Useful Concepts

Positive Energy Interactions and Negative Energy Interactions

Positive and negative energy interactions are based on how energy is used by people. Positive energy interactions result in something good, such as having a fire to cook food and keep warm in the woods. Negative energy interactions result in something bad, such as having a fire in the house that is not controlled and ends up doing damage to the house. People can change their behavior and make good decisions on how to interact with energy so that their interactions are positive. Sometimes these interactions are out of our control, such as when lightning strikes a house and causes a fire. However, the energy interactions we have daily are important to our lives and often can have a positive effect if good decisions are made.

Energy Conversions and Using Energy

Energy can be converted from one form to another, which is important because it allows people to use energy in different ways. People use sound energy when they sing, light energy when they use a flashlight, and chemical energy when they eat food. Each form of energy is important in a different way, and the ability to convert one kind of energy into another allows us to do certain processes every day. Energy is neither created nor lost, and therefore can only be converted from one form of energy to another, or many others. Energy conversions are everywhere if you look carefully.

Energy Sources and their Environmental Impacts

There are many types of energy sources that exist currently, all of which generally fall under two categories; nonrenewable and renewable. The current energy problem that exists is that the demand for energy will one day exceed the supply, in particular when speaking about oil and oil products. Many people believe that no one energy source will take care of this dilemma and that a marriage of multiple sources will need to be made in order to meet demand. These energy sources all have various impacts; however one of the most important is that of the environment. Environmental impacts such as CO_2 emissions have played a major part in the past with pollution, illness, and general destruction of the environment. It's important to take all impacts into account so that we can make smart decisions when choosing energy sources.

Energy Choices for the Future

Energy choices both include those made on a bigger scale, such as whether to grant funding for hydrogen research, and those on a smaller scale, such as whether to use an LED light bulb in your home instead of a fluorescent. Energy choices for the future will change as new technology and alternative energies come into existence. Energy is a constantly evolving field and will need to be to address the issues that will come with an ever-increasing population, results of pollution and energy impacts.

Come Prepared

Before your visit, check out the Essential Questions section to see how the themes of the exhibition correlate with your classroom curriculum. Determine what you would like your students to learn from the Energize It! Exhibition.

This guide includes various activities for before your visit, during your visit, and back in the classroom, along with an array of student worksheets for grade levels K-2, 3-5, 6-8, and 9-12. These activities are designed to be used together to create a lesson plan focusing on one or two specific themes or ideas.

Visit rmsc.org/ForTeachers/Museum/Exhibits/ for:

- Information on field trips, reservations, lunchrooms, and other useful tips to help plan your visit
- Free resources, including activities and references

Correlation to Standards

New York State Core Curriculum

Elementary

The Physical Setting: Energy exists in various forms; heat, electric, sound, chemical, mechanical, light; Interactions with forms of energy can be either helpful or harmful; Humans utilize interactions between matter and energy.

Intermediate

The Physical Setting: Energy can be transferred from one place to another; Everyday events involve one form of energy being changed to another; Fossil fuels contain stored solar energy and are considered nonrenewable resources. They are a major source of energy in the United States. Solar energy, wind, moving water, and biomass are some examples of nonrenewable energy resources; Most activities in everyday life involve one form of energy being transformed into another.

High School (Commencement)

Undetermined