

Curricular Unit: This Little Light of Mine: Exploring Light with Sensors and Bots

Contributed by: Kansas State University, Computing and Information Systems Department, National Science Foundation GK12 INSIGHT Program

Prepared for <http://www.teachengineering.org/>

***Grade:** 6 (5-7)

Time Required

Please see individual lessons and activities. Generally, the unit spans about 1 week.

*Summary

This light unit provides a series of lessons that introduce concepts of light in a hands-on, exploratory fashion. We learn about reflection, refraction, and transmission, with spotlights, colored lights, prisms, and more.

*Engineering Connection

Engineers apply the science of light in many ways, in common and practical applications such as cameras, to fiber-optic cables that transmit information by sending pulses of light through an optical fiber, to studying light from distant galaxies to determine their speed and direction.

Engineering Category

1. Relating science and/or math concepts to engineering

*Subject Area(s)

Physics
Science and Technology
Computer Science

***Keywords:** light, reflection, refraction, absorption, robots, photo sensors, Kinect, Greenfoot, java.

Educational Standards

Shawnee School District Grade 6 (2010) from Kansas Science Standards -

- Objective 4006.01 - Identify a problem statement that can be answered through science investigation.

- Objective 4006.02 - Design and conduct investigations safely using appropriate tools, mathematics, technology, and techniques to gather, analyze and interpret data.
- Objective 4006.03 - Identify relationships between evidence and logical conclusions.
- Objective 4006.31-Observe the way that light interacts with matter: transmitted, reflected, refracted, and absorbed

***Related Lessons**

- Light - and interaction with Matter (Reflection, Refraction, Absorption, Transmission)

***Related Activities**

- [Hands on Activity: Stations of Light](#)
- Hands on Activity: Robots That Use Light Detectors for Navigation
- Hands on Activity: Creating Multi-Color Digital Masterpieces with Gestures

Unit Overview (Return to Contents)

Overview of topics: (1)

Unit Schedule

See individual lessons and activities.

Summary Assessment

To evaluate the effectiveness of this unit, a pre-test is available that can be administered prior to beginning any of the activities or lessons. The same test can be taken as a post-test, after completion of the unit activities and lessons, and the results compared to assess the learning progress.

Attachments

Pre-Unit Quiz

Pre-Unit Quiz with Answers

Post-Unit Quiz

Post-Unit Quiz with Answers

Other

Redirect URL

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*Supporting Program

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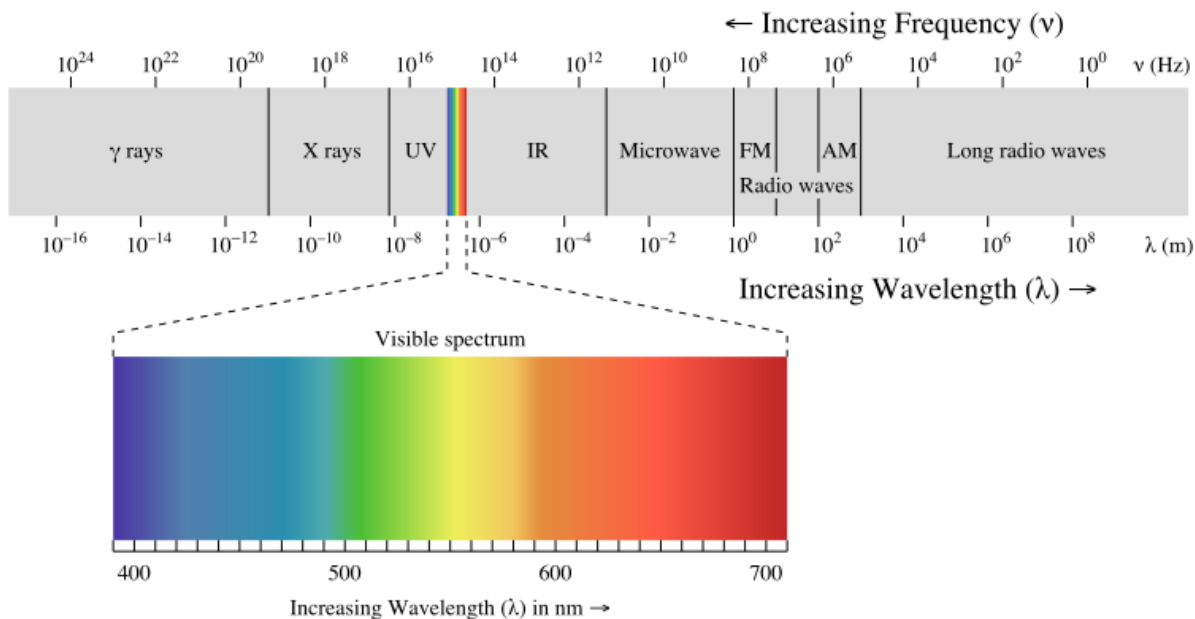


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