greener

EXPERIMENTS FEBRUARY 11th

University of Burgos

VOLCANO EXPERIMENT

Materials:

- Clay
- Play dough
- Funnel
- 2 Empty plastic bottles
- Vinegar
- Food coloring
- Sodium bicarbonate
- Liquid detergent
- 1 Spoon
- 1 Knife

Procedure:

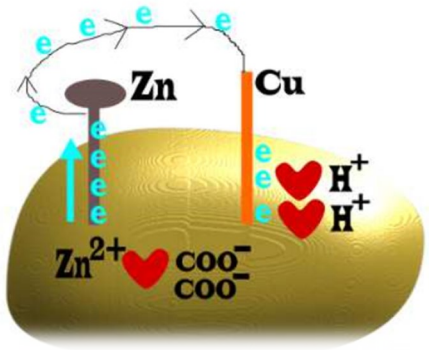
1. Volcano: Made the volcano with clay and play dough covering one of the empty plastic bottles. This bottle will be the container where the reagents will be mixed.
2. In the other empty bottle, add the following: sodium bicarbonate, liquid detergent and food coloring.
3. Mix the components added in step 2.
4. Using a funnel, add this mixture in the volcano.
5. Finally, pour vinegar into the volcano until it begins to erupt.

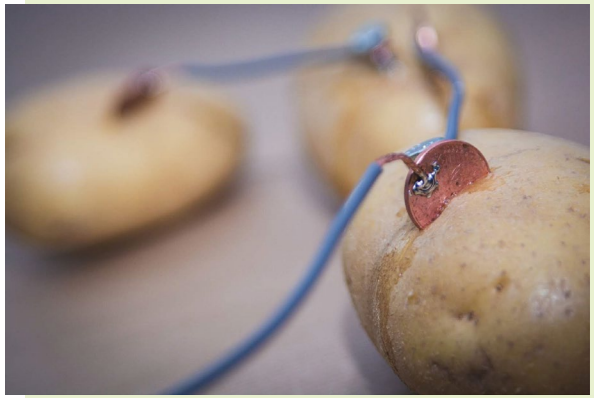
$$NaHCO_3\ (s) + CH_3COOH\ (l) \rightarrow CO_2\ (g) + H_2O\ (l) + Na^+\ (aq) + CH_3COO^-\ (aq)$$

Explanation:

When vinegar (acetic acid) is mixed with sodium bicarbonate (base), a reaction is generated to produce CO_2 (gas). This gas generates a lot of bubbles simulating lava.

POTATO EXPERIMENT





Materials:

- 9 Potatoes
- Screws (zinc plated)
- Copper wire
- Scissors
- Coins (copper)
- LED

Procedure:

1. Place the potatoes in a circle.
2. Strip the wire terminations.
3. Insert one coin and one screw into each potato.
4. Then, the potatoes will be connected in series: wrap one of the ends of each wire around the top the screw in one of the potatoes. Then, place the other end wire on the coin of other potato. Repeat this process to connect the potatoes in serie excep for the last two termination cables.
5. Connect the last termination wires with a led. The led will be iluminated.

Explanation:

On the one hand, the potato contains different acids dissolved in water such as citric acid, which acts as an electrolytic medium that allows electrical conductivity. On the other hand, the coin and the screw act as electrodes. An electrochemical reaction is produced generating electricity that will be enough to illuminate the LED.

DYEING A FLOWER

Materials:

- White flowers
- Food colouring
- Bottel
- Scissors

Procedure:

1. Mix the water and food coloring in bottle.
2. Cut the flower stems.
3. Place the flower in the bottle
4. Observe the flower color during the during the next 7 days.

Explanation:

The flowers absorb the water and the colorant through capillarity and perspiration, which will cause the color change of the petals.

This example allows us to see the effect of pollutants on plants and therefore on the environment and food and the effect on human health.

M&M'S RAINBOW EXPERIMENT

Materials:

- M&M's
- Water
- Transparent container

Procedure:

1. Place the M&M's on the sides of a container. It is necessary to put M&M's of the different colors together.
2. Add a glass of water.
3. After a couple of minutes, see the diffusion effect.

Explanation:

The sugar and the colorant from the M&M's will be dissolved in the water generating different and different colored sections (diffusion).

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