

Name \_\_\_\_\_ Date \_\_\_\_\_ Block \_\_\_\_\_

## Physics Emergency Lesson Plans

While reading pgs. 404-418 complete the following guided outline:

### Light

- I. Early Concepts of \_\_\_\_\_
  - a. Up until the time of Newton, most philosophers and scientists thought that light consisted of \_\_\_\_\_.
  - b. Empedocles and Christian Huygens thought light was a \_\_\_\_\_.
  - c. \_\_\_\_\_ theory became the accepted theory in the nineteenth century.
  - d. Einstein had a theory that light consists of massless bundles of concentrated electromagnetic energy, called \_\_\_\_\_.
- II. The Speed of Light
  - a. Olaus Roemer demonstrated that \_\_\_\_\_ travels at a \_\_\_\_\_ speed.
  - b. \_\_\_\_\_ was able to measure the speed of light in 1880.
  - c. The speed of light is \_\_\_\_\_ m/s.
  - d. The distance light travels in one year is called a \_\_\_\_\_.
- III. Electromagnetic Waves
  - a. Light is energy that is emitted by accelerating electric charges.
  - b. These waves of energy are called \_\_\_\_\_.
  - c. The range of electromagnetic waves is called the \_\_\_\_\_.
  - d. EM waves of frequencies lower than red are called \_\_\_\_\_.
  - e. \_\_\_\_\_ waves of frequencies higher than violet are called \_\_\_\_\_.
- IV. Light and Transparent Materials
  - a. Light is \_\_\_\_\_

- b. Glass and water are two materials that allow light to pass through. They are transparent.
- c. Incident light waves cause objects to \_\_\_\_\_.
- d. Light travels at \_\_\_\_\_ speed in different materials.

V. Opaque Materials

- a. Materials that absorb light without remission and thus allow no light through them are \_\_\_\_\_.
- b. Three examples of opaque materials are: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

VI. Shadows

- a. A shadow is formed where \_\_\_\_\_ can not \_\_\_\_\_.
- b. A total shadow is called an \_\_\_\_\_.
- c. A \_\_\_\_\_ shadow is called a penumbra.
- d. A solar eclipse occurs when \_\_\_\_\_.

VII. Polarization

- a. Polarization is caused because light waves are \_\_\_\_\_ and not \_\_\_\_\_.
  - b. Light will \_\_\_\_\_ pass through a pair of polarizing filters when their polarization axes are aligned.
  - c. Polarized sunglasses reduce glare because \_\_\_\_\_
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VIII. Polarized Light and 3-D Viewing

- a. Each eye give impressions from a different angle, giving you a \_\_\_\_\_ view.
- b. Polarizing filters can be used to simulate 3D in movies using \_\_\_\_\_ projectors, two polarized filters and special glasses.