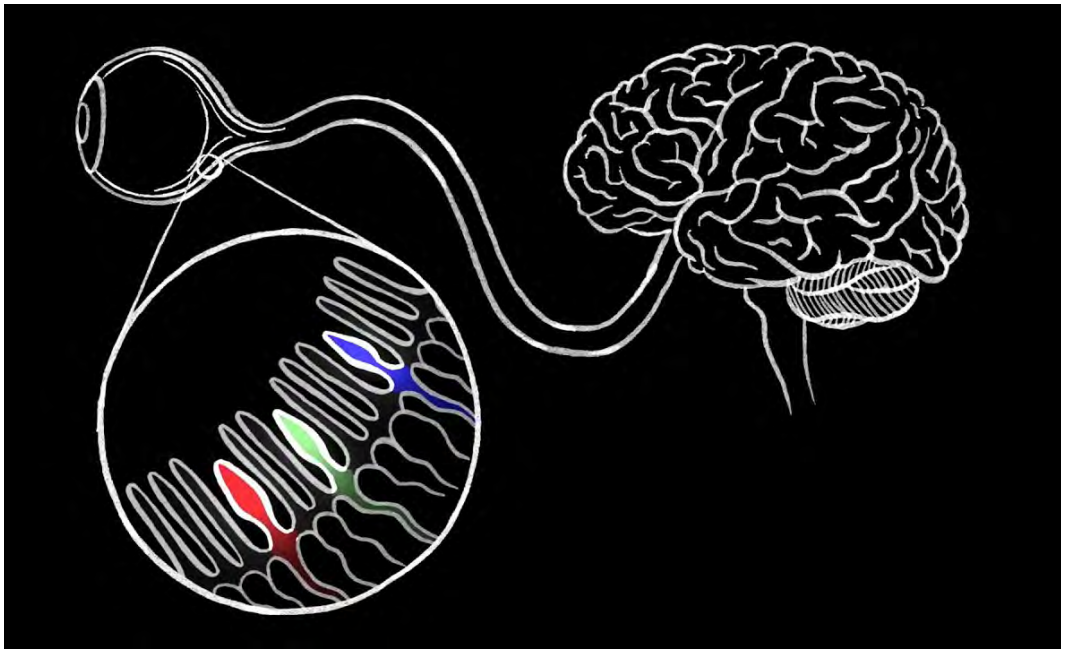
TED Connection: How we see color

Overview
Mensa for Kids' TED Connections are short, easy to use guides that help teachers, parents and youth use TED talks in a classroom or home setting. Rather than a lesson plan format, they have a list of discussion questions, all at higher levels of thinking.



There are three types of color receptors in your eye: red, green and blue. But how do we see the kaleidoscope of other colors that make up our world? **Colm Kelleher** explains how humans can see everything from auburn to aquamarine.

WATCH THE TED TALK AT:
ted.com/talks/colm_kelleher_how_we_see_color

Think about it

1. Discuss the concept of "physical color" and how it does not tell the whole story.

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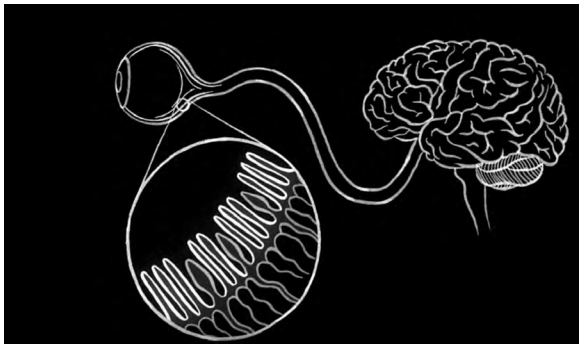
2. Kelleher states that "because light is a wave, two different frequencies shouldn't interact with each other at all." Expound on why that should not happen and what is occurring that is allowing it to happen.



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3. Explain the function of the Retina in seeing color.

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4. There is only one of these light-detecting cells; what is it called? What does it allow us to see?

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5. Describe how your eye is able to see yellow. Explain in detail the process that occurs.

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6. Compare and contrast what happens in your eye and brain when you see blue verses purple.

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7. Explain what prevents us from seeing colors in the dark?

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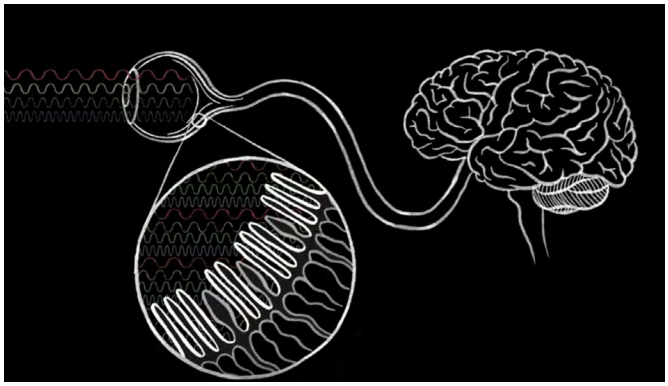

8. Identify the two signals your brain receives in the dark?

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9. Explore the benefits of only having three color-detecting cells. How does that impact the real world?

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10. Hypothesize what happens when someone is color blind. How do you think their ability to see colors is impacted?

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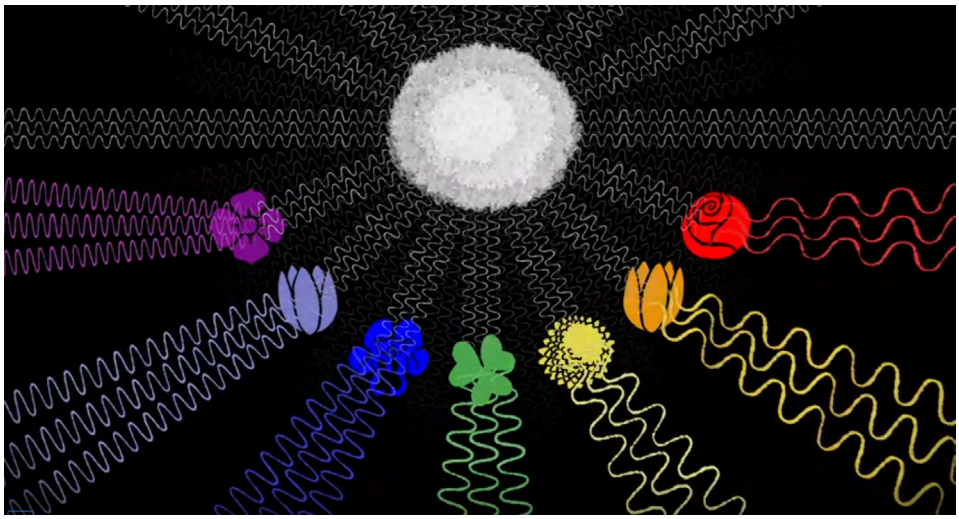

Do it

- Pay attention to how many things in your daily life are not just red, green or blue.
- Experiment to see how much light you need to have in order to see color.
- Interview someone who knows they are color blind and explore the differences each of you see in an image.
- Learn more about color with the Mensa for Kids Introduction to Color lesson plan at **bit.ly/intro-to-color**.

Read about it

- Learn more about how we see color at **bit.ly/how-we-see-color**.
- Learn about hue, value, and saturation – the three main integral parts of color – at **bit.ly/three-parts-of-color**.
- Learn more about the science of color at **bit.ly/smithsonian-libraries**.
- Read about the different properties of color at **bit.ly/britannica-color**.

Watch it

- Watch Colm Kelleher's Ted Talk on the physics behind color at **bit.ly/what-is-color**.
- Listen to Colm Kelleher's Ted Talk that explores the question of whether light is exclusively a wave or just a particle at **bit.ly/what-is-a-light**.