



Title: What's Next?

Grades: 4

Subjects: Science, Language Arts

Time: 45 minutes

Objectives

- Identify and describe how an individual's action in regards to energy efficiency is a form of waste management and can affect change and improve the environment.

Standards

Technology Standard 3: Understand the relationship among science, technology, society and the individual.

- Benchmark # 1: Know that technologies often have costs as well as benefits (e.g., as new technologies are developed, man's need for energy increases, resources are used and more pollution/waste is created) and this can have an enormous effect on people and other living things.
- Benchmark # 4: Know that new inventions reflect people's needs and wants, and when these change, technology changes to reflect the new needs and wants (e.g., upgrades to new energy using devices require more and more energy usage).
- Benchmark # 5: Understand that technology may affect the environment both negatively and positively (e.g., newer energy star rated products replace older, less efficient products, but the older products enter the waste stream).

Language Arts Standard 7: Use reading skills and strategies to understand and interpret a variety of informational text.

- Benchmark # 6: Use prior knowledge and experience to understand and respond to new information.

Language Arts Standard 8: Use listening and speaking strategies for different purposes.

- Benchmark # 3: Respond to questions and comments (e.g., gives reasons in support of opinions).
Benchmark # 5: Use strategies to convey a clear main point when speaking (e.g., express ideas in a logical manner, use specific vocabulary to present information).

Materials

- Average House Poster provided
- "Chatty" Poster provided
- Sale Papers from stores that sell appliances
- Scissors and glue
- Poster marker

Overview: Demand for energy has increased considerably in the past hundred years. Energy is used to power our electrical devices, to heat our homes and businesses and to fuel most forms of transportation. In using energy we consume valuable natural resources and create waste products that have an affect on the environment. Since it is highly unlikely the need for energy will decrease in the future, it is vitally important that we learn to use energy wisely, reducing not only the amount we consume, but also the amount of solid waste we create from its consumption.

While energy conservation is an important concept for students to understand, energy efficiency is also a factor that needs to be addressed. Energy efficiency is the use of technology that requires less energy to perform the same function. Many newer products are energy star rated. This means the products have been certified to be energy efficient by today's standards.



Kid's Speak: We use more and more energy each and every day. We use it to make electricity, heat and fuel. It powers our laptops and TVs, gives us hot water and warm, comfy spaces, and helps transport us from place to place. It is very important that we learn not to waste the energy we use in our everyday lives, and to use it in an efficient manner.

Eco-Fact: Every year 100 million cell phones become obsolete. In 2007 only ten percent of cell phones were recycled. It is estimated that seventy-five percent of all obsolete phones are kept in drawers in households around the country.

Procedures:

Before Conducting the Lesson:

- Use the sale papers to cut out pictures of new energy star products that can replace the items shown in the Average Home poster. You will only need one picture per item, and you do not need a picture for every item.
- Show the students the poster of the average house. While discussing the home, circle every item in each room that uses electricity. Create a list of all the items.
- Explain to students that Americans use a lot of technology in their daily lives, and the interesting thing about technology is that it is always improving. Newer, better versions of existing products are constantly being developed. Many of these new products are energy star rated, which means they are more energy efficient, using less energy to do more than the existing products.
- As you explain this to the students glue pictures of new energy star rated products over the existing items in the poster. Then tell the students that the question for today is: What do we do with our old electrical appliances and devices when we replace them with newer, more efficient ones? Help the students understand that very often devices aren't replaced because they no longer work, but rather because newer technology has come out to replace the older technology. For example every year millions of people get new cell phones, not because their old phones no longer function, but because there are newer phones with more appealing features.

Conducting the Lesson:

- Post the poster of Chatty for students to see. Chatty is an average girl, who lives in an average house, in an average community in America.
- Present the following scenario to the class: Chatty loves to talk, tweet, text and basically just keep in touch with her friends. Chatty loves her phone. Actually, Chatty has loved all her phones. She has had a lot of them. Every time there is a new upgrade Chatty gets the newest cell phone. Chatty's bedroom drawer is beginning to look like a cell phone dumping ground.
- Ask students what they think Chatty should do with all her phones? Record their responses.
- Post this slogan up on the board:
 - Recycle it! Donate it! Return it! Reuse it! BUT Don't Waste It!
- Discuss with students what they think each of the options mean. Provide students with the following input:
 - Recycle it: Both cell phone and chargers can be recycled. When they are recycled some are refurbished and others are broken down into their raw parts.
 - Donate It: Many organizations collect cell phones to give to people in need.
 - Return It: Many stores that sell phones will take your unused phone and dispose of it safely for you.
 - Reuse It: Pass the cell phone on to someone who else, sell the phone or trade it for something else.



- Don't waste it: Most technology contains hazardous materials, which can leach out of landfills and pollute water and soil, making them toxic (e.g., most cell phone coatings are made with lead).

After Conducting the Lesson:

- Have the students share what they would do if they were Chatty. Would they donate, recycle, return or reuse their old cell phones? Why?
- Have students take an inventory of their own home to find out if any unused cell phones are stored in draws, boxes, shelves, etc. Keep a tally. Discuss what they could do to resolve this situation.

Extensions:

- Have students locate recycling centers, organizations that accept donations of cell phones, etc in their community and create a pamphlet to inform the public of the options that exist. Make copies of the pamphlets and place them in areas where they can be seen.
- Have students research how to recycle, donate, dispose or reuse other items such as TV's, refrigerators, computers, printers, MP3 players ...