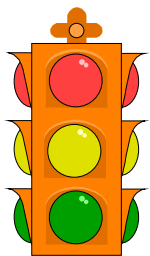


# Auto-Mania



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## National Academic Standards

### Science

Science in Personal and Social Perspectives  
Environmental Quality

### Social Studies

Time, Continuity, and Change

Apply key concepts such as time, chronology, causality, change, conflict, and complexity to explain, analyze, and show connections among patterns of historical change and continuity.

People, Places, and Environments

Propose, compare, and evaluate alternative policies for the use of land and other resources in communities, regions, nations, and the world.

Science, Technology, and Society

Formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

**Grades:** 9-12

**Subjects:** Science, Social Studies

### Skills:

Researching, Problem-solving, Decision Making, Evaluating, Observing, Analyzing, Interpreting, Predicting

### Overview:

Students will become familiar with the history, current use and the possible future of the automobile. They will investigate their community to determine the Average Vehicle Occupancy. The students will also determine how their family uses their own vehicles. They will conclude by suggesting ways to reduce auto air emissions and describing a future transit system or vehicle.

### Materials:

City street map

[Student Worksheet 1 \(and key\)](#)

[Student Worksheet 2](#)



### Background:

For information about transportation technology and its impact on air quality, visit the [Easy Breathers Library](#), <http://www.easybreathers.org/explore/index.html>.

### Doing the Activity:

#### Part A - Auto Test

Students should complete the Auto Test ([Student Worksheet 1](#)). Review the answers provided. Make a master list of things related to the car that are increasing or decreasing [i.e., pollution, miles-per-gallon, etc.].

#### Part B - Costs of Driving

Students should list all of the costs of driving. Examples include: car repair, accidents, disposal of consumables (tires, batteries, hoses, etc.) car disposal, road maintenance, congestion (time and stress), air pollution, land for pavement, oil spills, gas leaks, CFCs (chlorofluorocarbons), others.

The Easy Breathers Web site has a section on the Costs of Driving at <http://www.easybreathers.org/explore/airpollution/impactsEconomy.html>, including a worksheet to help students calculate just what driving is costing them: <http://www.easybreathers.org/explore/airpollution/drivingCost.html>.

#### Part C - AVO

The number of people traveling divided by the number of vehicles gives us an "Average Vehicle Occupancy" or AVO. Students will conduct a study to determine the Average Vehicle Occupancy in their community and discuss ways to improve this number. The [AVO study](#) is located in "[Classroom Activities](#)" on the EB Web site.

#### Part D - Auto Inventory: Family Use

Record information on your family use of vehicles, using [Student Worksheet 2](#).

#### Part E - Future Transportation: Society in the Year 2020

Students should describe the future transportation system in their community, using any of the following: Narrative, Drawings of Vehicles, Mapping the Transportation System. Discuss.

Easy Breathers has a section called "Speak UP!" which posts student thoughts on present-day and future community transportation systems. Encourage your students to submit their work to us at <http://www.easybreathers.org/engage/speakup.html>.

### Assessment:

Students should develop a written or oral survey to determine commuters' attitudes toward trip reduction. The survey could target why people carpool or take transit. It could focus on reasons drivers have for driving alone. Students might ask what would be needed for commuters to reduce driving their cars. Have students tabulate the survey results and determine what action they could take to reduce the amount of cars traveling in their community. You can find a [sample survey](#) in "[Classroom Activities](#)" on the EB Web site.

### Enrichment:

1. Students can survey vehicles entering the school parking lot to determine AVO (Average Vehicle Occupancy) of the students or teachers. A school survey could be developed that determines the number of miles that students and teachers drive to school and back each day. The school could develop a trip reduction program at the school based on the results.
2. Critique Auto Ads. Students should collect new car/truck brochures. Examine them. What features do they emphasize? How do they portray the vehicle? How are expensive cars portrayed? Inexpensive cars? Are any environmental features mentioned? What are some of the slogans that are used? Why? Students could take a car of the future and design an ad for it.
3. Conduct a Clean Car Rally. With the advice and/or assistance of local auto technicians, students can do any or all of the following: conduct emissions tests, check air pressure in tires, tune-up cars, teach people about air conditioner repair. For tips on car maintenance, visit [Respect Your Ride](#) on the Easy Breathers Web site.
4. Go Car Shopping. Students should select the (existing) vehicle of their dreams, gather information on the vehicle, and tell why the vehicle appeals to them.

Submit your AVO results (Part C), and/or Future Transportation plans (Part E) to the Easy Breathers project via our website:

[www.easybreathers.org](http://www.easybreathers.org)