

Chapter 11 Lesson 2

Welcome To 7th grade Life Science!

Mrs. Winters

Materials Needed

Today

Please take these materials out of your backpack.

- Pencil
- Blank sheet of paper for a lab!






Hot Sync

Thursday 3/27/14

After learning how light acts. Write a new prediction/hypothesis as to WHY the sun's light entered the prism and exited as colorful light.

11.2 Light and Matter

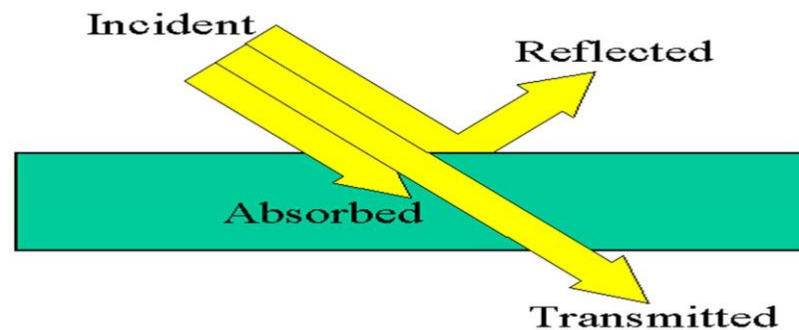
LESSON Vocabulary

-  absorption
-  transmission
-  scattering
-  refraction
-  law of reflection



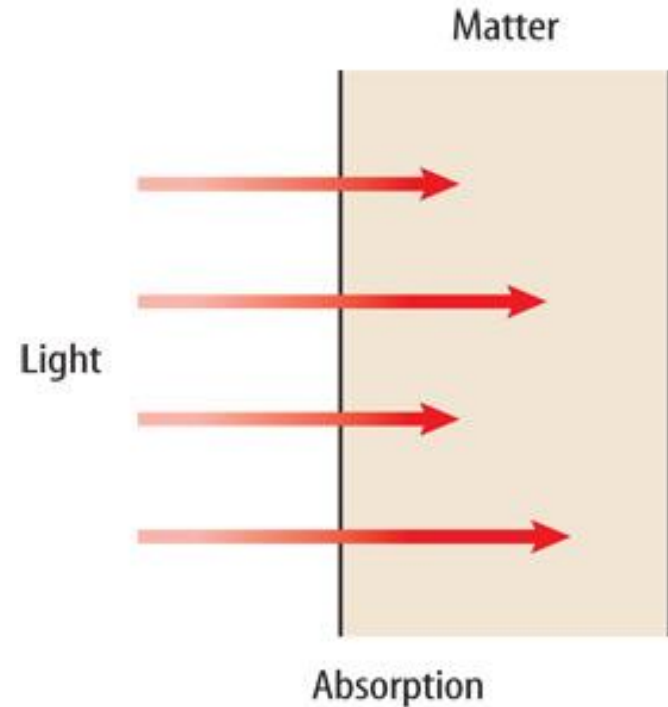
The Interaction of Light and Matter

- When light rays hit matter, they can be absorbed, reflected, or pass through the matter.
- All electromagnetic waves, including light, transfer energy from one place to another.



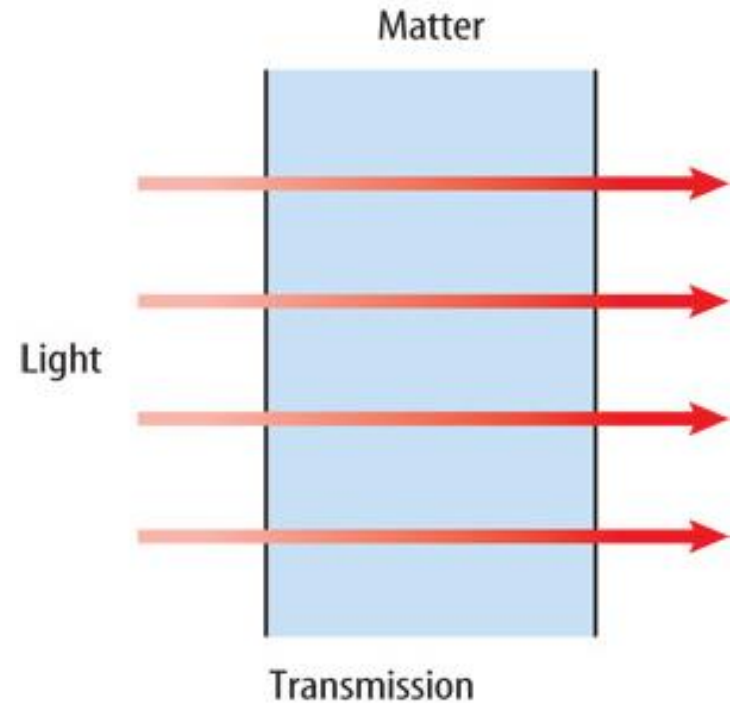
Absorption of Light

- **Absorption** occurs when light rays hit a material, and some of the rays' energy is transferred to the atoms in the material.
- The transfer of energy can cause the temperature of the material to increase.



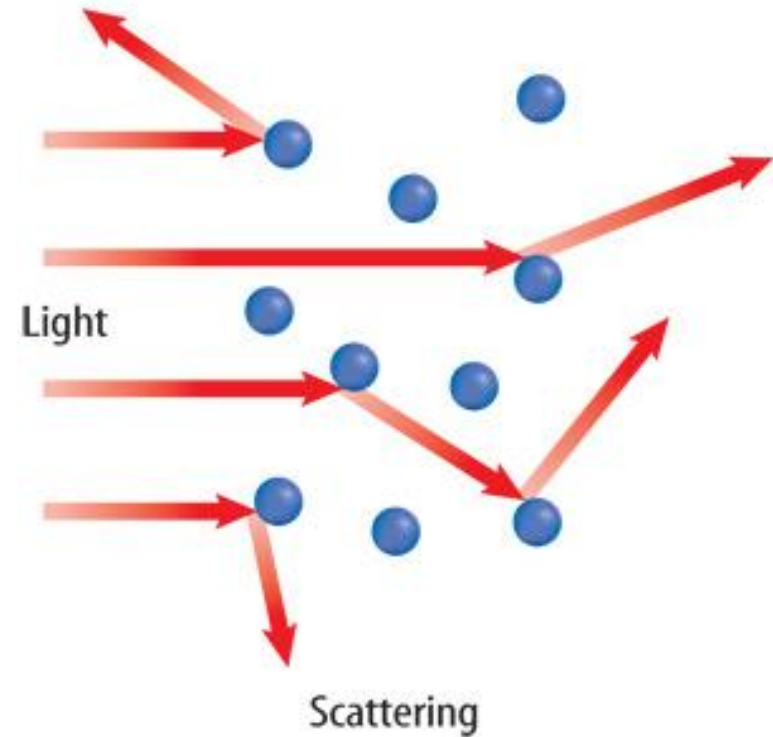
Transmission of Light

- **Transmission** occurs when light waves strike a material and pass through it, such as with glass.
- Whether the light waves are transmitted or absorbed depends on the wavelength of the light waves.



Scattering of Light

- **Scattering** occurs when a material causes light waves traveling in one direction to travel in all directions.



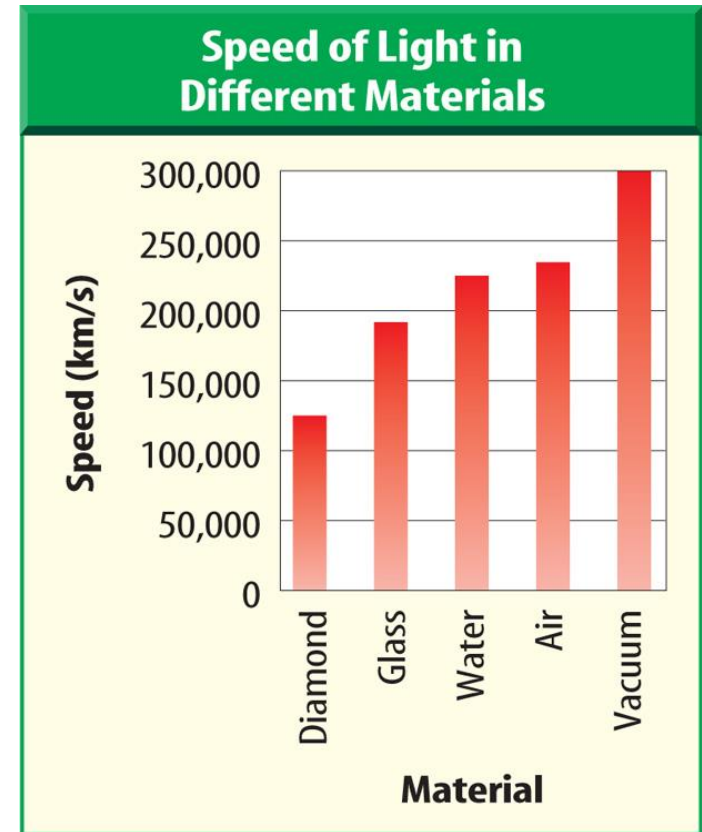
Opaque, Transparent, and Translucent Materials

- The three candleholders are made of different materials that absorb, transmit, and scatter light in different ways.



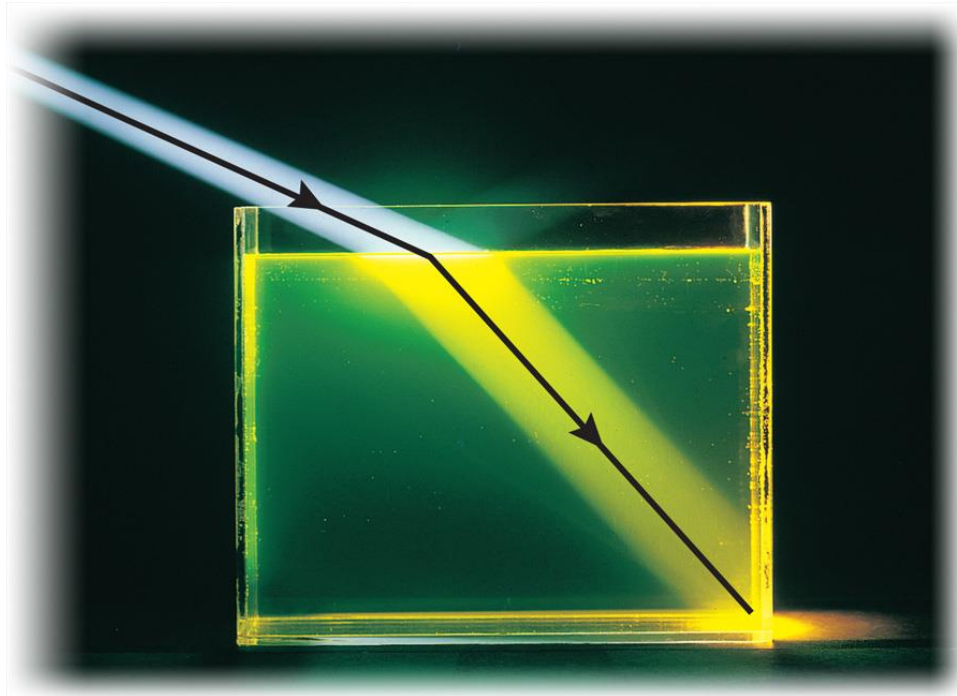
The Speed of Light in Different Materials

- No object or wave can move faster than the speed of light in empty space.
- When light waves travel in matter, they move more slowly.



Refraction

- **Refraction** occurs when a light ray changes direction when it moves from one material to another.

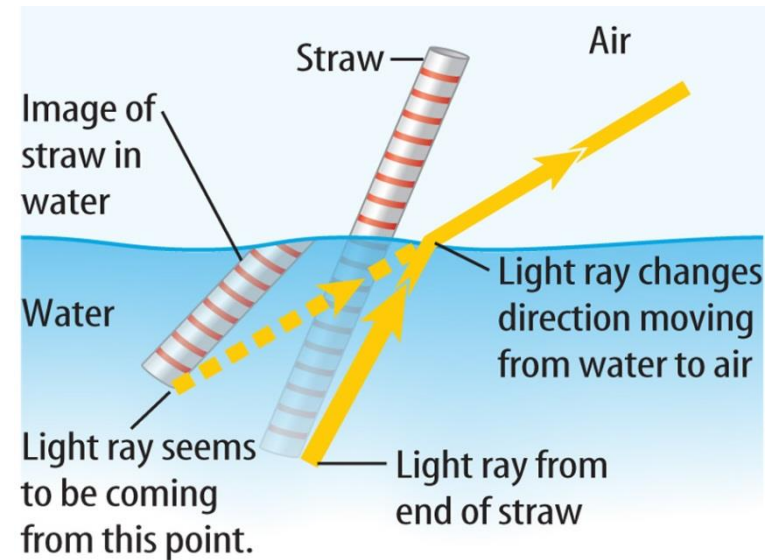


Resources



Refraction and Speed Changes

- Light waves change direction—refract—when they change speed moving from one medium to another.



Concepts In Motion

Bending Light

Click here to view!



Resources



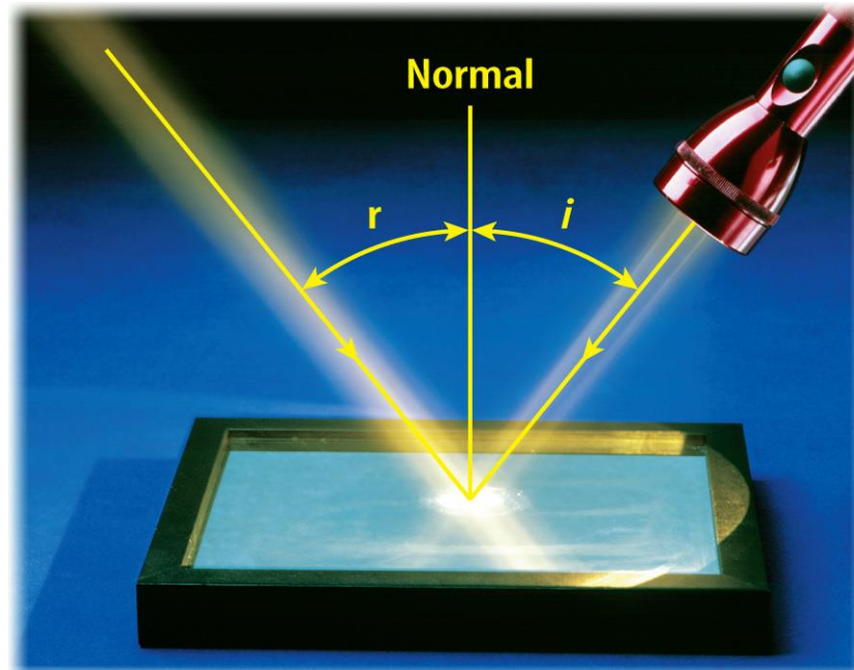
The Visible Spectrum

- White light is a combination of all light waves in the visible light spectrum.
- Almost any color of light can be made by mixing the three primary colors—red, green, and blue—in different amounts.



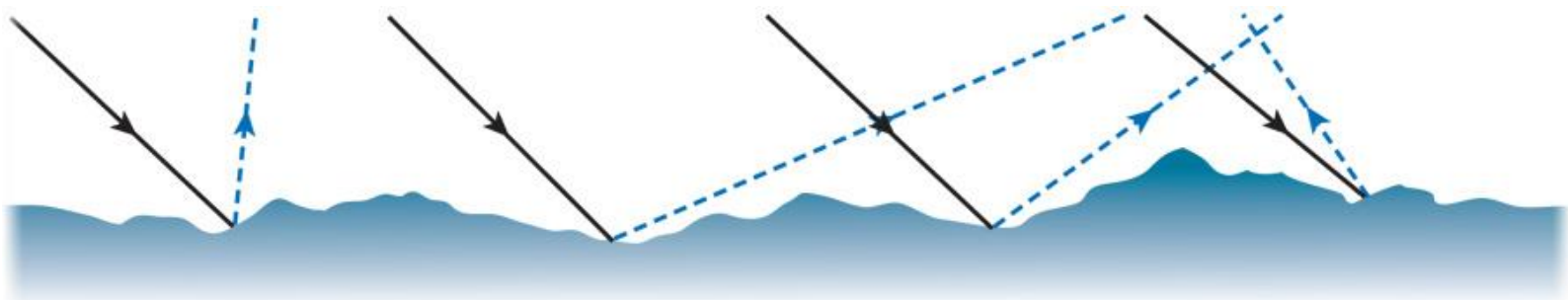
Reflection

- ◀ According to the **law of reflection**, when a light ray is reflected from a surface, the angle of incidence equals the angle of reflection.



Regular and Diffuse Reflection

- Light ray reflected from an uneven surface hits a spot in the surface that is at a slightly different angle, causing the rays to go in many different directions.
- Diffuse reflection is the reflection of light rays from a rough surface.

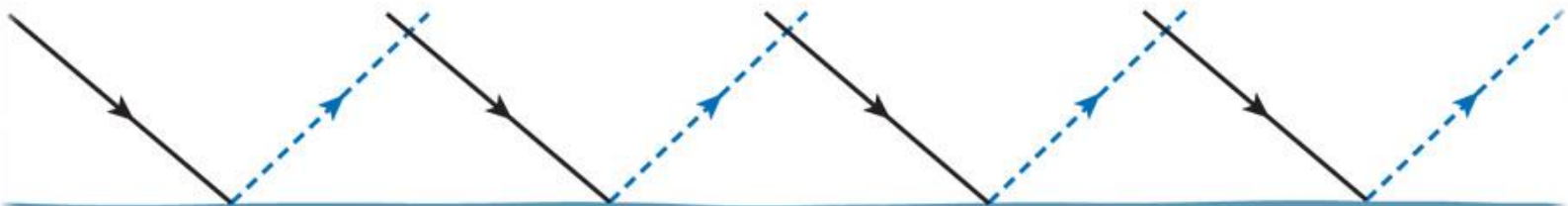


Diffuse reflection



Regular and Diffuse Reflection (cont.)

- The smooth surface of a mirror reflects parallel light rays so that they remain parallel.
- This is called regular reflection.



Regular reflection



Reflection and Color

- As white light strikes an object, some of the light is absorbed and some is reflected.
- The reflected light enters your eyes and causes you to see the object.



Brain
POP™

Color

[Click here to learn more!](#)



Resources



Living Color Games Video

- <http://www.youtube.com/watch?v=IXcpWx5OSYo>

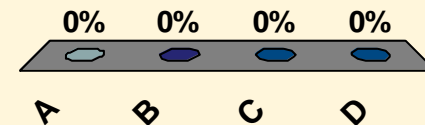


LESSON 2 Review



What is the term for the process of transferring light energy to the molecules in a material?

- A transmission
- B** absorption
- C scattering
- D refraction



Resources

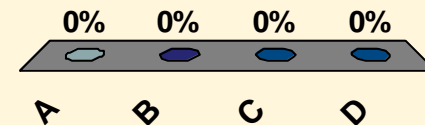


LESSON 2 Review



Which of the following does light travel fastest through?

- A transparent objects
- B** empty space
- C air
- D water



Resources

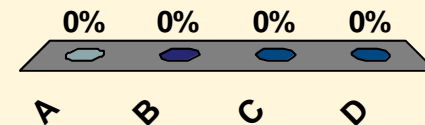


LESSON 2 Review



Why does an object appear to be blue?

- A it absorbs the blue wavelength
- B it scatters the blue wavelength
- C it reflects all the other colors except blue
- D** it absorbs all the wavelengths except blue



Resources



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Hot Sync

Friday 3/28/14

Write down 3 interesting things you learned or experienced in the video yesterday!