

Lesson 3: Garbage Pizza: a No-Waste Take on the Original

Grade Level:

3-6

Concepts Taught:

conservation of resources, human impact on natural resources, reading circle graphs

Activity Time(s):

1-hour (prep),
20-30 minutes (lesson)

Essential Questions:

- What is a waste stream?
- What is municipal solid waste?
- What is the percentage of items we throw away in Wake County?

NC CORE/Essential Standards:

Grade 3: ELA: Speaking/Listening 1; Math 3.NBT.1, 3.NF.3 ; Soc Std 3.G.1.2, 3.G.1.3; Science 3.L.2.4

Grade 4: ELA: Speaking/Listening 1; Math 4.NBT.4; Soc Std 4.G.1.2, 4.G.1.3; Science 4.L.1.3

Grade 5: Soc Std 5.G.1.2

Grade 6: Soc Std 6.G.1.2, 6.G.1.3, 6.G.1.4, 6.G.2.1, 6.E.1.2



Objectives:

- Students will identify common components of a Municipal Solid Waste Stream.
- Students will predict proportions/percentages for each component of the United States' MSW stream.
- Students will extrapolate similarities and differences between the waste stream of the United States and other geographic locations.

Materials:

Steel-coated pizza pan (any size) or cardboard circle markers, construction paper
protractor
magnets with adhesive backing
small items such as bottle caps, paper clips, play food, etc. for garbage categories (paper, yard waste, plastic, metal, wood, food waste, glass, rubber, leather, & textiles and other)

Pizza Pan Set-up:

1. Using the pizza pan as a guide, cut out brown construction paper within about 1" of the edge of the pan. Attach to pan using tape or glue. This is the "crust."
2. Using markers, color in "pizza sauce" on the construction paper.
3. With a marker and protractor, draw in the sections of the circle graph to match those on page 41. Within each section, write the corresponding number percentage value.
4. Place adhesive magnets or Velcro on the underside of small sample "trash" items to represent the categories of the waste stream:

Paper: sticky notes, newspaper pieces, shredded paper

Yard waste: potpourri, foam leaves and trees (available at craft stores)

Plastic: bottle lids, miniature toys, drink bottle labels

Metal: paper clips, brads, nuts and bolts, aluminum can pull tabs

Starve the Landfill

Wood: popsicle sticks, toothpicks

Food Waste: play food items, foam cutouts of food (DO NOT use real food)

Glass: sea glass

Rubber, Leather, and Textiles: cloth scraps, shoelaces, rubber bands

Other: scraps

Lesson:

1. Review the term Municipal Solid Waste (MSW). Explain that MSW makes up part of our waste stream, which is the waste material output of a community. MSW is made up of paper, plastics, metals, wood, food waste, glass, and other materials that are sent to landfills.
2. As a class, brainstorm items that people throw away and write them on the board.
3. Using the categories in the list above, categorize the brainstormed items.
4. Show the students the pre-made pizza pan. Divide students into 9 small groups. Assign each group one of the categories above and give them all the sample items from that category with magnets.
5. Explain that the pizza will be passed around the room and each group will place ALL of their trash items onto ONE section of the pizza. Students may NOT change another group's placement of their items. The pizza and its sections represent the types of trash that were disposed of in the U.S. in 2008 (EPA data).
6. After the pizza has made its way around the room, show the answers by writing the percentages next to the categories on the board. Discuss whether their pizza was accurate or not.
7. Ask if students think the graph of waste streams from other geographic areas will look similar or different to the United States' waste stream. Other locations that do not have curbside recycling services may have an increased amount of plastic, paper, glass, and metal thrown away. Also, the construction and demolition debris section would probably be bigger in an area that has recently experienced a natural disaster or is rapidly growing.

Extensions:

Explain to students that in North Carolina, it is illegal to landfill yard waste. What are some ways that we dispose of yard waste (composting, mulching, etc). How might the graph look different for North Carolina?

What do you think happens to materials from construction sites? (it goes to a C&D—construction and demolition debris landfill)

Garbage Pizza: Waste Stream for USA, 2008

