

Name of Demonstration: Combustion

Description of Demonstration: Fire! It has fascinated human-kind for all of history. Whether seen as a life-giving tool or death-dealing disaster, its power is a force we can all relate to. In this demonstration clouds of fire flash into the air, metals burn and balloons explode. All of these phenomena and more are woven into a discussion of the basic nature of a chemical reaction using combustion as an example. Ages 9 and up.

MN SCIENCE Grad Stand/Strand/Sub-strand: Number####:

2P 1.2.1.1, 2P. 3.1.1.1,

5P 2.1.1.1,

8P 1.1.1.1, Periodic table and chemical reactions, 8P 1.2.1.1, 8P. 2.1.1.1, 8P 3.2.1.1, 8P 4.1.1.2

9C. 3.2.1.1

Grade Level(s): 2nd through 9th Grades.

Content Area(s): Physical Science, Earth and Space Science

Learning Target(s):

1. I can explain that energy can be transferred from place to place by sound, light, heat and electric current.
2. I can measure, show, and explain that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved (does not change).
3. I can explain scientific ideas showing how to convert energy from one form to another form.
4. I can explain, and describe additional experiments that show the effects of temperature on a substance.
5. I can analyze the effects on the properties of substances before and after interactions to determine if a chemical reaction has occurred.

Essential Question(s):

1. Can energy be transferred from place to place by sound, light, heat, and electric current? How does sound, light, heat and/or electricity transfer energy from place and place?
2. When heat, cold (cool), or mixing occurs, what happens with the total weight of the matter?
3. How can energy be converted from one form to another?
4. What effect does the transfer of energy have on the temperature of a substance? What effect does the mass of an object have on the temperature of a substance? What effect does the type of matter have on the temperature of a substance?
5. How do chemical reactions affect the properties of substances?

Key Vocabulary: Fire, Combustion, Chemical Reaction, Atoms, Molecules, Substance, Oxygen, Fuels, Endothermic, Exothermic, Energy, Capillary Action, Convection, Solid, Liquid, Gas, Heat, Flammable.

Prerequisite Terms: Analyze, Convert, Current, Describe, Effects, Electricity, Experiment, Explain, Force, Interactions, Matter, Measure, Mixing, Properties, Temperature, Transfer