

# Color Vision

**Spoken Tutorial Project**

**<http://spoken-tutorial.org>**

**National Mission on Education through ICT**

**<http://sakshat.ac.in>**

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# Learning Objectives



# Learning Objectives

**We will demonstrate,**



# Learning Objectives

**We will demonstrate,**

- ▶ **Color Vision PhET simulation**



# System Requirement



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- ▶ **Ubuntu Linux OS v 16.04**



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- ▶ **Java v 1.8.0**



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





# Pre-requisites



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- ▶ **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

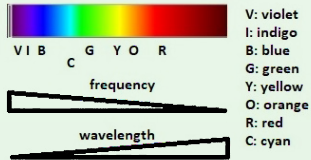


# Visible Light

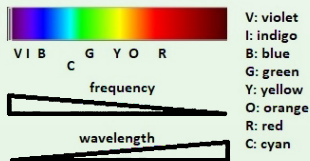




# Visible Light



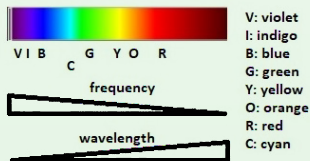
# Visible Light



- Electromagnetic spectrum, 380-760 nm: visible light



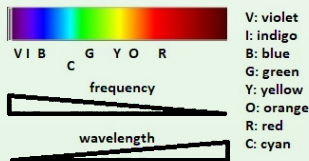
# Visible Light



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



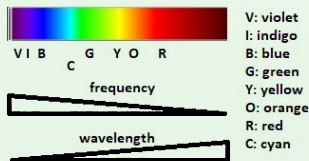
# Visible Light



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



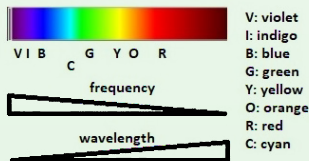
# Visible Light



- ▶ 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>

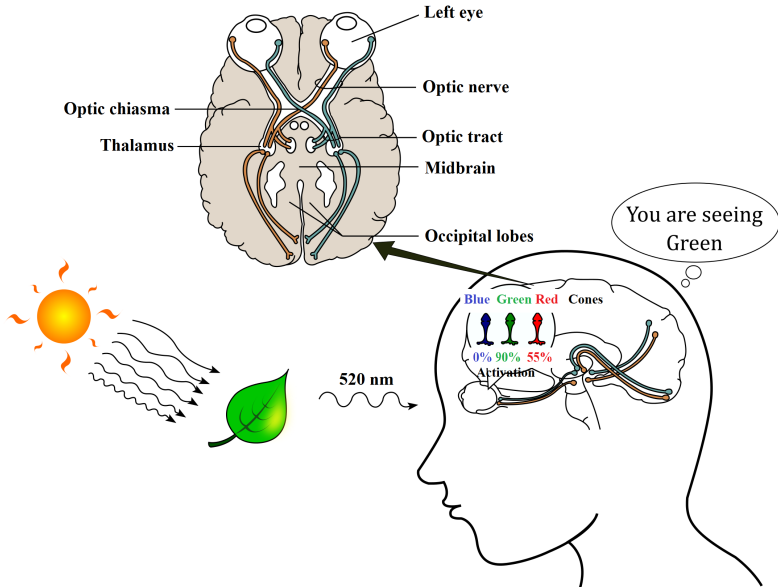




# Color Vision



# 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](http://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- ▶ It summarises the Spoken Tutorial project





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- ▶ It summarises the Spoken Tutorial project
- ▶ 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](mailto: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>

