

Science 8
Unit 3: OPTICS
Topic 1: The Many Properties of Visible Light



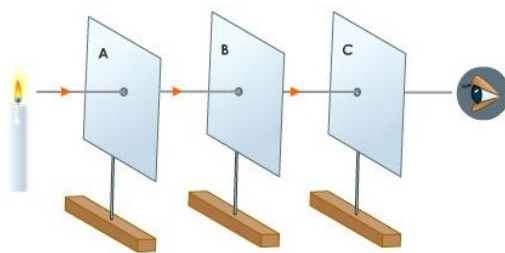
Student Name: _____

Light is energy

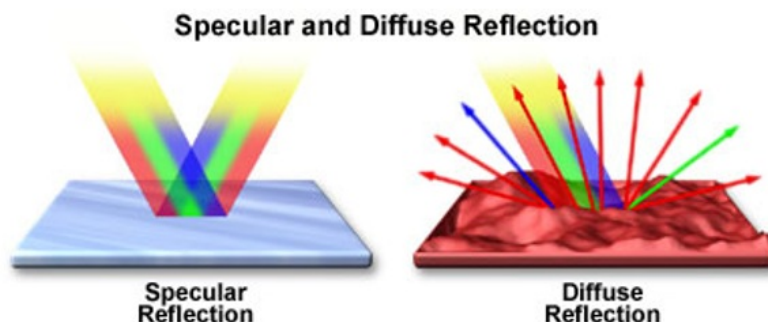
Visible Light: a form of energy that can be detected by the human eye.

Properties of Light:

- 1) Rectilinear Propagation: Light travels in a straight line



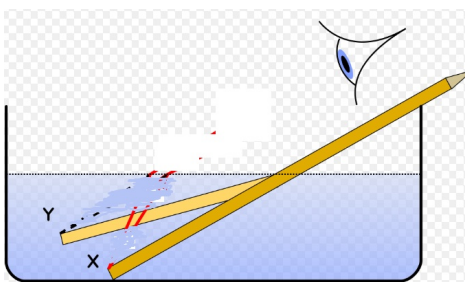
- 2) Light reflects (Reflection): light bounces off a surface. There are two types of reflection:



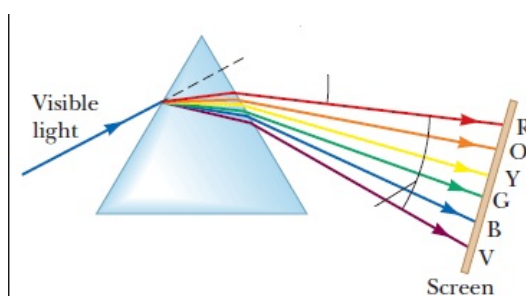
Specular reflection: Occurs on smooth, shiny surfaces

Diffuse Reflection: Occurs on rough, dull surfaces. Here, light is scattered in different directions

3. Light refracts (Refraction): Light bends as it enters another medium (solid, liquid or gas)



4. Light Disperses (Dispersion) The separation of visible light into its different colors. It is separated into its component colors - red, orange, yellow, green, blue and violet



5. Light travels through a vacuum (does not require a medium; no particles involved)

6. Light travels through objects to different degrees

PART A: MULTIPLE CHOICE.

Instruction: Circle the correct answer below each question. Also, transfer your answers to the bubble sheet provided.

1. What is light?
 - (A) It is a form of energy
 - (B) It is a form of matter
 - (C) It is a form of gravity
 - (D) It is a form of magnetism

 2. What is visible light?
 - (A) A form of energy detectable by your eyes
 - (B) A form of energy detectable by your mouth
 - (C) A form of energy you can taste
 - (D) A form of energy you can touch

 3. Which of the following is a medium?
 - (A) Gas
 - (B) Liquid
 - (C) Solid
 - (D) All are correct

 4. Light can travel in...
 - (A) Air only
 - (B) Vacuum only
 - (C) Both air and vacuum
 - (D) None of mediums

 5. Which of the following refers to light ability to travel in a straight line
 - (A) Rectilinear Propagation
 - (B) Reflection
 - (C) Refraction
 - (D) Dispersion

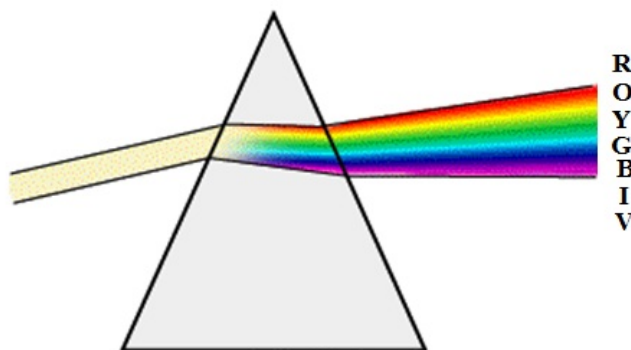
 6. The figure below represents how light can travel. This diagram best represents:
 - (A) Rectilinear Propagation
 - (B) Reflection
 - (C) Refraction
 - (D) Dispersion
- The diagram shows a horizontal rectangular surface. An arrow points down towards the center of the surface, and another arrow points up and to the right from the same point on the surface, illustrating reflection.
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7. What happens when light hits a rough, bumpy surface like sand?
 - (A) Dispersion
 - (B) Refraction
 - (C) Diffuse reflection
 - (D) Specular reflection
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8. What happens when light hits a smooth surface such as a mirror?
 - (A) Dispersion
 - (B) Refraction
 - (C) Diffuse reflection
 - (D) Specular reflection

9. Which property of light is being demonstrated by the pencil in the glass of water?

- (A) Rectilinear Propagation
- (B) Reflection
- (C) Refraction
- (D) Dispersion

10. What is shown in the picture below?

- (A) Rectilinear Propagation
- (B) Reflection
- (C) Refraction
- (D) Dispersion



11. Which of the following best explains why door on showers are giving a frosted appearance?

- (A) Light travels in a straight line
- (B) Light reflects
- (C) Light can be dispersed
- (D) Light travels through objects to different degrees

PART B: MATCHING

Place the example with the correct property

Properties of light	Example
1. ___ Rectilinear -Propagation: Light travels in a straight line.	A. Light in a light bulb. Light travelling through space from the sun and stars
2. ___ Reflection- Lights reflects.	B. Light passes through clear glass, frosted glass, sunglasses, or a book.
3. ___ Refraction - Light refracts .	C. Hand in front of a beam of light
4. ___ Dispersion- Light disperses.	D. Mirror in a beam of light
5. ___ Light travels in a vacuum.	E. Beam of light through a prism forms a rainbow
6. ___ Light travels to difference degrees through a material.	F. Pen/stick in a beaker of water