

Lesson 4: Everyday Choices and Everyday Impacts

Grades: 8-12

Key Concepts:

- Different lifestyle choices have different impacts on the environment.
- Web-diagrams are useful tools for evaluating the connections between things or concepts.

Skills:

- Describe
- Infer
- Making generalizations
- Drawing conclusions
- Communications

Materials:

For each group:

- Poster paper (or butcher paper), 1 sheet per group
- Marking pens

Objective

Students will collaborate to create a web-diagram of the resources that are impacted by their assigned roles. Students will compare their results with other groups and answer questions about lifestyle, population, and environmental impacts. Students will compare the impact of choices made about food, transportation, and entertainment on their environment.

Background

The choices we make in life impact the environment. If we chose to buy a tomato from a grocery store or pick a tomato from a garden, we will have very different impacts on the earth's resources. How big or small an impact we have on the environment through those actions is called our ecological footprint. Buying a tomato from a store has quite a large ecological footprint if we think about all the distance and energy that went into getting that tomato to your house. It uses many of the earth's resources and a lot of energy to grow a tomato in a large field, and these fields often require frequent chemical inputs that affect the water and soil quality. For example, the tractors used to tend the fields and pick the crop use gasoline; transporting and cooling the tomatoes during the trip uses energy, gas, and resources; and the display it sits on in the store took resources to build. Then there is also the energy it took to get you to the store and back to purchase the tomato, whether it be by car, bike or foot. Picking a tomato from a garden has a much smaller ecological footprint, as it uses much less of the earth's resources to grow a tomato plant in your yard and a much shorter distance for you to go to simply pick it. This lesson will compare and contrast common life choices to learn how big or small an ecological footprint is left by each choice.

Procedure

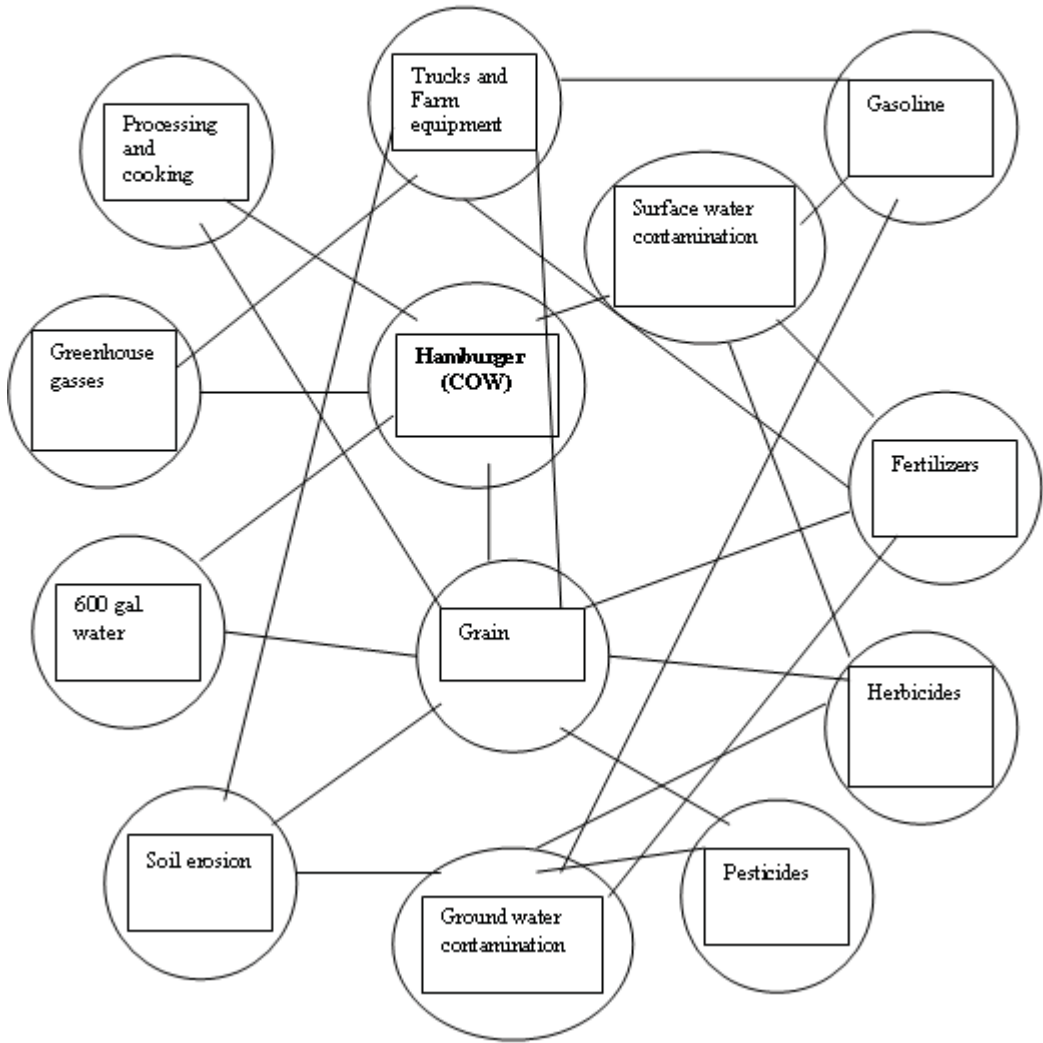
Introduction Activities and Discussion

1. Introduce the term ecological footprint. Write this term on the whiteboard or overhead and ask students to either journal what they think it means or think about it for a few minutes.
2. Have students share what they have written or thought about the ecological footprint with the class. Discuss with the class and then put the definition on the overhead or whiteboard. Ecological Footprint: The area of the Earth's productive surface (land and sea) necessary to support a given human lifestyle. Components of the Ecological Footprint include: oxygen, food, water, fiber, energy, employment, infrastructure, waste disposal, and recreation. Discuss with the class

until the students have a good understanding of an ecological footprint.

3. As a class, make a web-diagram of the environmental impact caused by creating a hamburger. The important part of doing a diagram together is realizing all of the impacts one choice has on the environment, and to create an example for the students to do the same in the smaller groups. Make sure your diagram includes all of the following: It takes 2 lbs. of grain to make $\frac{1}{4}$ pound of hamburger (what the cow had to eat). Farming the 2 lbs. of grain for the cow caused 10 pounds of topsoil to be lost. Pesticides and fertilizers were used and then proceeded to wash into nearby streams and groundwater. The steer used 600 gallons of water throughout its life. It had to be shipped, slaughtered, processed, frozen, and shipped again, all of the processes used energy and produced waste products. It then had to be cooked. And that is just the burger! You could go on to add the impact of the gasoline used in the shipping, etc. Add in the bun, cheese, lettuce, and tomato and you get quite a diagram.
4. Create groups of 3 or 4 students. Distribute one scenario card (see attached sheet) to each group, and have the groups of students create their own web diagrams of all the impacts and resources used in that particular scenario. Make sure there are at least two scenarios represented from each of the categories (food, entertainment, and transportation) amongst the groups for later comparison.
5. When the students are finished, have groups from the same category (food, transportation, entertainment) discuss their webs with the class. Ask the students which scenario within a certain category would have the least impact on the environment. Create a common list of actions students can take to lessen their impacts based off of the web diagrams and the discussion. This list could be part of a permanent display in the classroom to remind students that their choices do make a difference.
6. Lastly, have student's journal their thoughts about the lesson, their choices, and their impact on the environment.

Category: Food **Entrée:** Hamburger
(EXAMPLE)



Scenario Cards

<p>Category: Food</p> <p>Your entrée: Egg salad sandwich</p>	<p>Category: Food</p> <p>Your entrée: Roast beef sandwich</p>	<p>Category: Food</p> <p>Your entrée: Peanut butter sandwich</p>
<p>Category: Transportation</p> <p>Your mode: Car</p>	<p>Category: Transportation</p> <p>Your mode: Bike</p>	<p>Category: Transportation</p> <p>Your mode: Walk</p>
<p>Category: Entertainment</p> <p>Your fun: Snow mobile riding</p>	<p>Category: Entertainment</p> <p>Your fun: Computer games</p>	<p>Category: Entertainment</p> <p>Your fun: Hiking</p>