



Character Education Science FCAT Warm-Up



Kindness

Middle School—December, 2007

Dear Teachers:

Kindness is a trait that should be promoted throughout the year, but is especially important during the holiday season. There are numerous ways in which we can express **kindness** to friends, neighbors, and the community. It is also important to remember that our roles include being **kind** to the environment in which we live.

Sunshine State Standards: SC.G.2.3.4

Activity 1: Write an essay on being kind to the environment

Ask students to go to the school media center or local library to research information on things they can do to show respect and be kind to the environment. Pose questions such as: if you were an elected official, senator or legislator, which policies or changes would you recommend to protect the environment? Which of the current environmental policies would you change? What new local or federal environmental laws would you add?

Activity 2: Florida Native Plants Exercise

Check with the principal before starting this activity. If needed, hold a fundraiser to collect money to purchase Florida Native Plants for a garden at your school. A suggested environmentally-friendly fundraiser is collecting aluminum cans for recycling. Have the students research where to bring the cans in order to earn the money. Have the students research the approved planting areas to determine the amount of light plants would receive, the moisture, and the quality of the soil. Have the students research native Florida plants and make a list of the ones that can be planted at the chosen location at the school. Finalize the choices for the garden and create your Florida native plant garden. If you cannot plant a garden on school grounds, then create a virtual Florida native plant garden using either computer graphics or arts and crafts.

Have each student perform similar research for their home. Have them report on what their yard conditions are like, and have them determine which plants would be suitable for their yards. If students don't have yards, have them research which plants would survive in container garden. Have the students report on why native plants are better suited to survive Florida weather and soil conditions.

Sources: www.broward.org/naturescape
www.fnps.org
www.nwf.org/backyardwildlifehabitat/nativeplantguide.cfm
Easy Gardens for South Florida by Pamela Crawford
Florida Gardener's Guide by Tom MacCubbin
Wild Things: The Return of Native Plants by Georgia Tasker



FCAT Warm-up Question

What statement BEST expresses the main idea of Activity 2?

- A. Exotic plants are often full of flowers and great to plant in containers.
- B. Population growth has a large effect on our air quality.
- C. Native plants are important to the environment.
- D. Weather is an important factor in determining what trees to plant.
- E. Collecting aluminum cans helps our native plant species.

Answer Key: 1.C

Activity 3: Glass Recycling for the Holidays and Everyday Life

Sunshine State Standards: SC.D.2.4.1,
SC.B.1.4.2, SC.G.2.4.6

Given the overcrowding of our landfills and the impact they have on the environment, fewer landfills are being built. Communities across the country are reacting to this by developing and encouraging the use of recycling programs. The goal is to preserve our natural resources and save precious space in our landfills.

Jars, bottles, and other containers are some of the everyday objects made from glass that can be recycled. Not all glass is recyclable. Glass found in light bulbs and cookware is made by incorporating ceramics with the glass. This type of glass is not recyclable because doing so would introduce impurities into the recycling process.

Once the glass is picked up by a recycling truck, it is separated by color. Amber and green glass is made by adding a coloring agent during the original glass-manufacturing process; this color cannot be removed. Therefore, brown bottles can only make other brown bottles.

When the glass is taken to a manufacturing or recycling plant, it is broken up into smaller pieces called cullet. The broken pieces are crushed, sorted, cleaned, and prepared to be mixed with other raw materials in the glass-making process. The cost savings of recycling is in the use of energy. When glass is made from scratch, high temperatures are needed to melt and combine all the ingredients. Since cullet melts at a lower temperature, the more of it you add to a batch of raw materials, the less energy you will need for melting.

Recycling glass is not only cost-efficient; it benefits the environment in several ways. Glass produced from recycled glass instead of raw materials reduces related air pollution by 20 percent and related water pollution by 50 percent. Throwaway bottles consume three times as much energy as reusable or returnable containers. Additionally, recycling glass reduces the space in landfills that would otherwise be taken up by used bottles and jars.

Only 10 to 12 percent of the glass used in the United States is recycled. Much of the glass used is not recycled. According to the Earthworks Group, about 28 billion bottles and jars are thrown away every year!

Activity:

You will find out how the volume of a container can be measured. Using your calculations, you will see the significance of compaction as it relates to landfills.

Materials

Glass and plastic drink containers (with tops or lids) of various volumes, shapes, and sizes

Large pail

Pan or tray

Water

Graduated cylinders (250 ml or larger)

Sand

Tape measure

Calculators (optional)

1. Divide your students into three groups. Each group will have the task of figuring out how to get the most containers into a two-foot square area (your "landfill").
2. Have each group select one type of container to test.
3. Each group can use any method to find out how much volume the container has, i.e., how much space the container would take up in a landfill. Using the materials provided, have the students calculate the volume of the containers and record their findings on a data sheet. (Some ideas for calculating volume include immersing the container into a bucket of water and measuring the "overflow"; filling the container with sand and measuring that amount; or using a measuring tape and calculating the container's dimensions).
4. Next, have each group compact a plastic container to its smallest form and repeat step 3.

Questions

1. Which type of container had the least volume for a given size? The greatest?
2. Which compacted container had the greatest volume? The least?

Classroom Ideas & Activities

- A. Develop a glass-recycling project for your classroom, school, or home. Discuss what procedures need to be established, what products you want to recycle, how they will be collected and recycled, and how the project will be organized. Determine what your community already does for recycling. Start a new community project or add to the existing one.
- B. Track for one week the type of glass you throw away or put into the recycling bin. Track the total number of pieces and the color of the glass. Develop a chart to record this information. Learn how to calculate the percentage of brown, green, and clear glass that you throw away. Expand this activity by counting other garbage you throw away or recycle.

Source: Newton's Apple: www.reachoutmichigan.org/funexperiments/agesubject/lessons/newton/GlssRecycl.html