



Sky Orbison and the Earth Protectors

MAKING SMART CHOICES FOR THE EARTH



Metro

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Sky Orbison and the Earth Protectors introduces students to the idea that the choices they make have an impact on the environment. The assembly contains three key concepts:

- Everything we use comes from the earth's natural resources.
- We can make smart choices that help protect the earth.
- Choosing to reduce, reuse and recycle helps conserve natural resources and makes less waste.

The purpose of this guide is to provide discussion questions, activities, vocabulary, interesting facts and resources that will provide background material for understanding the assembly or for building on the concepts that were introduced. Discussion questions and activities can be selected as appropriate for your students' level.

OREGON COMMON CURRICULUM GOALS

The assembly and this discussion guide address the following curriculum goals:

Social Sciences – Geography: Understand how people and the environment are interrelated.

Earth and Space Science: Understand the properties and limited availability of the materials which make up the Earth.

Science in Personal and Social Perspectives: Describe how the daily choices of individuals, taken together affect global resource cycles, ecosystems and natural resource supplies.

VOCABULARY

Conserve – wise use of natural resources to ensure availability for future generations.

Disposable – products that are thrown away after one use or used for a limited time.

Earth footprint – how much land and resources it takes to support our lifestyle and for the earth to absorb the waste we discard. (Also called “eco-footprint” or “ecological footprint.”)

Durable – capable of withstanding long use, wear and decay.

Greenhouse gas – gases in the atmosphere that contribute to global warming.

Landfill – large outdoor area specially designed for disposal of solid waste.

Life cycle – cycle or series of steps occurring over the lifetime of an organism or product.

Natural resources – raw materials supplied by nature.

Nonrenewable – materials that can be depleted faster than they can naturally regenerate.

Packaging – covers, wrappers or containers for the transportation, storage and advertising of products.

Post-consumer – materials recovered through recycling and made into new products.

Recycle – to collect and remanufacture discarded items into new products.

Reduce – to decrease the amount of waste generated; to lessen in size, weight, amount.

Reuse – to use an item more than once for the same or different purposes.

Renewable resources – materials from limitless or cyclical sources that cannot be depleted faster than naturally regenerated.

Waste stream – flow of waste generated by a community that must be recycled, incinerated or landfilled.

Natural resources and your earth footprint

Natural resources are things that come from the earth, such as plants, animals, water, soil, rocks and minerals, oil and natural gas and air. All living things on earth, including people, use natural resources to meet their needs. Some resources, such as plants, are renewable – as we use them, we can replenish them. Others, such as rocks and minerals, are nonrenewable – we can't replenish them naturally in our lifetime.

Scientists have developed a tool called the ecological (earth) footprint that helps us compare the amount of resources individuals and nations consume and the amount of waste they produce. It's basically a measurement of our impact on the earth: how much land and resources it takes to support our lifestyle and for the earth to absorb the waste we discard.

DISCUSSION QUESTIONS

- What are natural resources? (things that come from nature: water, soil, rocks and minerals, plants, animals, oil, natural gas, air, sun)
- Why are natural resources important? (they provide us with things we need to live)
- Do we all use the same amount of resources? What are choices we make that affect how many resources we use? (the things we buy, how we get from place to place, how much water we use when we brush our teeth, etc.)
- What is an Earth Footprint? (see notes above)
- What can we do to reduce our earth footprint and help protect natural resources so they will be available for us to use for many years to come? (reduce, reuse, recycle, don't pollute, provide habitat for animals, drive less, etc.)

ACTIVITIES

- Read *The Lorax* by Dr. Seuss – discuss “thneeds” and “wants.” Have students present ideas of how to use fewer resources, but still have our needs met.
- Collect a variety of items or pictures of items and have students identify the main natural resource that was used to make each item (e.g. plastic bottles come from oil). Which items were made from renewable resources? Nonrenewable?
- Have students each choose an item and describe the steps (make a list, web, mobile) from the natural resource to the item. Consider other resources used in producing the item (growing and extracting, manufacturing and processing, transportation, packaging, etc.).

EARTH PROTECTOR ACTION

- Take a quiz to find out the size of your earth footprint at www.myfootprint.org. Make a pledge to do one thing to reduce the size of your footprint. If everyone in the class is doing this activity, make a poster and have each student write their pledge and sign their name. (Alternative: Help Bobby Bigfoot reduce his footprint at www.kidsfootprint.org.)

Did you know?

Harry Potter is reducing his earth footprint too! All of the paper used in the first USA printing of the 784-page *Harry Potter and the Deathly Hallows* (12 million copies!) contained at least 30 percent post-consumer waste fiber. At least 65 percent of the 16,700 tons of paper came from forests that are managed in a socially and environmentally responsible way.



Use it again!

Reusing an item helps decrease your earth footprint even more than recycling. Because the item doesn't need to be shipped anywhere or remanufactured, energy and raw materials will not be needed to make a new item.

DISCUSSION QUESTIONS

- How does reusing help conserve resources and make a smaller earth footprint?
- What are some ways to reuse? (shop at thrift or vintage stores, wash out plastic baggies, check out books from the library, bring a reusable water bottle to school, pack lunch in washable containers, repair broken items, etc.)

ACTIVITIES

- Read *Galimoto* by Karen Lynn Williams and challenge students to create their own "galimoto" (toy) from used materials. A good source for a huge variety of inexpensive materials is SCRAP. Find out more at www.scrapaction.org. For inspiration, check out the fascinating exhibit RECYCLED, RE-SEEN: Folk Art from the Global Scrap Heap at www.internationalfolkart.org/exhibitions/past/recycledreseen/rrindex.html.
- Organize a classroom book or toy swap: With parent permission, students bring a book or toy (in good condition) to school for a swap party. Any leftover items can be donated to a local thrift store.

EARTH PROTECTOR ACTION

- Start a trend by shopping for clothes at thrift shops. It's not used – it's vintage!
- Pack your lunch or snacks in reusable containers: drink bottle, sandwich box, washable baggies for cookies, chips.
- Share with friends! Be clear how long the loan is for and take good care of items you've borrowed.
- Wrap presents in used wrapping paper or Sunday comics.

Did you know?

How much paper could be saved if folks borrowed their Harry Potter books from the library instead of each person having his or her own copy? Seventy-two copies of Harry Potter and the Sorcerer's Stone (312 pages, .5 lbs.) were checked out from Multnomah County Library 539 times from July 1, 2006 to June 30, 2007. That's a savings of 36 pounds of paper! (more than seven reams of paper)



Recycle - take something used and make it new again

In nature, the waste of one organism becomes a resource for another. Leaves fall to the ground and become food for insects, worms and microorganisms. Their waste adds nutrients to the soil, which helps trees grow. This is called a life cycle. The products we use every day have life cycles too - manufacturers take natural resources like oil and wood and turn them into products like plastic bottles and paper. People buy and use the products then recycle them; manufacturers use the recycled materials to make new items for people to buy again. The cycle is broken when an item is thrown in the trash instead of being reused or recycled.

Recycling is one of the most important ways we can help protect the earth. Recycling conserves resources and energy, protects habitat for wildlife and creates less pollution because we're not making so many new products from raw materials.

DISCUSSION QUESTIONS

- What happens to items that we put in our recycling bin? (they are broken apart or melted and turned into new products.)
- What can be recycled in our homes/apartments/school?
- How does recycling help you make a smaller earth footprint? (uses fewer natural resources and energy than making an item from raw materials, makes less pollution)

ACTIVITIES

- Bring clean items from the trash and recycling to school; have students determine which items can be recycled in your community.
- Instead of throwing away crayon stubs, melt them, pour them into candy moulds and make new crayons!
- Borrow a papermaking kit from Metro and make recycled paper.

EARTH PROTECTOR ACTION

- Start an Earth Protector club at school and get your school to recycle as much as it can, especially plastic bottles, cans and paper.
- Next time you buy school supplies, look for the recycle symbol and try to buy products that include post-consumer content (notebooks, paper, pens, pencils).

Did you know?

- Recycling one aluminum can saves enough electricity to run a laptop for four hours.
- Recycled plastic soda bottles can be made into fleece sweaters, stuffing for sleeping bags and lots of other things too!
- Making paper from recycled content rather than virgin fiber creates 74 percent less air pollution and 35 percent less water pollution.



Reducing waste from packaging

Packaging is useful and necessary for many reasons. It protects the contents from physical damage and spoilage and may also be used to ensure that the contents are sanitary. The label identifies contents and provides directions. Packaging helps advertise goods, keeps sales records straight, discourages theft and provides convenience for customers.

Packaging is also a major component of the waste stream. Excessive packaging increases costs of products and the amount of natural resources that are used. One of the best ways to prevent this kind of waste is to choose products and their packaging thoughtfully.

DISCUSSION QUESTIONS

- What kinds of packaging are there? What materials are used to make them?
- What is packaging used for? (see above)
- What happens to packaging after you unwrap the contents?

ACTIVITIES

- Bring in a variety of packaging examples. Have students sort the items into piles: natural package, reusable, recyclable, difficult to recycle/trash. Discuss the pros and cons of each type of package. Which packages seem excessive? What natural resources were used to make each package? How could you buy the same item with less packaging?
- Bring in examples of different sizes and types of packaging for one item like orange juice or potato chips. Compare the cost per serving of each alternative and measure the amount of packaging each alternative takes. Which is the best choice to keep your footprint small? Which is most cost effective?

EARTH PROTECTOR ACTION

- Refill a reusable water bottle from the tap instead of buying bottled water.
- Take your own cloth bag to the store; avoid bringing home paper or plastic bags.
- Avoid buying individually packaged items like chips, pudding, cheese, etc. Buy larger-sized versions instead, and take your serving to school in a reusable container.

Did you know?

- Approximately one third of the waste in the USA is packaging.
- Americans buy 50 billion bottles of water a year, of which only 30 percent are recycled. That's 35 billion plastic bottles going into the trash each year.



Advertising – Don't let ads tell you what to buy!

The typical American is exposed to more than 3,000 advertisements a day. Millions of dollars are spent on drawing children's attention to products, leading them and their parents to buy a range of products from food to clothing to electronics.

It's important that young people learn to view ads critically. Understanding how and why ads work can help children make more informed decisions about what they want to buy. If young people buy more thoughtfully, they can help reduce pressure on limited resources and reduce some of the waste that comes with over-consumption.

DISCUSSION QUESTIONS

- Brainstorm the reasons why people buy things and how advertising affects what we buy.
- Where do we see and hear ads? (TV, radio, internet, mail, newspapers, magazines, billboards, packaging, clothing, etc.)
- What should we consider before buying products? (need, durability, what will happen to it when we're done with it, where it came from, etc.)

ACTIVITIES

- Create a questionnaire with students that answers the question: "why did you buy it?" Have the students question family and friends about recent purchases.
- Clip ads out of magazines and/or newspapers and critique the ads with students. (What is the ad selling? Who is the target audience? What is the mood of the ad? What claims are made about the product? What is the underlying message of the ad – how will your life be better if you buy the product? How can ads be misleading?)

- Which is better – bottled or tap water? Do a blind taste test of different kinds of bottle water and tap water. (Most folks can't tell the difference.) Discuss how advertising encourages folks to buy bottled water. Have students create advertisements to encourage people to drink tap water.

EARTH PROTECTOR ACTION

- Learn about advertising tricks by doing the activities at www.pbskids.org/dontbuyit.
- Keep track of all the ads you see in one day. How did they influence what you bought?
- Next time you go shopping, ask yourself these questions before you buy things: Do I really need it? Will buying it create waste? Is it disposable? Will it break easily? How long will I use it? Is there another way to get the same item that will use fewer resources and/or create less waste? Try to buy only what you need in a way that will keep your earth footprint small.

Did you know?

- American children ages 2-7 watch television an average of 25 hours per week which, next to parents, makes television among a child's most influential teachers.
- The average designer outfit can cost 40 percent more than a comparable outfit without a popular logo.



Web sites and resources

Metro wants to help your students understand the connection between their personal choices and our world's diminishing resources. Free classroom presentations and puppet shows on waste prevention, recycling, composting and household hazardous waste are available for K-12 schools in Multnomah, Washington and Clackamas counties. For more information, call **503-797-1522** or go to **www.oregonmetro.gov/schoolrecycling** to view our program offerings.

Need help with your school recycling program? The Oregon Green Schools Association can provide technical assistance to help you achieve your waste reduction goals. Learn more at **www.oregongreenschools.org**.

Curriculum resources

- www.epa.gov/teachers
- www.deq.state.or.us/lq/education/index.htm
- www.classroomearth.org

More on media literacy

- www.ibuydifferent.org
- www.pbskids.org/dontbuyit
- www.justthink.org

General information and facts

- www.oregonmetro.gov/recycling
- www.oregonmetro.gov/wastefacts



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Metro representatives

Metro Council President – David Bragdon
Metro Councilors – Rex Burkholder, Carlotta Collette, Kathryn Harrington, Carl Hosticka, Robert Liberty, Rod Park
Auditor – Suzanne Flynn

Teaching waste reduction through children's literature – a few suggested books

How Come the Best Clues are Always in the Garbage?, Linda Bailey, grades 3-5. Engaging mystery story that does a good job of weaving a waste reduction theme throughout.

Angel's Kite/La Estrella de Angel, Alberto Blanco, grades 2-5. A beautiful multi-layered story that carries an implied message about creative reuse.

Why the Sky is Far Away, Mary-Joan Gerson, grades 2-5. Retelling of a 500-year-old tale from the Bini people of Nigeria, this is a good story about wastefulness and over-exploitation of natural resources.

Just a Dream, Chris Van Allsburg, grades K-5. This book does a wonderful job of pointing to the problem of garbage along with several other environmental concerns.

Galimoto, Karen Lynn Williams, grades 3-5. A wonderful story of a West African child's resourcefulness in making his favorite toy. It has beautiful watercolor illustrations.

Round and Round Again, Nancy Van Laan, grades K-2. A delightful story for reinforcing the message that creative reuse is a positive and fun thing.

Roberto the Insect Architect, Nina Laden, grades 2-5. A perfect lead-in to an art/math lesson on making models/buildings from found objects.

The Lorax, Dr. Seuss, grades K-5. A poignant story about consumerism and what greed can do to our natural resources.

Keepers of the Earth, Michael J. Caduto and Joseph Bruchac, grades 3-5. Stories from Native American cultures that carry messages about respect for nature and stewardship of the Earth.

Garbage, Robert Maass, grades 2-5. A photo essay about garbage with clear, simple explanations.