

How does transportation impact the environment?

Energy Literacy Essential Principle 7: The quality of life of individuals and societies is affected by energy choices.

C3 Framework for Social Studies Focus Indicators

- D1:** Identify disciplinary ideas associated with a compelling question. (D1.2.K-2)
- D2:** Identify the benefits and costs of making various personal decisions. (D2.Eco.2.K-2)
- D3:** Gather relevant information from one or two sources while using the origin and structure to guide the selection. (D3.1.K-2)
- D4:** Ask and answer questions about explanations. (D4.5.K-2)

Grade Level: 9-12. **Time Required:** 3-4 class periods.

Connection to Energy Literacy

Environmental quality is impacted by energy choices (Energy Literacy 7.3). In this activity, students examine different forms of transportation and think about the energy required by each. In addition, they consider how each form of transportation might impact the environment.

Activity Outline

- Begin by asking students to think about a time when they had to make a choice or decision. Allow individual students to share their experiences with the class. Ask them to describe any consequences they had to consider when making their choice or decision. Explain to them that they will now do an activity in which they decide among different forms of transportation to go back and forth from home to school.
- Ask students to describe how they get from home to school and from school to home every day. For most children, it is probably by car or bus.
- Discuss with students the energy that is used by a car or bus to transport children (petroleum). Ask them to describe the impact of these modes of transportation on the environment. Children may refer to the smell of gasoline or the smoke that comes from the exhausts of trucks, buses and some cars. They may also describe the noise produced by these vehicles.
- Ask students to think of other modes of transportation they could use to get to school that do not impact the environment in the same way. Children may refer to walking or riding a bicycle.

- Divide students into groups. Ask each group to identify three (or more) factors that a person might consider when deciding to take one form of transportation over another to go back and forth from home to school every day. Students may refer to such factors as efficiency, comfort, safety, convenience, and fun. Have each group present their ideas to the class.
- Show students images of common modes of transportation from around the world. These might include cars, buses, trains, planes, bicycles, horses, and walking. You may want to use the *Transportation Around the World* digital collection for high-quality images linked to different places.
- As you show each image, ask students whether it would be possible for them to use that particular mode of transportation to go back and forth from home to school every day. What would be the advantages and disadvantages? Ask them to explain their reasoning. Record their ideas in a T-Chart.
- Ask students to describe how each mode might impact the environment. Students may extend their knowledge of cars and buses to other modes, such as trains and trucks. They may also recognize that water-based modes of transportation can affect marine environments. Record their ideas in the T-Chart.
- Ask students to select one of the modes of transportation that was displayed to them to be used for taking them back and forth from home to school every day. Have them write a passage or draw a picture that shows them using that mode of transportation to get to school. Have them illustrate the advantages of that form of transportation. Have students share their writings or drawings with the class.
- Extension: For older students, e.g. Grade 2, you may want to have them read *What is the big deal with carbon?* by NASA and incorporate those ideas into their writings.

Suggested resources:

- NASA “What is the big deal with carbon?” <http://climatekids.nasa.gov/carbon/>
- University of Wisconsin “Transportation Around the World digital collection” <http://collections.lib.uwm.edu/cdm/landingpage/collection/mketran>