

**Grade Level:** Elementary and Middle School

**Subject Correlation:** Science

**Objectives: Students will be able to:**

1. Identify ways in which humans affect the environment.
2. Brainstorm on how and why humans use natural resources and the problems associated with their use.
3. Describe the interdependence between humans and nature.
4. Appreciate the importance of environmental preservation.

**Length:** 45 minutes

**Teacher Preparation:** The teacher has the option of copying the worksheet on the following pages onto overhead slides and doing the exercise as a class or copying the pages for students to do as groups.

**Outline (with times)**

10 minutes

*What is the Ecological Footprint?*

As a class, read and examine the attached handout, "What IS An Ecological Footprint." Ask the class to imagine their footprint in the sand or dirt. A footprint actually displaces sand or dirt. The larger the footprint, the more dirt or sand is displaced. With the Ecological Footprint concept, the more we consume and throw out, the more natural resources we use – and our symbolic Ecological Footprint grows.

20 minutes

*Adventures with Bobbie Bigfoot*

Visit <http://www.kidsfootprint.org/> and help Bobbie Bigfoot make everyday decisions that will affect his Ecological Footprint! Bobbie's feet grow and shrink depending on the decisions he makes with your help.

15 minutes

*What is a Sustainable Lifestyle?*

A sustainable lifestyle is one that does not use more natural resources at a faster rate than the Earth makes available. We use natural resources when we consume, pollute, or discard garbage.

We make decisions everyday that affect our Ecological Footprint. In the attached handout, students have the opportunity to make sustainable decisions and identify reasons their decisions lead to a sustainable lifestyle. For each category – food, housing, consumption, and transportation – students will decide which choice is more sustainable. Students can work alone or in groups. Teachers may ask students to make decisions in a specific category or for all categories. Give five reasons for your choice. Discuss your answers as a class.

### **Possible Answers for “What is a Sustainable Lifestyle” Worksheet.**

**Food** – *Although nothing is wrong with an occasional hamburger, the amount of factory-raised beef consumed, and the production methods used by factory farms is not sustainable. There are many reasons why the organic salad is more environmentally friendly than a hamburger:*

- Farmers do not use pesticides to grow organic produce. Therefore, they are less harmful to the soil.
- Organic ingredients are usually (but not always) locally grown and therefore do not rely on the non-environmentally friendly transportation system.
- Factory-fed beef cows are not environmentally friendly. They require massive amounts of natural resources such as water, grain, wheat, and grass, and produce a lot of solid waste which, in such large quantities, is a major pollutant.
- Factory farmed cows are often treated inhumanely.
- For more information on organic foods, visit the [Sustainable Table Web site](http://www.sustainabletable.org/home/), <http://www.sustainabletable.org/home/>.

**Housing** – *Although big apartment housing complexes are larger than single family homes, the fact that many more people and families live in the same building rather than each having their own home make them more environmentally friendly.*

- More people living in a smaller space require less energy for electricity, climate control, and cooking.
- More people living in a smaller space allows for less dependency on traveling long distances for school, shopping, and visiting friends and family.
- Smaller homes require fewer natural resources and materials to construct.

**Transportation** – *Transportation sources that are efficient and carry the most people using the least amount of natural resources are the most environmentally friendly.*

- Bicycles are the most efficient and the most environmentally friendly mode of transportation. They use no natural resources and carry people great distances with little effort.
- Cars – especially large cars – are not efficient, and therefore not environmentally friendly. They use a lot of natural resources and fuel to provide for the needs of a small number of people.
- Busses and other forms of public transportation are environmentally friendly – especially if they use natural gas or hybrid technology. Although busses are larger than cars, they carry many more people at one time and decrease congestion and the need for new roads.

**Consumption** – *Of course recycling is better than throwing away garbage into landfills!*

- Recycling both limits the amount of garbage in landfills and reduces the amount of natural resources required to make new materials such as glass, paper, plastic, and metal.
- Buying products that use little packaging or natural resources is environmentally friendly.
- Wasting energy, water, and other natural resources is not sustainable behavior.
- Sustainable behavior includes purchasing efficient light bulbs, low flow toilets and showerheads, energy efficient cars, and organic foods.



# WHAT IS AN ECOLOGICAL FOOTPRINT?

 earthdaynetwork  
www.earthday.net

 R PROGRESS  
www.rprogress.org

Ever wondered how much "nature" your lifestyle requires?  
You're about to find out!



The Ecological Footprint estimates how much productive land and water you need to support what you use and what you throw away. Ecological Footprints can be calculated for individuals like you, communities, and even countries. We use natural resources when we consume, pollute, and discard garbage. If the Ecological Footprint indicates that more natural resources are used than the Earth supplies, then this is not a sustainable lifestyle. It is very important for all of us on the Earth to live a sustainable lifestyle in order to leave the planet in good shape for future generations to enjoy and prosper!

To help Bobbie Bigfoot make sustainable decisions during his daily routine, visit <http://kidsfootprint.org/>. To measure your personal Ecological Footprint, visit [www.myfootprint.org](http://www.myfootprint.org).

*CAUTION: THIS QUIZ MAY SURPRISE YOU, SHOCK YOU, OR MAKE YOU THINK. PLEASE REMAIN CALM...BUT NOT TOO CALM!!*



*Measuring Ecological Footprints*

## Which uses more environmental resources?

*Which of the following choices are more sustainable and contribute towards a smaller Ecological Footprint?*

### Food



*Hamburger*



*Organic Veggie Salad*



### Housing



*Living in a house*



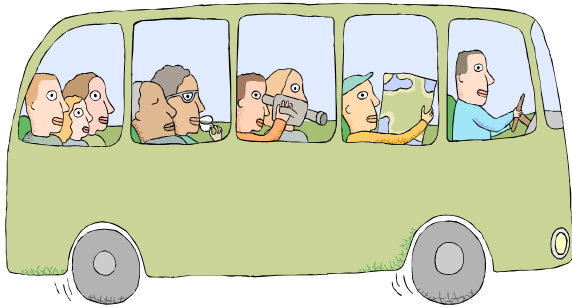
*Living in an apartment building*



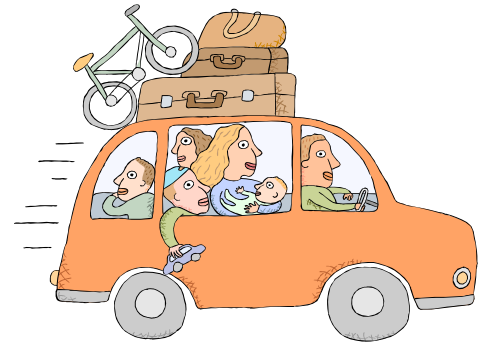
## Which uses more environmental resources?

*Which of the following choices are more sustainable and contribute towards a smaller Ecological Footprint?*

### Transportation



*Riding the bus home*



*Riding in a car*



### Consumption



*Taking out the trash*



*Recycling*



## Which uses more environmental resources?

*Which of the following choices are more sustainable and contribute towards a smaller Ecological Footprint?*

### Transportation



*Riding your bike*



*Driving a car*



**Grade Level:** Elementary and middle school

**Subject Correlation:** Science

**Objectives: Students will be able to:**

1. Identify the positive and negative ways in which humans affect the environment within their community.
2. Describe the difference between renewable and non-renewable resources.
3. Understand the difference between natural and man-made materials.

**Length:** 30-60 minutes

**Teacher Preparation:** cardboard, paint, and scissors to create stencils; art supplies to make signs; consider appropriate spots for the “Waste Walk” either on the school grounds or in the community.

**Outline (with times)**

*Introduction*

In the *Ecological Footprint Curriculum*, students have learned about various aspects of the environment –

particularly, about sustainable living and how the decisions we make on a daily basis affect the size of our

“*ecological footprint*.” In this lesson, the class will explore things they can do on a personal and a societal

level to affect the size of their footprint by living in a manner that is rewarding and also environmentally

friendly!

My Footprint – 10 minutes

Individually or as a class, think of ten things you can do on a daily basis to keep your footprint as small as

possible. Make sure to include both things you should do and things to avoid. Here are some helpful hints to

keep in mind:

- Remember the decisions you made for **Bobbie Bigfoot** which caused his feet to grow bigger and smaller. These decisions increased **Bobbie’s** Ecological Footprint.
- What are some actions you should take? (recycle, turn off lights and water when you aren’t using them, use energy efficient appliances, plant a vegetable garden)
- What should you avoid doing? (throwing your trash on the ground, throwing away food, wasting electricity and water)
- How does what you and your family buy affect how producers make their products? How does what you and your family buy affect what is available in stores?

*Waste Walk*

Waste Walk – 20-30 minutes

Students can do this project by walking around the school or the school neighborhood either using their

imagination or actually going for a walk. Ask students to look for “*environmental hot spots*.” These are areas that may accumulate garbage and may need sorting into recycling piles; areas of environmental concerns such as gas stations, garages, or restaurant kitchens; places that might waste excessive amounts of energy; or places that use a lot of energy and may not use energy saving devices and technology like Laundromats, car sales lots, or grocery stores. You may not need to travel any farther than the school cafeteria, parking lot, and garbage area!

“*Environmental hot spots*” can also include areas that are beneficial to the environment like recycling centers and bins, businesses that use environmentally friendly appliances, or even bus stops where busses use natural gas or hybrid technology. If you are not sure which category a business may fall in, create a questionnaire or a checklist to gather the information. Students can draw maps or create signs to post around the school, houses, and community. Some classes may even want to create [storm drain stencils](#).

Pledge to Mother Earth – 10 minutes

In the Waste Walk exercise, students studied their school neighborhoods to find “environmental hot spots.”

Students may have chosen to create storm drain stencils or colorful signs to hang in their schools and

communities informing others about how these hot spots affect the environment. These activities are great

ways to inform your neighbors and friends, but what is next? What else can you do to promote awareness of

environmental issues? Most importantly, how can you change behaviors and attitudes so that others make

environmentally friendly decisions in their daily lives?

Give the students a few minutes to think about the earlier exercises, *My Footprint* and *Waste Walk*. Ask them to

write a one-paragraph to one page pledge to Mother Earth followed by a list of actions they will take on a daily

basis to benefit the environment as well as promote awareness among friends and neighbors. This may include

writing letters to the school or local newspaper, business owners, or politicians; a school-wide poster

information campaign; or Earth Day activities in your school and community. Students may wish to keep a

daily diary describing how they manage to fulfill their pledges.

Follow-up Exercise

- The class can go on a waste walk once a month to follow the progress of the “hot spots” they identified



during this exercise. Students can keep a journal describing the progress.

- Teachers can create signs or stencils promoting awareness around identified hotspots.

For more ideas on

creating stencils see [Earthwater Stencils'](http://www.earthwater-stencils.com) Web site, [www.earthwater-stencils.com](http://www.earthwater-stencils.com).