NEVADA CLIMATE CHANGE PORTAL

Composting Experiment

Grade: 8th
Objective:
The purpose of this activity is to educate students on the process of composting the various chemical balances associated with a composting bin.

Key Terms:
Composting
Biodegradation
Recycling
Bacteria

Materials:

- piece of fruit with a seed or a peel (banana, apple, peach, orange)
- 1/2 cup of green leaves and grass cuttings
- 1/2 cup of brown leaves or straw
- 2 cups of soil
- 1 cup of newspaper or paper towels torn into small pieces, approx. 1 in. wide or less
- 1 re-useable container with top (plastic soda bottle or clear plastic container
- A permanent marker
- Scissors
- Tape
- Spoon
- Water spray bottle
- 1 thermometer

Introduction:
Landfills generate potent greenhouse gases as waste decomposes. Composting can decompose the same waste without generating methane, a potent greenhouse gas. In this lesson, students investigate the breakdown of waste in a landfill and in a compost pile, calculate the greenhouse gas emissions from each process, and compare the relative impacts on climate change.

Procedure:

1. If you are using a plastic soda bottle, measure about 7 inches from the bottom of the bottle and mark with the permanent marker. Draw a line around the bottle at the 7 in. level. Use scissors to cut around this line. Do not cut all the way around! Leave about 1 - 1 1/2 inches to serv as a hinge for a flip lid.

2. Open the flip lid of the container and add the ingredients in the following order:

- 1cm of soil
- Fruit scraps from the student's eaten fruit
- 1cm of soil
- Green grass/leaves
- Brown leaves/straw
- 1cm of soil
- Torn up newspaper
- Fruit scraps
- 1cm of soil

3. Once the layers have been added, give the surface a quick spray of water. This can be done throughout the experiment as the surface becomes dry over time.

4. Insert the thermometer into each container so that the temperature can be read.

5. Seal the bottle or place the lid on and tape it so it is secure. Draw small lines on the side of the container with a marker to mark the layers of the bottle. Make a note of the initial temperature inside the bottle.

6. Over the next 3 weeks monitor the bottle. Keep daily records of the temperature and changes inside the bottle. You may even start to grow types of mold and bacteria. Be sure to make notes about changes that you see, smell, etc. After 3 weeks use the compost you created as soil for aclassroom plant or in your school garden, or in your backyard at home.