

Color Vision

Spoken Tutorial Project

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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10 August 2018



Learning Objectives



Learning Objectives

We will demonstrate,



Learning Objectives

We will demonstrate,

- ▶ **Color Vision PhET simulation**



System Requirement



System Requirement

- ▶ **Ubuntu Linux OS v 16.04**



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- ▶ **Ubuntu Linux OS v 16.04**
- ▶ **Java v 1.8.0**



System Requirement

- ▶ **Ubuntu Linux OS v 16.04**
- ▶ **Java v 1.8.0**
- ▶ **Firefox Web Browser v 60.0.2**



Pre-requisites



Pre-requisites

- ▶ **Learners should be familiar with high school physics and biology**



Learning Goals



Learning Goals

- ▶ **White light**



Learning Goals

- ▶ **White light**
- ▶ **Colors from visible spectrum**



Learning Goals

- ▶ **White light**
- ▶ **Colors from visible spectrum**
- ▶ **Light and filters of different colors of visible spectrum**



Learning Goals

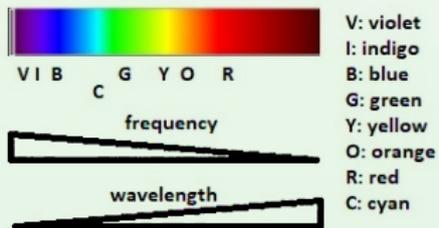
- ▶ **White light**
- ▶ **Colors from visible spectrum**
- ▶ **Light and filters of different colors of visible spectrum**
- ▶ **Red, green and blue light, separately or in combination**



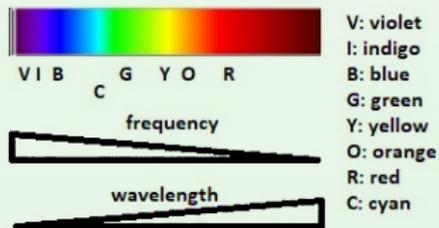
Visible Light



Visible Light



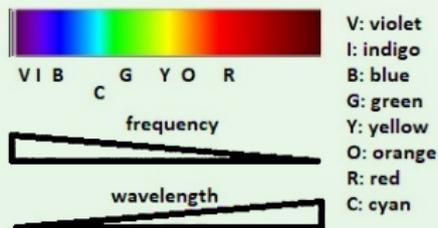
Visible Light



- ▶ **Electromagnetic spectrum, 380-760 nm: visible light**



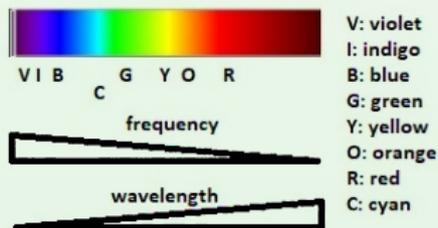
Visible Light



- ▶ Electromagnetic spectrum, 380-760 nm: visible light
- ▶ **VIBGYOR**



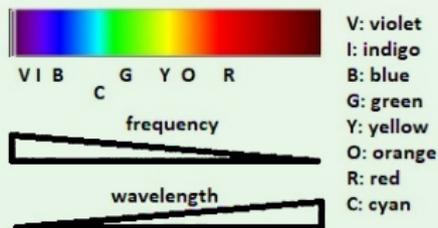
Visible Light



- ▶ Electromagnetic spectrum, 380-760 nm: visible light
- ▶ VIBGYOR
- ▶ Lowest wavelength appears violet



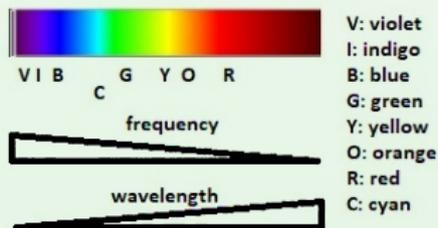
Visible Light



- ▶ Electromagnetic spectrum, 380-760 nm: visible light
- ▶ VIBGYOR
- ▶ Lowest wavelength appears violet
- ▶ Highest wavelength appears red



Visible Light



- ▶ Electromagnetic spectrum, 380-760 nm: visible light
- ▶ VIBGYOR
- ▶ Lowest wavelength appears violet
- ▶ Highest wavelength appears red
- ▶ All colors → white light



Link for PhET Simulation



Link for PhET Simulation

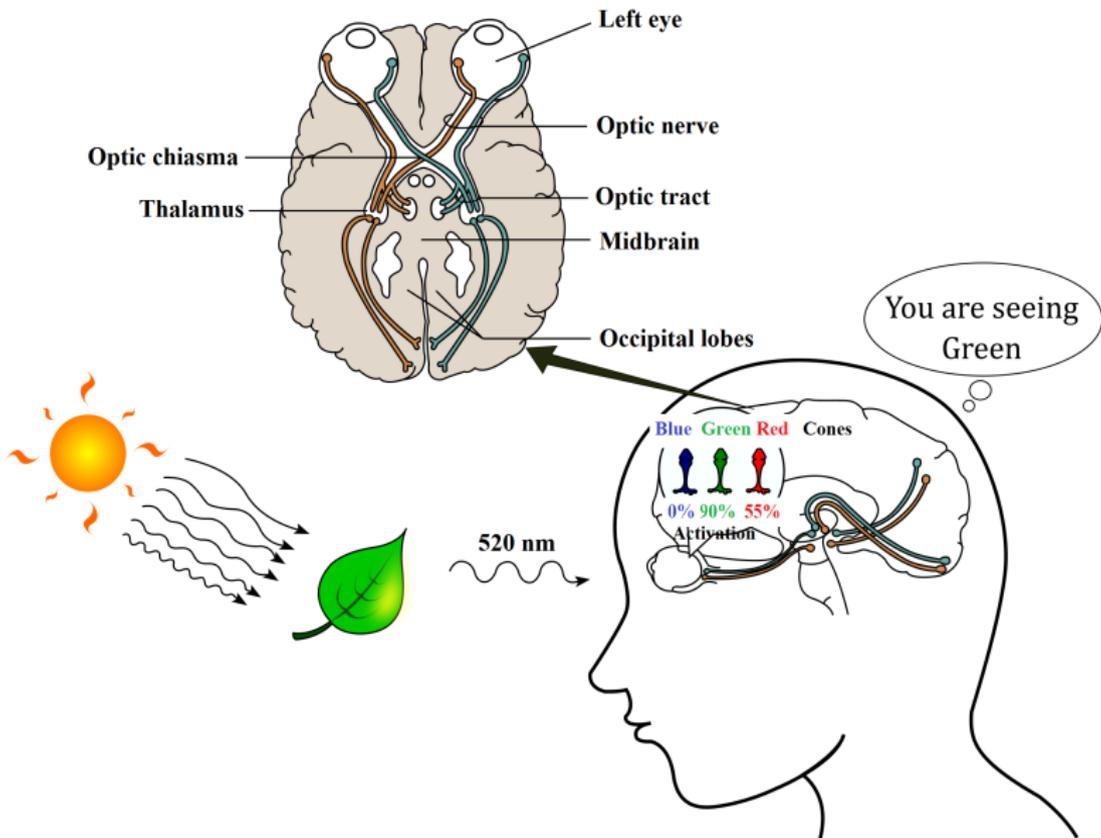
<http://phet.colorado.edu>



Color Vision



Color Vision



Assignment



Assignment

- ▶ **White light from flashlight**



Assignment

- ▶ **White light from flashlight**
- ▶ **Observe light transmission from filter**



Summary



Summary

We have demonstrated,



Summary

We have demonstrated,

- ▶ **Color Vision PhET simulation**



Summary



Summary

- ▶ **White light**
- ▶ **Light of different colors from visible spectrum**
- ▶ **Light and filters for different colors of visible spectrum**
- ▶ **Red, green and blue light, separately or in combination**



Assignment



Assignment



Assignment



▶ RGB?



Assignment



- ▶ **RGB?**
- ▶ **Color wheel**



Assignment



- ▶ RGB?
- ▶ Color wheel
- ▶ Colors for schemes:
complementary, analogous, triadic,
rectangle



About the Spoken Tutorial Project

- ▶ Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project



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- ▶ If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Forum for specific questions

- ▶ Do you have questions in **THIS Spoken Tutorial?**
- ▶ Please visit
<http://forums.spoken-tutorial.org>
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ Someone from our team will answer them



Acknowledgements

- ▶ **This project is partially funded by Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching**



Acknowledgements

- ▶ Spoken Tutorial Project is a part of the Talk to a Teacher project
- ▶ It is supported by the National Mission on Education through ICT, MHRD, Government of India
- ▶ More information on this Mission is available at

<http://spoken-tutorial.org/NMEICT-Intro>

