Light Waves

Name: Class Period:

Date:

**Student Learning Objective**: Students will learn about light waves and how they work.

INSTRUCTIONS:

* You will be asked along the way to go to different sections in the book. Ultimately you will be reading pages 4-6, 28-40, and 49-51. All of the answers can be found in the reading. You will also be asked to use the glossary for information as well.
* Start reading on pages 28 and answer the questions below, using complete sentences.
* In your science journal you will want to keep a list of vocabulary words you think are important to know.

QUESTIONS:

1. Make a list of light sources.
2. What is a photon? Explain.
3. What does the word transparent mean? Give examples of things that are transparent.
4. After reading through the first paragraph what does the word media or medium refer to?
5. Describe how light travels.
6. What is a Ray?
7. What is the light sensing organ found in your body? Explain.
8. What is reflected light and how does it work?
9. How does reflected light help us to read this book?
10. What do you see when you look in a mirror? Explain how a mirror works with light.
11. Using the glossary in the back of the book, write down the definitions for the following words:

Angle of Incidence:

Angle of Reflection:

Incident Beam:

Reflected Beam:

1. Neatly draw the diagram on page 31 in your science journal. Be sure to label the diagram.
2. What must happen for you to see an object?
3. What happens when light reflects?
4. What kinds of surfaces reflect light?
5. What colors does the sun project through its light?
6. What is light? Explain.
7. How can we see a rainbow? Explain. (page 32)
8. Do electromagnetic waves require a medium? Explain.
9. How fast do electromagnetic waves travel?
10. Read pages 4-5 in the book. Using the small piece of graph paper that you have been given, draw the diagram on the very bottom of page 5. Be sure to label the diagram. Using the information given, write a short description for each of the parts of a wave in the diagram.
11. Now turn to page 6. Read the information. Add wavelength and amplitude to your diagram from page 5. Using the glossary in the back of the book, write a short description for each of these two new parts of the waves.
12. Cut out the electromagnetic spectrum illustration on the last page and glue it in your science journal.
13. Make a list of the types of light are represented on the electromagnetic spectrum? (pages 36-39)
14. Based on the electromagnetic spectrum what are long wavelengths associated with?
15. Based on the electromagnetic spectrum what are the short wavelengths associated with?
16. What wavelengths of light are visible? What wavelengths of light are invisible?
17. Based on the information and the graph on page 40, what range of colors are humans most sensitive to/best perceive?
18. What do color receptors do?
19. Do all animals and insects detect the same type of light? Explain by giving 2 examples.
20. How do light spectra help identify light sources?
21. Read the section, “Throw a Little Light on Sight” on pages 49-51. Based on what you have learned from reading about light, explain how we see colors.

