

Lesson Eight: Are Fuel Efficient Cars Destroying Our Roads?

Part 1: Opening Discussion (3-5 minutes)

The lesson begins with an opening question, which can be written on the board or projected. Students can discuss in pairs:

“How did you come to school today? Now, Imagine that there were no roads, why might this be a problem? Who might be hurt by this lack of roads?”

Answers to the first question could include obviously walk, bike, car, bus, subway, or train depending on location of your school and for each student. However, each student will use some form a transportation infrastructure even if just a sidewalk. The purpose of this question is get students imagining a world without adequate roads and to brainstorm issues that would arise (safety, traffic, cost of wear on cars, time lost, businesses hurt, etc.). Encourage students to think about whether roads benefit only drivers or whether they benefit non-drivers too, as this might inform a later discussion about how who should pay for roads. This discussion should only last a few minutes and should simply get the students to understand the need for high quality roads.

Part 2: Introductory Reading (5-10 minutes)

The lesson continues with an introduction, definition, and explanation of transportation infrastructure in the context of public goods and externalities.

First, pass out the “Crumbling Roads” handout. Have students read the introduction section aloud. Reading options include going around the room, popcorn reading (where a student reads and then chooses the next reader), etc. Pause after reading the definition of Public Goods. Ensure that all students are clear on the definition. You can check for understanding by asking students to brainstorm other example of public goods (like national defense or the criminal justice system, two services which we all can enjoy at the same time and which are impossible to exclude non-payers from consuming.)

Continue reading and then again pause after the definition of externalities. Be sure that all students understand the concept of externalities as it is central to the discussion and issues of the lesson. Again check for understanding by asking for other examples of goods with negative externalities (like alcohol since drunk drivers kill non-consumers of alcohol or traffic from sports stadiums near your house) and positive externalities (like the Bellagio fountain entertaining people passing on the street, sports stadiums boosting business at local bars on game days, or security companies helping to catch thieves making everyone safer).

Then, finish the reading including the central question of the lesson. Be sure that all students understand the basic question and the potential trade-off between funding roads and encouraging fuel efficiency and environmentally friendly cars.

Part 3: Examining Possible Funding Options (10-15 minutes)

In part 3, students will explore possible funding options for roads. At first, we want students to maintain an open mind and simply write down every possibility they can think of. There are several possible answers including the example of simply an ever-higher gas tax. These include (but are not limited to):

- A vehicle registration fee
- Using general tax revenue (like income or sales taxes)
- Property taxes so locals pay for local roads
- Charge tolls at each on/off ramp.
- Sell off the roads to private companies
- Donations and voluntary payments (note: this should be shown as unlikely to work due to public goods issue)
- Do nothing and simply allow the roads to crumble or get rid of less needed roads
- Encourage and subsidize more public transportation and alternatives to roads like trains or subways to lower road usage and reduce maintenance needs.

Note: students may come up with other options and you may suggest some of the options above if the students do not think of these.

After sharing answers, have students analyze each option using the 5 questions in the handout. Students should be balancing moral and ethical issues of fairness, realistic feasibility, externalities and social costs/benefits, etc. This can be done in pairs or groups, and it is possible to have each pair/group rank the options from greatest to least preferable on the basis of these metrics. These answers can then be used in the subsequent role play.

Part 4: Role Play (15-20 minutes)

In part 4, students will conduct a role-play activity in which they simulate different real life groups lobbying the government for desired legislation. The purpose of this activity is to bring together all the information from the definitions of public goods and externalities to the different funding options and the pros and cons of each.

Read the scenario out loud and then follow the instruction to break the class up into the groups listed on the handout.

After creating the groups, be sure that each group has selected one or two representatives to speak for that group at the public hearing. Depending on the size of your classroom, you can choose more than two representatives to give more students an active speaking role. Also, read out the key questions that each group will need to address. Give them a minute or two to ask questions of clarification to make sure each group understands exactly who they are, their motivations, and the meaning of the questions that they must answer. Also ensure that they understand that their group's conclusions will be presented in the form of a lobbying argument by the representatives, so note-taking is highly encouraged.

1. Allow students 5-10 minutes in their group to answer the questions listed on the handout. Be sure they reference the funding option and analyses from earlier in the lesson.
2. After completing the discussion, give each group 1-2 minutes to lay out their argument for the option that they chose.
3. After all groups have spoken, give the government 2-3 minutes to discuss the arguments and decide what taxes, fees, etc., should be passed. Encourage thinking outside the box (Can you have a mix of taxes and fees? Can you think of a way to cut costs instead of increase revenues while maintaining high quality roads?) Make sure students feel that all options are available.
4. After the government has passed whatever laws it decides, be sure to ask why the government decided to pass those laws.
5. Lastly, take a poll of the whole class to see which option the class thinks is the best and why.

By the end of the activity, students should have a strong grasp of the different groups involved in lobbying for road maintenance legislation as well as the importance of solving this pressing issue.

Part 5: Follow Up Assignment (in class or homework)

After the lesson is completed, a homework assignment is provided to reinforce the material and connect it to the students' own world. It is also designed to take no more than 20-30 minutes, though it does require internet research. It is possible to do this research in class for a longer class period or to go over the homework as a review in the subsequent class period.

***Note:** The most common responses seem to be an even greater increase in gas taxes as well as a vehicle registration fee for all cars including hybrids and electrics. However, these are not the only two options as different agencies are considering property taxes, increased tolls, borrowing, and several other options.*