

# SECOND GRADE NOVEMBER CAUSES OF CHANGE

TOTAL TIME: 60 Minutes

STATION 1: WHAT CAUSES CHANGE IN OUR PHYSICAL WORLD?

STATION 2: HOW DO YOU CLEAN A PENNY?

STATION 3: HOW TO BUILD A BAKING SODA VOLCANO

## Materials for Station 1:

- Book: Global Warming

## Material for Station 2:

- Ca.  $\frac{1}{2}$  cup of Vinegar per glass
- 4 glass jar (to be used in pairs or in small groups)
- dirty pennies (at least one per child)
- 4 spoons of salt per glass
- paper towels
- Other dirty coins if desired

## Materials for Station 3:

- A plastic cup per child.
- A plastic spoon per child. Please rinse them, dry them with paper towels and put them back in the box when finished.
- 2 big measuring cups. These are only there to help you get water or pour the vinegar into the bottle.
- 6 spoons of flour per child
- 2 spoons of salt per child
- 1 spoon of cooking oil per child
- 4 spoons of warm water per child. Put the water in one of the measuring cups. This way you can walk beside the child and take the spoons of water out of the measuring cup. Or you can use the baster to help you instead of a spoon.
- Plastic water bottle.
- dishwashing detergent
- food coloring
- vinegar
- Purple Bowl to do the experiment. This will catch the water.
- 2 T baking soda
- Paper Towels to clean desks and dry the materials used.

STATION 1  
WHAT CAUSES CHANGE IN OUR PHYSICAL WORLD?

Material:

- Book: Global Warming

Activity:

Explain that the place where we live is constantly changing.

- Change is everywhere.
- Change relates to time.
- Change can be natural or manmade.
- Change may be random or predictable

Ask them if they have noticed some changes. New stores have might have opened or a tree might have fallen. They might remember the changes that a storm have caused in some of our surroundings.

Ask the children what they think might have caused the changes (weather, plants, animals, people, other)

Explain that there are two different causes of changes. The natural changes and changes caused by man.

Read the book about *Global Warming*. This book explains that the earth is having natural changes caused by hurricanes, etc; and changes caused by man.

## STATION 2

### HOW DO YOU CLEAN A PENNY?

#### Materials:

- Ca.  $\frac{1}{2}$  cup of Vinegar per glass
- 4 glass jar (to be used in small groups)
- dirty pennies (at least one per child)
- 4 spoons of salt per glass
- paper towels
- Other dirty coins if desired

Explain to the children that a penny used to be new and clean. After being used for a long period of time it gets dirty. It also suffered a change.

The following activity will help them see how chemicals react and help clean a penny.

#### Activity:

- Pour vinegar into each jar until it is about half full.
- Pour and stir in salt into each jar until it dissolves.
- Drop several dirty pennies into the vinegar. (A penny per child)
- After a few minutes, take out half of the pennies and lay them on a paper towel to dry.
- Remove the other pennies and rinse them with water before letting them dry.
- Note the differences between the two groups of pennies after they have been out of the vinegar/salt solution for a while.

What is happening: The vinegar/salt solution is able to loosen the residue on the pennies, which is called copper oxide. With this residue removed, the pennies are shiny once more. When you rinse them off, the cleaning stops and they remain shiny. The unrinsed pennies still have some of the solution on them, and when oxygen in the air hits them, a new reaction occurs, turning the pennies a bluish-green color.

Clean those pennies again and rinse them with water.

Let the children keep their lucky penny.

You can try the experiment with nickels, dimes, or quarters. Do you get the same results?

STATION 3  
HOW TO BUILD A BAKING SODA VOLCANO

DO NOT THROW SPOONS . WE WILL RE-USE THEM

Materials :

- A plastic cup per child.
- A plastic spoon per child. Please rinse them, dry them with paper towels and put them back in the box when finished.
- 2 Big measuring cups. These will help you get water, measure the vinegar and pour the liquids into the bottle.
- 6 spoons of flour per child
- 2 spoons of salt per child
- 1 spoon of cooking oil per child
- 4 spoons of warm water per child. Put the water in one of the measuring cups. This way you can walk beside the child and take the spoons of water out of the measuring cup or use the baster to help you
- Plastic soda bottle. Please rinse this and dry it with paper towels and put it back in the box when finished.
- dishwashing detergent
- red food coloring
- 50 ml or  $\frac{1}{4}$  cup vinegar
- Purple Bowl to do the experiment. This will catch the water.
- 2 T baking soda
- Paper towels to clean desks and dry materials used.



## Activity:

1. First you will make the 'cone' of the baking soda volcano.  
All the kids will participate in creating the dough that will be used as the 'cone' and at the same time, they will see some properties of the materials and how these cause change.
  - Give each child a plastic container and a plastic spoon.
  - Poor 6 spoons of water inside each child's container.
  - Poor 1 spoon of oil inside each child's container and observe that the water and the oil do not mix.
  - Then poor a few drops of food coloring and observe how it does not mix with the oil.
  - Poor 2 spoons of salt inside each container and let the children stir their containers. They will observe that the water is getting some consistence. Can you still see the oil?
  - Then poor 6 spoons of flour in each container and let the children stir their containers. The resulting mixture should be smooth and firm (one more spoon of water or one more spoon of flour may be added if needed).
  - Once the dough is firm let the children take out the dough of the container and form it with the hands.
  - If you are having stations. Keep the dough in the purple plastic bowl until everybody in the class has done this activity and let the Volcano erupt at the end of the class.
2. Fill the bottle with warm water (leave one inch before getting it full) and a bit of red food color (can be done before sculpting if you don't take so long that the water gets cold).
3. Add 6 drops of detergent to the bottle contents.
4. Add 2 tablespoons baking soda to the liquid.
5. Stand the soda bottle in the purple plastic bowl and use the dough created to mold a volcano shape around it. Don't cover the hole or drop dough into it.
6. Slowly pour vinegar into the bottle. You can use the measuring cup and the funnel to help yourself. Use only  $\frac{1}{4}$  cup or 50ml of vinegar.  
Watch out - eruption time!