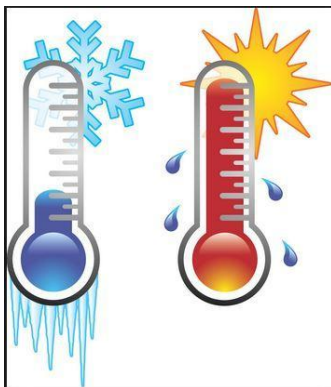


Endothermic and Exothermic



Theme: Chemical Reactions

Curriculum Area: Physical Science

Activity: An Endothermic reaction will take more energy to break the bonds relationship and then the energy will be released when the bonds are formed. An Exothermic reaction will have more energy released when the bonds are formed than to break them. Students will create two chemical reactions using the materials below. One of the bags will have the temperature go down (Endothermic) and the second one will go up (Exothermic). The students will try to figure out which one is Endothermic and Exothermic.

Age of Children: Grade 5-6

Materials Needed:

<u>Things we need</u>
Epsom Salt
Washing soda
Water
2 zipper bags
Measuring spoons (1 tablespoon)

Developmental Objectives/Domains:

By participating in this activity, children will:

1. See if two different substances will react.
2. Tell the difference, if the temperature of the mixture in one bag drops then the reaction is endothermic; if the temperature of the mixture in the other bag rises then the reaction is exothermic.
3. Understand that chemical reaction breaks the bond in the reactants.
4. Comprehend it will take energy to break the bonds relationship and that it takes energy to create bonds.

Directions

1. Add a tablespoon of Epsom salt in one of the zipper bags
2. Add a tablespoon of washing soda in the other zipper bag
3. Grab your water and add 2 tablespoons of water in the Epsom salt bag, close it, mix, and feel the bag's temperature
4. Add 2 tablespoons of water in the washing soda bag, close it, mix, and feel the bag's temperature.

MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.* [Clarification Statement: Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical reactions such as dissolving ammonium nitrate in water]

References: <https://people.southwestern.edu/~kamenm/auburn/su8mcnab.html>

Video: <https://youtu.be/HLo3gw15-WA>