



## USING THE EARTH'S RESOURCES WISELY: SOME MORAL DILEMMAS

### *CLASSROOM ACTIVITY*

**Content Areas:** Earth Science, Social Studies

**Grade level:** 8-12

**Objective(s):** Students will learn how personal lifestyle choices determine, in part, how quickly we use the Earth's natural resources, and how their decisions affect their quality of life and that of others.

**NGSS/NJ SLS:** Students develop proficiency towards the following performance expectations:  
*MS-ESS3-3* Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

*MS-ESS3-4* Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. [

*HS-ESS3-1* Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

*HS-ESS3-2* Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

*HS-ESS3-3* Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.

*2009 NJ Social Studies Standard 6.3.8.B.1:* Evaluate alternative land-use proposals and make recommendations to the appropriate governmental agency.

*2009 NJ Social Studies Standard 6.3.8.D.1:* Engage in simulated democratic processes to understand how conflicting points of view are addressed in a democratic society.

**Note to Teachers:** This lesson plan addresses topics that can engender strong emotional responses in some people. We have tried to make the presentations impartial, but the topics we provide for discussion are fraught with controversy. Indeed, that is the whole point, and illustrates how difficult it can be for civic and government organizations to make decisions, establish policy, and enact laws that are fair to all concerned.

#### **Equipment/Materials Needed:**

Copies of the vignettes

Chart paper and markers for discussions

**Background:** The United States contains a little less than 5% of the Earth's population, yet it consumes 25% of the Earth's resources such as oil, water, electricity, and food. Much of that difference is due to our high national productivity, but some is due to our lifestyle. In this exercise students will debate the ethics of resource use by considering such questions as these: Is

it right to do anything you wish, as long as it's legal and you can afford it? Or should you consider the external consequences of your actions? Do you bear any responsibility to the needs of society and of future generations, or just those of you and your family? To what extent should our national energy policy be based on what we need, as opposed to what we want? There are no easy answers here, but the questions are similar to those debated by lawmakers and policymakers the world over.

The vignettes given on the next pages are real, and have engendered strong feelings on both sides, but they are only suggestions. Feel free to substitute your own. Topics that can be illustrated by local examples, or that have recently been in the news, are particularly likely to engage your students in meaningful discussion.

### **Procedure:**

1. Tell students that they are going to discuss several vignettes of resource use in our society—examples that some people might label as “frivolous” or “wrong”, but that other people might feel are perfectly reasonable. Vignettes are provided below the lesson details.

2. Divide the class into teams of 3-4 people each. Make sure there is an even number of teams. Half of the teams will construct arguments in favor of a given resource use, and the other half will construct arguments against it.

3. Introduce one of the example topics below. Give teams 5-8 minutes to construct their arguments. They should write these on a piece of paper or chart paper as a bulleted list (Examples: Provides jobs. Wastes electricity. Pollutes the air. Hurts other people. It's harmless fun.)

4. Caution students against invoking phantom “rights” in their arguments. Many people claim they have a right to do one thing or another, when no such right actually exists. (Common example: “I have a right to do anything I want on my own property!!” Hey, guess what? You *don't!*). The students should stick to facts and opinion, not fantasy.

5. Poll the teams for the results and list the reasons “for” on one side of the board and “against” on the other.

6. Discuss the results. Are there any clear “winners,” or did both sides appear reasonable? Is there any obvious distinction between right and wrong?

7. Repeat with another example, with the “for” teams now arguing “against”.

8. Discuss as many examples to as great a length as you like but be sure to allow time for a wrap-up. Emphasize that topics such as these are debated at length by lawmakers and policymakers the world over and are often hotly contested. It is all too convenient, and misleading and counterproductive, to paint this as a battle between proponents of human rights and environmentalists (or between conservatives and liberals), yet that is exactly what often happens. Reiterate that there are often no easy answers to many questions of the kind that the students have just debated, and that is one reason it is so difficult to construct energy policies, land-use policies, and property-rights laws that are legally and morally sound, and fair to all parties.

Note to teachers: For the “Living in Flood Prone Areas” example, flooding is used here as a convenient example of a familiar natural hazard, but you may wish to substitute others. The population of Los Angeles, for example, is still increasing, despite knowledge that a major earthquake in that region is already overdue. Houses continue to be built on unstable hillsides in Oregon, in fire-prone areas in California, and along hurricane-ravaged beaches in Florida. Numerous other examples exist.

### **Wrap-up discussion**

At the conclusion of these debates, teachers may wish to hold a wrap-up discussion to reach some overall conclusions. Have any overall public policy directions emerged? What would students wish to accomplish if they were members of a county planning board, a member of Congress, or the President of the United States?

### **Assessment:**

- Students demonstrate understanding that decisions on the “proper” use of our natural resources are a matter of negotiation among competing interests and not simply a matter of right and wrong.
- Students understand that their personal lifestyle choices have consequences beyond themselves and their immediate family.

- End -

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## Sample Vignettes for Discussion

### **Flying to LA for lunch**

The story: In March 2006 a story aired on National Public Radio about a popular restaurant in Los Angeles that was just about to close. In fact, so popular was this restaurant that three gentlemen in New York City used to fly out to that restaurant every Tuesday morning, to arrive in time for lunch. They had a private jet at their disposal and more than enough money to indulge themselves in this pleasure.

Your assignment: Debate the pros and cons of this practice. Is this a wasteful use of our nation's resources (jet fuel, taxpayer dollars for airports and air traffic controllers, etc.), or an innocent example of having fun, or perhaps both?

### **Teardown houses**

The story: In late 2005, in an upscale town about an hour's drive north of New York City, a house worth almost one million dollars was torn down. In its place a developer built a far larger house, one that would sell for about three million dollars. There was nothing wrong with the first house, but it was bulldozed flat and the debris taken to a landfill. The cost to the developer to buy the old house, demolish it, and construct a new one was about two million dollars, so upon sale of the new house he would make a profit of about one million dollars. That money would then be used to purchase an additional house for teardown, to make a similar profit, and the process would expand and continue. As of mid-2006 this was a common practice among developers who build upscale "spec" houses for people who wish to live in a quiet area within commuting distance of New York City.

Your assignment: Debate the pros and cons of this practice. Is this an example of making money without earning it, or an admirable example of capitalism? Is it all right to demolish existing houses for the sole purpose of making money? Why or why not?

### **More teardown houses**

The story: Staten Island is a crowded place. In some of the older neighborhoods the existing houses, many built during the first half of the 20<sup>th</sup> century, are on narrow lots. There is no room for a large house in these neighborhoods, even if you could afford one. However, some people have found an ingenious solution to this problem: they buy two adjacent houses, tear both of them down, and in their place build a huge new house that straddles two lots. They are happy in their new homes, but the neighbors complain because the new houses are far larger than all the others and have a completely different architectural style. "They're eyesores," they claim.

Your assignment: Pretend that you are on the city council and increasing numbers of people have been clamoring for a change in the local zoning ordinance to prohibit this practice. Do you favor changing the ordinance? Why or why not?

### **Bluegrass in Denver**

The story: The 1980s in Denver was a time of strong growth – numerous new subdivisions were being built over once-vacant land, and the cities of Denver, Lakewood, Aurora, Golden, and others were merging into a megalopolis. The climate there is semiarid, and already the water supply was being stretched, but with new development came much additional demand for water. One proposed remedy, a project that almost came to fruition, involved the construction of a large dam in the mountains to the west, to create a new reservoir for a thirsty city. A historic mountain town would have been submerged as the reservoir filled, and plans were being made to relocate the residents, nearly all of them against their will.

Proponents of the plan claimed that development is good for the region – it brings in jobs, stimulates the economy, provides more tax revenue, and results in a vigorous, growing society. Opponents argued that Denverites are wasteful in their use of water, and that conservation, not development of new water supplies, was the right thing to do. They pointed out that water use in most of Denver still was not metered, so anyone could use as much water as they wished, and did – people commonly had lawns and ornamental plants that required irrigation, and landscaping with native plants that demanded little water (*xeriscaping*) was still uncommon. Why, they asked, should an entire town in the mountains be flooded, its buildings lost, its residents displaced, so people in Denver can grow Kentucky bluegrass in an arid climate?

Your assignment: Pretend that you grew up in northern New Jersey, an area that gets 44 inches of precipitation a year, and you are used to large, grassy lawns. Later you relocate to Denver. How would you landscape your property? As a new Denver resident, would you be for or against the proposed water project? Would you be for or against restrictions on water use on your own property?

### **Power, power everywhere**

The story: Our lives increasingly are filled with devices that require some power source for their operation. Can openers, toothbrushes, and clocks used to be manual devices that required no electricity, but now all are available in powered models. Indeed, it is now rare to find a wind-up clock. Children used to play with balls and bats and hoops, but nowadays they are more likely to play computer or video games that require electricity to operate. We used to hang our clothes outdoors to dry, but now we place them in a dryer that runs on electricity or natural gas. Some people even go for the ultimate in luxury, such as heated driveways so they'll never have to shovel snow. So addicted are we to labor-saving devices that we can't even be bothered to wind our own watches – today they all require batteries.

Your assignment: Make a list of electricity-powered devices in your home. For each of these, try to think of an alternative that requires no power source. Then consider the disadvantages, if any, of the alternative. Is it just as good, or less effective? Impractical? Not as safe? Discuss which powered devices make sense to you, and which strike you as a needless waste of the Earth's resources.

### **High-impact hobbies**

The story: Traditional outdoor pursuits such as hiking, biking, cross-country skiing, and swimming are still popular, but increasing numbers of people enjoy the outdoors in a different way: in their ATV's, snowmobiles, and jet skis. Some people don't like these powered vehicles because they not only consume resources (the metals and plastics used to make the vehicles, plus the fossil fuels needed to run them), but they also imperil other resources by polluting the air, destroying vegetation, compacting the soil, and (for jet skis) leaving an oil slick in their wake.

Proponents of their use, however, point out that all of these vehicles provide thrills unattainable with nonpowered travel: Driving through the countryside on a snowmobile, for example, is a lot faster, takes less effort, and is way more fun than slogging through the snow on skis or snowshoes. Also, they claim, we should all have a right to enjoy the outdoors in any way we wish: It's a free country, isn't it?

Your assignment: Make a list of common outdoor pursuits and rate them in terms of their overall impact on resource use and/or resource damage. Use three categories: low impact, moderate impact, and high impact. Then debate if high-impact activities should be freely allowed, restricted, or banned altogether. If you are among those who agree with bans or restrictions on high-impact activities, would you impose them everywhere, or just in environmentally sensitive areas?

### **Living in flood-prone areas**

The story: Rivers rather than highways were the principal transportation routes of our nation as it was first forming, so it comes as no surprise that many towns grew up by the sides of rivers. The land there is often flat and thus easy to build on. It is also fertile, and early residents naturally wished to live where they tilled the fields and grew their crops. But the flat, fertile lands bordering many of our nation's rivers aren't called *floodplains* for nothing. Flooding is what they do, and what they've always done. Yet development of floodplains in many areas has proceeded unabated, and today more houses lie in floodplains than ever before.

When a town floods, the town can appeal to FEMA, the Federal Emergency Management Agency, for help. Homeowners and business owners are then eligible for funds not only for temporary housing, but also to repair or rebuild property that was damaged or lost to flooding. Federal funds are also available for people willing to leave their homes on the floodplain and rebuild on higher ground. FEMA, of course, is funded through taxpayer money.

Your assignment: Pretend you are running for Congress, and the citizens of your district are tired of having their tax dollars provide assistance to people who knowingly live in flood-prone areas. What do you tell them? Should homeowners whose houses have been extensively damaged by flooding be required to move to higher ground or raise their houses on pilings, or should that decision remain voluntary, as it is at present? Does a homeowner have a right to repeated FEMA assistance simply because he or she doesn't want to move?