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Activity One

Sustainability Slideshow

You learned that **NONRENEWABLE** resources are limited. Once they are used up, they will not be replaced for millions of years. **RENEWABLE** resources are replaced more quickly by Earth processes. However, they can become unavailable if they are used too fast or if they become polluted. In this activity, you will create a slideshow to teach people how to use resources sustainably.

1. Make a list of **eight to ten resources** that most people use in everyday life. For each resource, answer the question, "What can people do now to make sure this resource is available to our great-grandchildren?"
2. Come up with **three to five action steps** that people can do to conserve each resource on your list. Remember that conservation is about saving resources, and about protecting them from pollution.
3. Using a slide show computer program, **create a slide for each resource**. Each slide should contain the following:

- A title (usually the name of the resource)
- Three to five points with the action steps for conserving the resource
- A photograph or visual image representing either the resource or one of the action steps

The slideshow should also contain:

- An opening slide, with an introduction that draws people in and tells them why it is important to learn more about sustainability
- A closing slide, with a summary

4. Be sure that each slide is clear and easy to read. **Write a short script** for yourself, so that you will know what to say for each slide during the slideshow presentation.
5. Give the slideshow presentation for your class. At the end, ask if anyone has questions.

Ask your teacher for help and permission to post your slideshow on your class website!

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Activity Two



Modern Sculpture

Art can be a great way to reuse objects and materials that you would otherwise throw away. Sculpture is art that is made in three dimensions. In other words, you could walk all the way around it, like you would a piece of furniture.

Long ago, most sculptures were made to look like real people or things in the natural world. The sculptures were usually made of stone, like marble. Artists that lived more recently have made a greater variety of sculpture. These modern art sculptures sometimes look like objects from the natural world, but many times they are abstract. Although abstract art does not look like everyday objects, it has other types of meaning. **Abstract art can represent artistic ideas, such as FORM, SHAPE, LINE, COLOR, and TEXTURE. Abstract art can also represent SOCIAL or IMAGINATIVE ideas.** Modern artists often use objects and materials from everyday life to represent ideas in abstract sculpture.

In this activity, you will create a piece of modern art with reused objects from your everyday life.

First, **gather objects** from your everyday life that you would otherwise throw away. Clean and dry each object. Pay attention to choosing objects with interesting color, shape, texture, etc.

Then, spend some time thinking about what you would like your sculpture to **represent**. Choose a concept you have learned about, such as sustainability, conservation, pollution, or the ways in which people depend on resources. Think about how you might represent these ideas in sculpture. You may want to look at examples of modern sculpture in library books in order to get more ideas.

Finally, **create your sculpture**. Gather all of your objects, along with some of the following materials:

- glue or paste
- scissors
- tape
- wire
- paints

Display your art in the classroom. **Write a brief explanation** of what your sculpture represents. Also include a **list** of all of the objects you reused to make your sculpture.

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Activity Three

Design Your Own Green Home

For this activity you will design your own sustainable home!

First, research “Green Building” or “Green Architecture”. Find out about:

- **Alternative energy sources** for homes, such as solar and wind
- **New technologies** that use less energy
- **“Green” building supplies**, recycled and nontoxic building materials
- **“Green” design principles**—how can the design of the home help the home use less resources? What is the effect of the placement of windows, height of ceilings, use of insulation, different heating and cooling systems, choice of landscape plants?
- How does the **local climate** affect which designs and materials to choose?

Then, think about the type of home you would love to have. Do you want a lovely house in the country or a cool city apartment? Where do you want to live—in a place with a snowy winter, a dry desert, a moist tropical environment?

Next, design your home. Start by making a list that contains all of the **materials and features** of each system of the home:

- Foundation
- Framing
- Outside walls
- Roof
- Inside walls
- Flooring
- Heating and Cooling
- Plumbing
- Insulation
- Electrical and Energy Source
- Landscaping

You may want to look in the library for building plans to see how they are drawn, and what types of information they include. Have fun drawing and designing your home!

Display your drawings for the class, and make a presentation to tell your classmates about all of the Green features of your dream home!



Activity Four



Plan a Sustainable Business

The ultimate sustainable business uses only **RENEWABLE RESOURCES** and creates **NO WASTE**. That is a difficult goal! But every step towards being sustainable helps the business, the environment, and future generations of people. Let's see how sustainable you can be as a business owner!

1. Choose your business. What type of business would you like to run? Be imaginative, it could be anything! Any type of business can go "Green"—amusement parks, hair salons, mechanics, stores, anything!

2. Research the ways that your business can PRACTICE SUSTAINABILITY. Think about:

- **How much energy do you need?** Do you need to power a store, factory, or vehicles? What types of alternative fuels and renewable energy sources would be most practical for your business?
- **What types of land resources do you need?** Are you manufacturing products? Selling foods? What materials do you need? What are some ways to get the materials sustainably?
- **What types of waste will your business make?** Will you have scraps left over from making things in your factory? Will you have to handle food waste? Wastewater? How can you handle your wastes sustainably? How can you recycle, reduce, and reuse?
- **How can your business "close the loop?"** Are there any ways to make some of your wastes into materials that you can use again and again? Or, are there ways to reuse your wastes for a different purpose? For example, a pizza place could run delivery vehicles on biofuels made from their own used vegetable oils.

3. Write your business plan. Describe your business in **WORDS, PICTURES,** and **DIAGRAMS**. Be sure your business plan includes:

- The type of business—the services and products you will offer
- The name and location of your business
- A description of the facilities, machines, vehicles, etc., that you will own
- A description of your everyday operations
- A complete list, with explanations, of all of the sustainable practices you will use
- A discussion of how your business compares to a similar kind of business that does NOT practice sustainability. How much energy and resources will your business save? How much pollution does the other business make? How much less waste do you make?



Activity Five



Build an Alternative Energy Toy

People use alternative energy sources to power homes, business, and cars. But you can use alternative energy to build fun toys with moving parts!

1. Think about what **type of energy** you would like to use to power a toy. You can use any source of energy EXCEPT fossil fuels and batteries. Some sources of energy you might use include the **sun, wind, and running water**. You can be creative and find other ways to power toys, too!
2. Once you have chosen your power source, decide what **type of toy** you would like to build. Look through books, magazines, and the Internet to get ideas. Think about what type of toy would work best with your power source. You might find ideas by looking at old-fashioned toys. Children used to have many types of moving toys before batteries were invented! Toys like sailboats, pinwheels, and water wheels used alternative sources of energy to move. On the other hand, you might like to research toys that use new technologies to get energy from the sun, like solar panels.
3. **Draw a plan for your toy.** Be sure the plan includes measurements and materials.
4. Gather all of the materials you will need, and build your toy. Ask for help from an adult if you need to use power tools or sharp cutting tools. You will need to **test your toy**. Don't be discouraged if it doesn't work perfectly at first! That happens to most toymakers. Try to figure out what the problem is, and then make adjustments to the design, materials, or construction in order to fix the problem. Don't give up!
5. Bring your toy to class. Explain how you built it, and how it works using an alternative energy source. If possible, **give a demonstration** of how it works. If your toy must be used outside or in another location, such as in a stream, take pictures of your toy in use to share with your class.

Have fun with your new toy! Maybe you will be inspired to design and build many new toys!

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Activity Six



Research Alternative Fuels

Many scientists think that the world's supply of petroleum oil will run out in ***your*** lifetime. Societies will need to use alternative energy sources to power homes, businesses, and transportation.

In this activity, you will research an in-depth topic related to alternative energy. You may pick from the list below, or come up with a different topic that interests you. If you choose to create your own topic, discuss the idea with your teacher. Write the topic and a few questions that you will answer in your research.

RESEARCH TOPICS:

- **The development of solar energy technology in China.**
 - Why is it important to the Chinese to develop solar energy technology? What advances have they made? What are the advantages to the whole world of building solar panels in China? Which countries is China selling their solar panels to first? Why?
- **The advantages and disadvantages of hydroelectric power.**
 - What are the biggest hydroelectric dams in your country? Around the world? How much energy do these dams supply? What are the advantages of using running water to get power? How do the dams harm ecosystems? How do the dams harm people? Have any dams been taken down in your country? Why?
- **Fuel-cell technology to power cars and other automobiles.**
 - What is fuel-cell technology? How does it work? What are the advantages and disadvantages of using fuel cells in cars? Is fuel-cell technology sustainable? How can it be made sustainable?

Research your topic using the Internet and library resources. Since these topics are very current, you will need to use the **most up-to-date resources available**. Be sure to answer all of your questions during your research.

Prepare a report to share with your class. You may choose the format of your report. Some ideas include:

- a written report including photographs and diagrams
- a slide show or visual presentation using overhead projector films
- an oral report with a diorama or other physical props
- a taped television documentary-style report