

Physical Science Unit (Part 2) Energy Review Sheet

****Test is Friday, April 12th****

5.6 (A) The student is expected to explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.

- Mechanical energy is energy of motion. Examples are is a person running or a car moving.
- Light energy is energy we can see that travels in waves. Our main source of light energy is the sun. A light bulb gives off light energy.
- Thermal energy is heat energy produced by the movement of molecules. The sun gives off heat energy and so do things like lamps and fires.
- Electrical energy is energy produced by moving electrons. Electricity can be transformed to lots of other types of energy and is used to power everyday things.
- Sound energy is energy we can hear that travels in waves caused by vibrations. Our voices and musical instruments make sound.
- Energy can be transformed or transferred from one form to another. For example the sun gives light energy to plants which make their own food and store it as chemical energy, then we eat the plants and use that energy to run around which is mechanical energy. Another example would be when we burn fossil fuels (energy originally from sun) to make electrical energy and then use that energy to heat our homes or turn on the tv or a radio.

Resources to help you study:

- Science Notes
- Brain POP Videos: Forms of Energy, Kinetic Energy, Electricity, Heat, Light, Sound

5.6 (B) The student is expected to demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and produce light, heat, and sound.

- Electricity is electrical energy created by the flow of electrons.
- Electric current is the flow of electrons through a circuit.
- An electric circuit is any path along which electrons can flow.
- For an electric circuit to work there must be a complete path for the electricity to flow on.
- Electricity can produce light, heat, sound, and motion as we saw when we built electric circuits.
- Everyday items around us such as lamps, tv's, computers, radios, fans, etc. transform electrical energy into light, heat, sound, and motion.

Resources to help you study:

- Brain POP Videos: Electricity, Current Electricity, Electric Circuits

5.6 (C) The student is expected to demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water.

- Light energy is energy we can see that travels in waves.
- Light travels in a straight line until it strikes an object.
- Light reflected or refracted when it strikes an object.
- Reflection is when light hits a surface and bounces off. A mirror, glass, or a shiny surface like a car or spoon can create reflection.
- Refraction is when light is bent as it travels through a substance. This happens as light travels from one material to another because the materials have different densities. An example is how a pencil looks bent in a cup of water. When the light travels from the air to the water, the light is bent, so it makes the pencil look bent. Another everyday object that uses refraction is lenses. Lenses are used in your eye, eyeglasses, contacts, magnifying glasses, microscopes, telescopes, projectors, and many more objects and work using refraction.

Resources to help you study:

- Textbook: Chapter 12 Lesson 3 pages 516-521
- Science Notebook: Notes, Light Stations
- Brain POP Videos: Light, Refraction and Diffraction

5.6 (D) The student is expected to design an experiment that tests the effect of force on an object.

- A force is any push or pull that causes an object to move, stop, or change direction.
- Magnetism, friction, and gravitation (or gravity) are forces that act on objects.
- Friction is a force that opposes, or acts against, motion when two surfaces rub against each other. A ball rolled on the floor will eventually stop due to friction. The brakes on a car slow the car down and eventually stop it due to friction.
- Gravitation is the force that pulls all objects in the universe toward each other.
- Tools that are often used in doing an experiment testing forces are a timer or stopwatch, a meter stick or measuring tape, and a spring scale. A spring scale measures the amount of force needed to move an object.

Resources to help you study:

- Science notes in notebook
- Brain POP Videos: Force

Additional Knowledge that Supports Objective 5.6 that may be TESTED

- Potential energy is stored energy. An example of potential energy is chemical energy.
- Kinetic energy is energy of motion. Mechanical, Light, Sound, Electrical, and Thermal Energy are all types of kinetic energy.
- An electromagnet is a magnet created by wrapping a wire around an iron bar and running an electric current through it.
- Light can also be absorbed when it hits an object. Most light is absorbed when it hits an object.
- All colors are absorbed except the colors you see- those are being reflected. So if you look at an object and see yellow then yellow light is being reflected back to your eye while all the other colors are being absorbed. So the colors of light objects reflect are the colors you see.