

"A Day At The....."

A Energy, Energy Transformation, and Heat Transfer Project

Project Due: Tuesday, February 14, 2017

Standard: S8P2. Students will be familiar with the forms and transformations of energy.

- b. Explain the relationship between potential and kinetic energy.
- c. Compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound) and their characteristics.
- d. Describe how heat can be transferred through matter by the collisions of atoms (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).

GOAL: Your task is to create a scene that depicts various types of energy, energy transformations, and heat transfer.

PRODUCTS: 1.) Poster Board or 3-D scene in a box
2.) Label descriptions or a Handwritten/typed paper explaining how each type of energy, energy transformation, and heat transfer was used in the scene.

DIRECTIONS: Your goal is to design a scene at a location of your choice such as the beach, a park, a lake, an amusement park, etc. In that scene you will use 4 different types of energy, all 3 types of heat transfer, and 3 different types of energy transformations. Each energy transformation must transform into 2 different types of energy.

For example, Radiant → Chemical → Mechanical.

Types of energy to choose from: Kinetic Energy (Radiant/light, Chemical, Electrical, Nuclear, Sound, Mechanical, Thermal).
Potential Energy (Gravitational, Elastic, and Chemical).

Heat Transfer: Conduction, Convection, and Radiation

FINAL PRODUCTS TO SUBMIT:

1.) **Poster board:** You may choose to draw the scene, or you may cut out individual pictures from a magazine (ask your parents for permission first), and/or cut out pictures from the internet. YOU MAY NOT SIMPLY PRINT AN ENTIRE SCENE OFF THE INTERNET OR PULL A PAGE OUT A MAGAZINE.

-OR-

2.) **Box:** You may use various objects to design a 3-D scene in either a shoebox or other type of box or container.

-AND-

3.) **Descriptions:** Each example used in your scene will need to have a brief description/explanation. You can either label and describe each example directly on the poster/in the box OR you can hand-write/type a paper explaining each example used in your scene. (Citations: Any picture borrowed from the internet or a magazine must have a cited source.)

EXAMPLE

DESCRIPTIONS

Types of Energy:

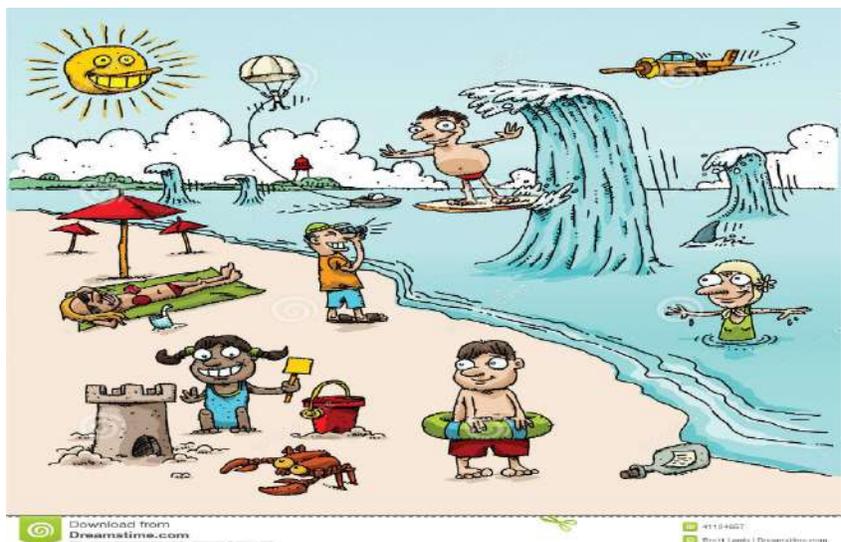
- 1.) Kinetic: The boy surfing
- 2.) Radiant: The sun's light. The lady using the umbrella to block the sun's light

Energy transformations:

- 1.) The airplane flying is Chemical (fuel) → Kinetic (flying) → Sound (people can hear the plane fly by)

Heat Transfer

- 1.) Radiation: The sun's thermal energy is warming the beach, this is indicated by people wearing bathing suits and swimming in the water.



Rubric

Student Name: _____

CATEGORY	4 (16.7 pts)	3 (14.2 pts)	2 (12 pts)	1 (9 pts)
Graphics - Relevance	All graphics are related to the topic and make it easier to understand. All borrowed graphics have a source citation.	All graphics are related to the topic and most make it easier to understand. All borrowed graphics have a source citation.	All graphics relate to the topic. Most borrowed graphics have a source citation.	Graphics do not relate to the topic OR several borrowed graphics do not have a source citation.
Types of Energy	The poster includes labels and descriptions of 4 different types of energy.	The poster includes labels and descriptions of 3 different types of energy.	The poster includes labels and descriptions of only 2 different types of energy.	The poster is missing labels and descriptions for all or most of the different types of energy.
Energy Transformations	The poster includes labels and descriptions of 3 different types of energy transformations and each transformation shows energy changing into 2 different types of energy.	The poster includes labels and descriptions of 2 different types of energy transformations and each transformation shows energy changing into 2 different types of energy.	The poster includes labels and descriptions of 1 or different types of energy transformations and each transformation shows energy changing into 1 or 2 different types of energy.	The poster is missing labels and descriptions for all or most of the required energy transformations.
Heat Transfer	The poster includes labels and descriptions of Conduction, Convection, and Radiation as well as additional information.	The poster includes labels and descriptions of only 2 types of heat transfer.	The poster includes labels and descriptions of only 1 type of heat transfer.	The poster is missing labels and descriptions for all types of heat transfer.
Grammar	There are no grammatical mistakes on the poster.	There is 1 grammatical mistake on the poster.	There are 2 grammatical mistakes on the poster.	There are more than 2 grammatical mistakes on the poster.
Attractiveness	The poster is exceptionally attractive in terms of design, layout, and neatness.	The poster is attractive in terms of design, layout and neatness.	The poster is acceptably attractive though it may be a bit messy.	The poster is distractingly messy or very poorly designed. It is not attractive.

Total Points: _____

Comments: _____