



JORDAN'S QUEST

• a sustainable adventure •



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Jordan's Quest introduces students to the idea that the choices they make when shopping or disposing of unwanted items have an impact on the environment. The assembly contains three key concepts:

- Natural resources are used to make the things we need or want but are limited.
- There are many things each of us can do to reduce our impact on the earth.
- Advertising and peer pressure affect buying habits.

This guide provides discussion questions, activities, vocabulary, interesting facts and resources as a foundation for understanding the assembly or building on concepts introduced during the show. The back page, *What can you do?*, can be copied as a handout for students.

OREGON COMMON CURRICULUM GOALS

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

Science Identify properties, uses, and availability of Earth materials.

Economics Understand that resources are limited (e.g., scarcity).

Geography Understand how people and the environment are interrelated.

VOCABULARY

Conserve To use natural resources in a way that ensures availability for future generations

Disposable Made to be thrown away after one use or used for a limited time

Durable Capable of withstanding long use, wear and decay

Earth footprint A measurement that represents the amount of biologically productive land and sea needed to provide the resources we use and to manage the amount of garbage we produce

Landfill A large outdoor area specially designed for disposal of solid waste

Life cycle A series of stages occurring over the lifetime of an organism or product

Natural resources Raw materials supplied by nature, including plants, rocks and minerals, water, and oil

Nonrenewable resources Resources, such as oil or minerals, that cannot be replaced as they are used

Packaging Covers, wrappers or containers for the transportation, protection, storage and advertising of products

Recycle To collect discarded items and turn them into new products

Reduce To decrease the amount of waste generated or resources used; to lessen in size, weight, amount

Reuse To use an item more than once for the same or different purposes

Renewable resources Resources, such as trees or fish, that can be replaced as they are used

Sustainable Able to meet current needs without limiting the ability of future generations to meet their needs; able to continue indefinitely

ADDITIONAL METRO RESOURCES

Metro's free programs and materials can help students learn the connection between their personal choices and the world's diminishing resources. Free classroom presentations and puppet shows on waste prevention, recycling and toxics reduction are available for K-12 schools in Clackamas, Multnomah and Washington counties.

For more information, send an email to freda.sherburne@oregonmetro.gov or visit www.oregonmetro.gov/schools.

Taking steps to conserve resources

While on her quest, Jordan learned that with every step we take, we use some of the Earth's resources. All living things – including people – use natural resources to meet their needs. However, the planet doesn't have an unlimited supply of resources. Some resources – plants, for example – are renewable. Others, such as rocks and minerals, are nonrenewable.

Scientists have developed a tool called the ecological footprint, or 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.

To be sustainable, it's important to consider how we use resources to meet our present needs without compromising the ability of future generations to meet their needs.

DISCUSSION QUESTIONS

- What are natural resources? Why are they important?
- What is an earth footprint?
- What are some of the ways Jordan learned to reduce her footprint on her quest?
- What are choices you can make to reduce your earth footprint?

ACTIVITIES

- Collect a variety of items or pictures of items and have students identify the natural resources used to make each item (e.g. plastic bottles come from oil). Which items were made from renewable resources? Nonrenewable resources?
- Discuss the difference between needs and wants. Ask students to list their own needs and wants, then brainstorm ways to accomplish them while using fewer resources.
- Have students pledge to reduce their own earth footprint by adopting one waste prevention behavior. Record the pledges on a giant footprint-shaped poster.

RESOURCES

The Lorax, Dr. Seuss. This is a great story for talking about how human needs and wants impact resources.

Why the Sky is Far Away, Mary-Joan Gerson. This retelling of a folk tale from Nigeria is about wastefulness and exploitation of natural resources.

Material World: A Global Family Portrait and *Hungry Planet: What the World Eats*, Peter Menzel and Faith D'Aluisio. These books are photographic studies of the possessions of families from around the world and of what families around the world eat in one week.

The Story of Stuff, www.storyofstuff.org. A 20-minute animated documentary about the life cycle of stuff

Global Footprint Network, www.footprintnetwork.org. Background information and resources about earth footprints



What's a life cycle?

Dr. Science helped Jordan learn about the natural resources that go into making an “omnipod.” Have your students considered where the products they use every day come from or how making the products affects the environment?

Just as living things are born, age and die, products also complete a life cycle. Each stage of a life cycle affects the environment in different ways. Some products, such as cell phones, have many components, each of which has its own life cycle.

STAGES IN A LIFE CYCLE USUALLY INCLUDE:

Design determines what materials will be used. It also affects the product's durability and ability to be repaired or recycled.

Materials extraction Raw materials for products are mined or harvested from the earth. This takes energy, depletes natural resources and can create pollution and waste.

Processing and manufacturing After materials are extracted, they are converted into a usable form. Products are then manufactured in a factory. This stage uses a lot of energy and can make pollution and waste.

Packaging and transportation Packaging protects products but uses a lot of resources. Energy is used to transport products to locations where they are sold.

Use and disposal Using an item over and over again helps reduce the need for raw materials, requires less energy and can decrease the amount of material that ends up in a landfill, where it can't be used again.

DISCUSSION

- What are the various stages or steps in making some of our favorite items?
- What motivates people to discard items (clothes, cell phones, etc.) that are still useful?
- What are choices we can make to reduce the impact on the environment when making the things we need?
- How does reusing conserve resources and make a smaller footprint?

ACTIVITIES

- Read *French fries: from farm to fast food* (page 5 of this guide) and have students illustrate the path of fries from farm to fast food. Discussion questions are included at the end of the story.
- Read *Galimoto* and challenge students to create a toy or sculpture from used items.
- Have each student choose an item and describe the steps (make a list, concept map, mobile) from the natural resource to the final product. Consider the resources used in producing the item (growing and extracting, manufacturing and processing, transportation, packaging, etc.) and impacts on the environment (pollution, waste).

RESOURCES

Galimoto, Karen Lynn Williams. This is a story about an African child's resourcefulness in making his favorite toy.

The Adventures of a Plastic Bottle, Alison Inches. Take a peek into a bottle's diary as he tells the tale of his life cycle from oil to bottle to spacesuit.

School and Community Reuse Action Project, www.scrappdx.org. SCRAP offers creative reuse workshops and a store that sells inexpensive used items for art and science projects.

U.S. Environmental Protection Agency, www.epa.gov/students/teachers.html. Find Quest for Less curriculum, life cycle posters and other resources on this website.



French fries: from farm to fast food

Teachers: This activity tells the life story of french fries. While reading the story to your students, ask them to listen carefully and illustrate the steps it took to make french fries. (Adapted from *Stuff: The Secret Lives of Everyday Things*, Alan Thein Durning)

“Today I ordered french fries for lunch. I received 90 of them, weighing 5 ounces, in a paper box. The box was made of bleached pine pulp from a mill in Arkansas. My fries were made from one 10-ounce potato and sliced into uniformly sized strips.

Potato My potato was grown on one-half square foot sandy soil in the upper Snake River Valley of Idaho.

During the growing season, my potato was watered often, using a total of 7.5 gallons of water from the Snake River. Because so much water is used for potatoes and other crops in this area, the river below this region is dry much of the year and 80 percent of the streamside habitat has been replaced by reservoirs and irrigation canals. Dams have stopped 99 percent of salmon from running up the Snake River.

My potato was treated with fertilizers and pesticides to make sure that its shape and quality were just like all the other potatoes. Some fertilizers and pesticides washed into streams when it rained. These chemicals can be toxic to mammals, birds and fish in the area.

Processing A diesel-powered harvester dug up my potato which was then trucked to a nearby processing plant. My potato lost half its weight (mostly water) during processing. Processing the potato created 2/3 gallon of wastewater, which was sprayed on an unplanted field near the plant. This wastewater contained nitrogen, which can pollute groundwater.

Freezing The energy to freeze the potato slices came from a hydroelectric dam on the Snake River. Frozen foods often use 10 times more energy to produce than fresh foods. These days, Americans eat more frozen potatoes, mostly french fries, than fresh ones.

My fries were frozen using hydrofluorocarbon coolants. Some coolants escaped from the plant and rose 10 miles into the air where they trapped heat, contributing to the greenhouse effect. A refrigerated truck brought my fries to Seattle. They were fried in corn oil from Nebraska, sprinkled with salt mined in Louisiana and served with ketchup made in Pittsburgh from Florida tomatoes. The ketchup came in aluminum and plastic pouches from Ohio.”

DISCUSSION QUESTIONS:

- How did potato farming impact natural resources in the region?
- At what stages in producing the fries did you see energy being used?
- How many states supplied materials for the french fries?
- If we want to reduce our earth footprint for food production, how else can we buy or make fries? Other foods?



Ad awareness

Whether driving around town or sitting in front of the computer or television at home, it's easy to spot ads almost everywhere we look. Many of those ads target youth, with advertisers spending more than \$15 billion a year marketing to them.

One of the underlying messages in nearly all marketing is that the things we buy will make us happy. But research has shown that advertising and marketing promote the acquisition of materialistic values, which have been linked to depression and low self esteem.

Given that the average American youth is exposed to about 3,000 ads a day, it's important that young people learn to view ads critically. Understanding how and why ads work can help youth make more informed decisions about what they want to buy and whether or not material things can make them happy. As young people buy more thoughtfully, they can also help reduce impacts on limited resources and reduce some of the waste that comes with overconsumption.

DISCUSSION QUESTIONS

- What motivates people to buy things?
- How does advertising affect what we buy?
- Where do we see and hear ads?
- How do popular logos or designer labels impact the cost of items? For example, the average designer outfit can cost 40 percent more than a comparable outfit without a popular logo.
- Can “things” really make you happy or cool? If not, what does?
- How do the opinions of your friends impact your choices when shopping?

ACTIVITIES

- Make copies of *Ads are Everywhere!* (page 7 of this guide), and have students complete the activity. Discuss the variety of places students found ads and techniques companies used to advertise their products.
- Ask students to bring in ads from magazines or newspapers. Critique the ads with students: What is the ad selling? What claims are made about the product? Are the claims credible and accurate? What is the ad's underlying message?
- With students, brainstorm activities or experiences that make them happy. Have them write ads to encourage folks to “buy in” to doing that activity.

RESOURCES

Admongo, www.admongo.gov. Ad awareness resources by the Federal Trade Commission

Don't Buy It, Get Media Smart!

<http://pbskids.org/dontbuyit/>. Online activities for youth and teaching resources for teachers



Ads are everywhere!

It's pretty hard not to see an ad these days. You may not even realize you're seeing an ad on some items such as clothing or food packaging. Search your house to discover how many different kinds of ads you can find. Try to find at least two ads in each room. Remember to write down what the ad was for and where you found it.



KITCHEN

Hint: Look in the cabinets and on or in the refrigerator.

1. What is the ad for? _____

Where did you find it? _____

2. What is the ad for? _____

Where did you find it? _____

LIVING ROOM/DEN

Hint: Take a look in magazines, newspapers and on television.

1. What is the ad for? _____

Where did you find it? _____

2. What is the ad for? _____

Where did you find it? _____

BEDROOM

Hint: Look closely at posters on the wall or clothes and shoes in your closet.

1. What is the ad for? _____

Where did you find it? _____

2. What is the ad for? _____

Where did you find it? _____

EXTRA CREDIT LOCATION

Hint: Look around your school, inside a shopping mall or out the car window.

1. What is the ad for? _____

Where did you find it? _____

Adapted from Admongo (www.admongo.gov)

What can you do?

LEARN MORE

Why Should I Recycle?, Susan Meredith. This book describes everything you could want to know about the reasons for reducing, reusing and recycling.

Loopscoops, www.pbskids.org/loopscoops/. Watch fun animated videos about everyday products like magazines and electronic gadgets.

My Garbology, www.naturebridge.org/garbology. Test your skills in sorting garbage and learn interesting facts about the things we throw away.

Don't Buy It, Get Media Smart!

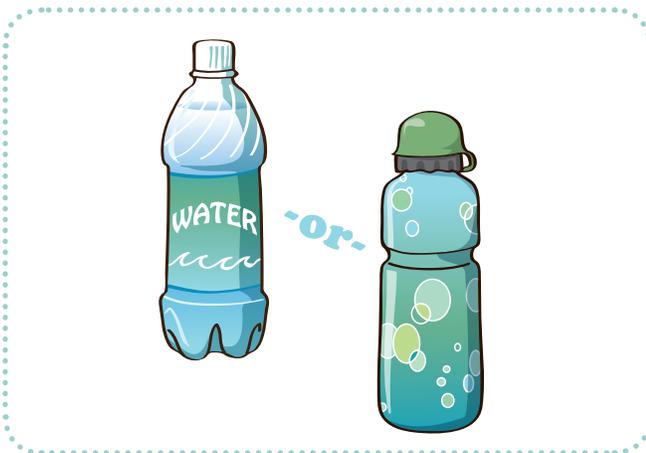
www.pbskids.org/dontbuyit/. These online activities about advertising will really get you thinking about the things you buy!

THINK BEFORE YOU BUY

Next time you go shopping, ask yourself these questions before you buy:

- Do I really need it?
- Will buying it create waste?
- How long will it last?
- Is there another way to get the same item that will use fewer resources or create less waste?
- Can I borrow it from a friend?

Try to buy only what you need, in a way that will keep your earth footprint small.



REDUCE YOUR EARTH FOOTPRINT

How much land does it take to support your lifestyle?

The earth footprint of the average person in the United States is 20 acres. If everyone on the planet had the same lifestyle as ours, it would take five Earths to support our needs and wants. With an adult's help, you can measure your footprint at www.myfootprint.org. Talk to your family and make a plan of how you can reduce your impact on the Earth.

REUSE IT

Using an item over and over helps conserve natural resources and energy. Plus, the item won't end up in a landfill, where it can't be used again. Here are some suggestions for reusing items:

- Organize a swap meet with friends for toys and games.
- Wait to upgrade electronics such as games and phones.
- Pack your lunch in reusable containers.
- Borrow books and DVDs from the library.
- Bring a reusable bottle to school for water.

What are your ideas?

