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Assessment Rubric

Energy

Student's Name: _____ Assignment: _____ Level: _____

	Level 1	Level 2	Level 3	Level 4
Understanding Concepts	Demonstrates a limited understanding of concepts. Requires teacher intervention.	Demonstrates a basic understanding of concepts. Requires little teacher intervention.	Demonstrates a good understanding of concepts. Requires no teacher intervention.	Demonstrates a thorough understanding of concepts. Requires no teacher intervention.
Analysis & Application of Key Concepts	Limited application and interpretation in activity responses	Basic application and interpretation in activity responses	Good application and interpretation in activity responses	Strong application and interpretation in activity responses
Creativity and Imagination	Limited creativity and imagination applied in projects and activities	Some creativity and imagination applied in projects and activities	Satisfactory level of creativity and imagination applied in projects and activities	Beyond expected creativity and imagination applied in projects and activities
Application of Own Interests	Limited application of own interests in independent or group environment	Basic application of own interests in independent or group environment	Good application of own interests in independent or group environment	Strong application of own interests in independent or group environment

STRENGTHS:

WEAKNESSES:

NEXT STEPS:

NAME: _____

What Is Energy?

Answer the questions in complete sentences.

3. Name two kinds of energy that travel in waves.

_____

_____

4. What gives something potential energy? What gives something kinetic energy?

_____

_____

Extension & Application

5.

a) All the words in the list below are either **matter** or **energy**. Use the chart on the next page to sort the words into types of matter and types of energy. Write the words for things made of matter in the box on the left. Write the words for types of energy in the box on the right.

light	**water**	**air**	**blood**	**sugar**	**sound**
electricity	**potential**	**kinetic**	**wood**	**horses**	

b) In one sentence tell what matter is.

_____

_____

c) In one sentence tell what energy is.

_____

_____

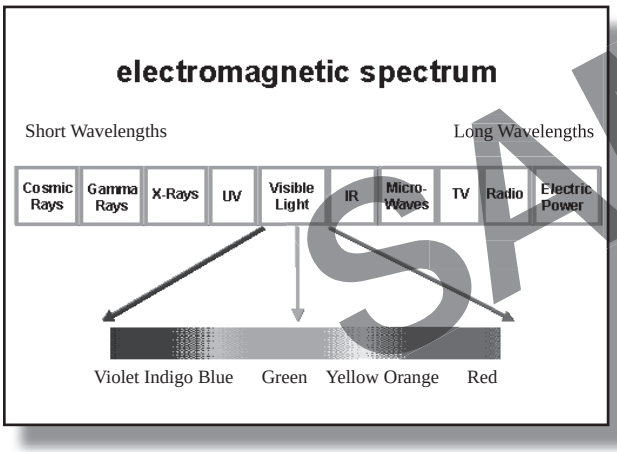
NAME: _____

Light Energy

Light energy also travels in the form of waves. Like the other kinds of waves you learned about, light waves have wavelengths, frequencies, and amplitudes. But there is one big difference between light waves and other waves; light can travel across completely empty space. Scientists call light **electromagnetic radiation**.

Light has many wavelengths, from very short to very long. All the wavelengths together are called the **electromagnetic spectrum**. The picture of the spectrum shows that we only see a small part of the spectrum. This part is called **visible light**.

Look at some of the other parts of the spectrum. **Ultraviolet** light has shorter wavelengths than visible light. These are the wavelengths that can burn our skin. **Infrared** light has longer wavelengths than visible light. These are heat waves. Some wavelengths are useful. At the long end are radio waves that carry radio and TV signals. **Microwave** radiation is used to cook food. **X-ray** radiation is used by doctors and dentists to look inside our bodies.



Light travels much faster than sound. That is why we see lightning before we hear the thunder. Light travels at a speed of 671 million miles per hour. Light travels 93 million miles from the sun to Earth in just 8 seconds.

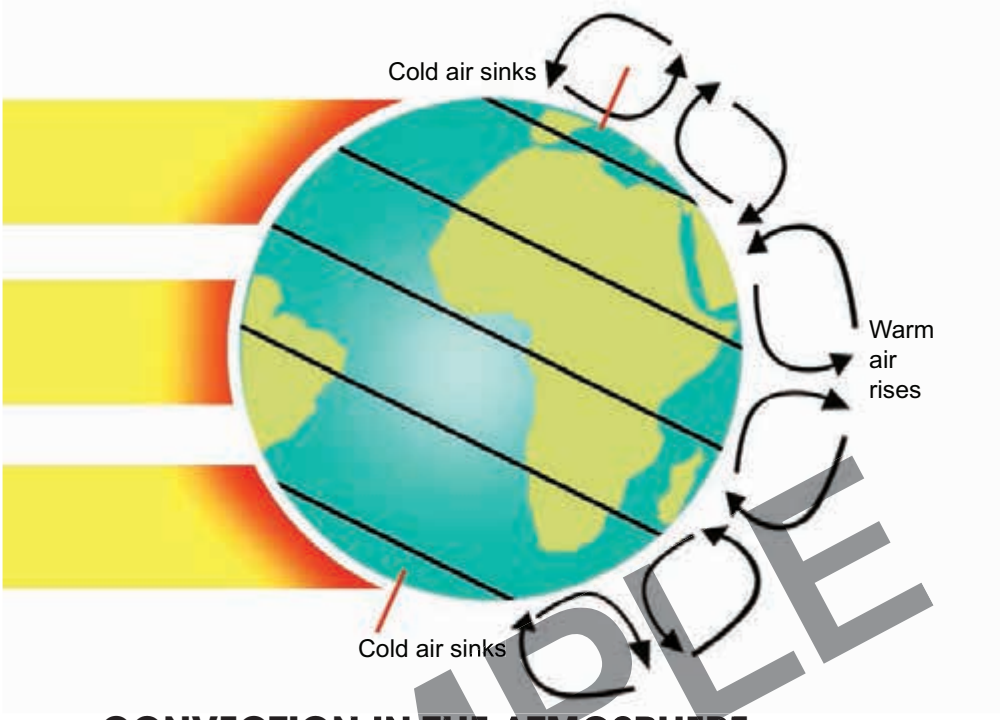
Several things can happen when light hits matter. If light passes straight through something, we say the material is **transparent**. Glass, air, and water are transparent.

A space ship is traveling through *empty space*. A person on the crew of the space ship sees a large meteor pass a few feet from the window. Why could the crew member see the meteor but not *hear* it?

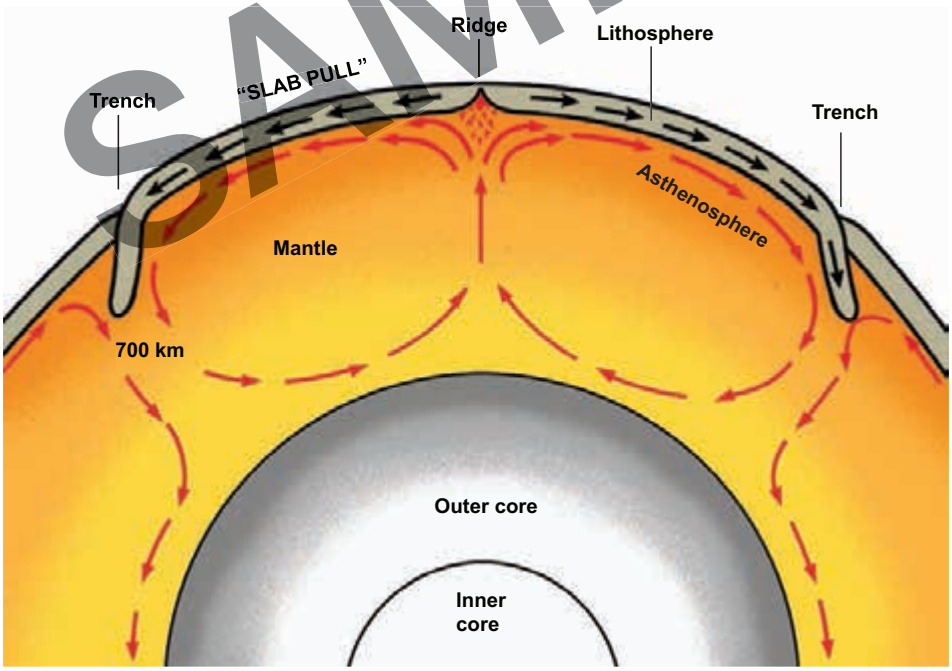
_____

_____

Convection Currents in the Atmosphere and in the Mantle



CONVECTION IN THE ATMOSPHERE



CONVECTION IN THE MANTLE