It's because your pupils took time to open wider and your cones are working harder to let in color!

Additional Resources

Think About It! How well were you able to see in the dark? Imagine if you didn't have lights in your house, or you lost the ability to see. What would be different? What would you need to do to "see" instead? Certain animals can only see in black and white; why do you think this is?

1. How do eyes adjust to darkness? <https://tinyurl.com/ybjm639q>
2. Insane optical illusions: <https://tinyurl.com/yc5g5d26>
3. How do we see color? <https://tinyurl.com/k7sq4ls>

Share It Out

Share on social media: Challenge your friends to this activity! How long did it take them to recognize everything in the dark room? Share what you learned about vision on social media using the hashtags:

#EyesInTheDark
#ProjectExploration
#StemAtHome

Share via PE's website: Students who complete STEM@home activities and share what they learned with the PE team via our website will earn points which can be traded in for cash prizes at the Explore Store. Your project number is 228. Learn more at www.projectexploration.org/explore-store

Join PE's character contest!

Design a STEM character who will lead kids through activities and be featured on our website and in our STEMbooks. Cash prizes will be awarded to the top 3 finalists.

Learn more at:
www.projectexploration.org/character-contest.



Call or text us for help: 312-772-6634

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