

CHAPTER 5

GETTING AROUND CLEAN AND GREEN: A CHALLENGE



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ESSENTIAL QUESTIONS

- ▲ What day-long outings are possible in this and/or a neighboring community?
- ▲ How can we transport ourselves in the most environmentally friendly way?

OBJECTIVES

The students will:

- Explore the range of transportation and leisure options available in their community.
- Use information gained thus far to plan an environmentally friendly intermodal outing.
- Create an intermodal travel guide for their community.

ACTIVITIES

INTERMODAL CHALLENGE

Time: 45-minute class period.

INTERMODAL TRAVEL GUIDE

Time: Ongoing over several days.

STANDARDS

Technology: Understand transportation systems.

Language Arts: Knowledge of different genres; group discussions; presentations; write compositions with clear focus, logical statements, and adequate detail.

Geography: Map local community.

Mathematics: Collect data; construct, read charts, practical application of percentages.

Language Arts: Group discussion, research

Economics: Compare ways to accomplish a goal, select those with greatest benefits

History: Recognize the importance of individual choices and actions.

TEACHING NOTES

In this lesson students will plan an environmentally sound outing that requires the use of several modes of travel. It will be an opportunity for them to utilize, in a practical way, the information and knowledge they have acquired thus far in this unit. By assembling this collection of outings into a travel guide, the students will be sharing their knowledge and their efforts with the community.

Once the parameters are established, the students will largely be self directed. The teacher will play

an advisory role. Keep in mind the goal is to create a user-friendly intermodal fun travel guide that informs community members of environmentally appropriate transportation choices. It will be used for assessment, but it will also be an opportunity for students to perform a community service project and to explore career opportunities.

Guidelines are provided for planning the outings and creating the guide. Use these as suggestions, adapting them to your needs. Allowing students some independence and control will likely increase their sense of ownership and personal

investment in this project. Ideally, it will be an enjoyable, creative, and challenging process resulting in a valuable product.

Although creating the travel guide can be considered a culminating project and a valuable assessment tool, it is also an opportunity for students to explore a variety of career possibilities. A finished guide would require writers, editors, publishers, graphic designers, cartographers, and marketers in charge of advertisement and distribution. Individuals could contact local transportation facilities and relevant organizations and businesses to enlist their support, organizing a community-wide collaboration. The end result will be a useable and informative document. Through this publication, the students will inform others, influence transportation behaviors, and contribute to making their community a healthier, cleaner place.

BACKGROUND INFORMATION

Intermodalism refers to the transporting of people, goods, or services using a variety of travel modes. Travel modes include anything from walking, skating, and rowing to riding bicycles, horses, subways, buses, cars, and airplanes.

ACTIVITY 5.A

INTERMODAL CHALLENGE

OUTCOMES

As a result of this activity students will:

- Research, plan, and write a travel guide entry.
- Evaluate intermodal trips for environmental impact, comfort, cost, and fun.
- Compose a written description of an intermodal trip.

TIME REQUIRED

- 45-minute class period.

MATERIALS

- Worksheets
- Local maps (with scale)
- Mass transit schedules
- Brochures of local establishments
- Examples of travel guides
- Local telephone book
- Environmental Impact Rating Chart

TEACHER PREPARATION

Gather materials.

Review and/or revise rubric.

ACTIVITY OVERVIEW

Students will plan, research, and write guides for specific outings. The class will need to establish environmental standards for various travel modes. This work will provide content for the class's travel guide that students will complete in the next activity.

ACTIVITY

Present the challenge and explain that the activity will culminate with the creation of a travel guide that the class will assemble for use in their community. Hand out and go over the first introductory worksheet and the supplied rubric. Alternatively, have students develop their own rubric. Students need to be clear about all expectations before they begin. Review requirements as well as the rubric that will be used to assess their work.

Decide if you want the students to work individually, in pairs, or small groups. Provide them with the opportunity to periodically share their works in progress.

Before they begin to plan their outings, the class should decide on the audience for this guide. Do they want it to be for middle school students, teenagers in general, families, the general population, or a combination?

Each group will need to establish environmental standards for various transportation modes. They can use Chart 5.1 to determine relative emissions for the different modes of travel. Or have them calculate this from data in Table 5.1.

Start off by brainstorming possible adventures to get students thinking and inspired. Then hand out the student worksheet "Design a Travel Guide Entry" to help guide and organize their work.

Options:

- Give awards for the most usable, fun, environmentally friendly, original, etc.
- Take a vote and make a class trip to an appropriate destination.

Clean and Green Ways to Get to Fun and Interesting Places: A Travel Guide for your Community



STUDENT CHALLENGE:

Design and write an entry for a Travel Guide of Clean and Green Ways to Get to Fun and Interesting Places in your community.

THE ENTRY MUST:

- ✓ Describe how to get to a fun or interesting place in your community or in a neighboring community.
- ✓ Rate the mode(s) of travel used in this outing for their environmental-friendliness.
- ✓ Describe the time and expense needed for travel.
- ✓ Include a map showing the route of travel.

THE OUTING MUST:

- ✓ Begin after 7 am and end no later than 10 PM.
- ✓ Use the most environmentally-friendly means of transportation possible without taking too much time.
- ✓ Be affordable, not exceeding \$5 for travel per person.
- ✓ Have appeal for your target audience.

YOU WILL BE GRADED ON THE FOLLOWING

- Summary information should be clear and accurate.
- Map should be neat, clear, accurate, and to scale. It should include landmarks, route(s), and key locations.
- Environmental statement should be clear and concise.
- Narrative description should be well written, accurate, clear, and appealing to your chosen audience.
- Clear oral presentation.

Pollution by Mode of Travel

TABLE 5.1

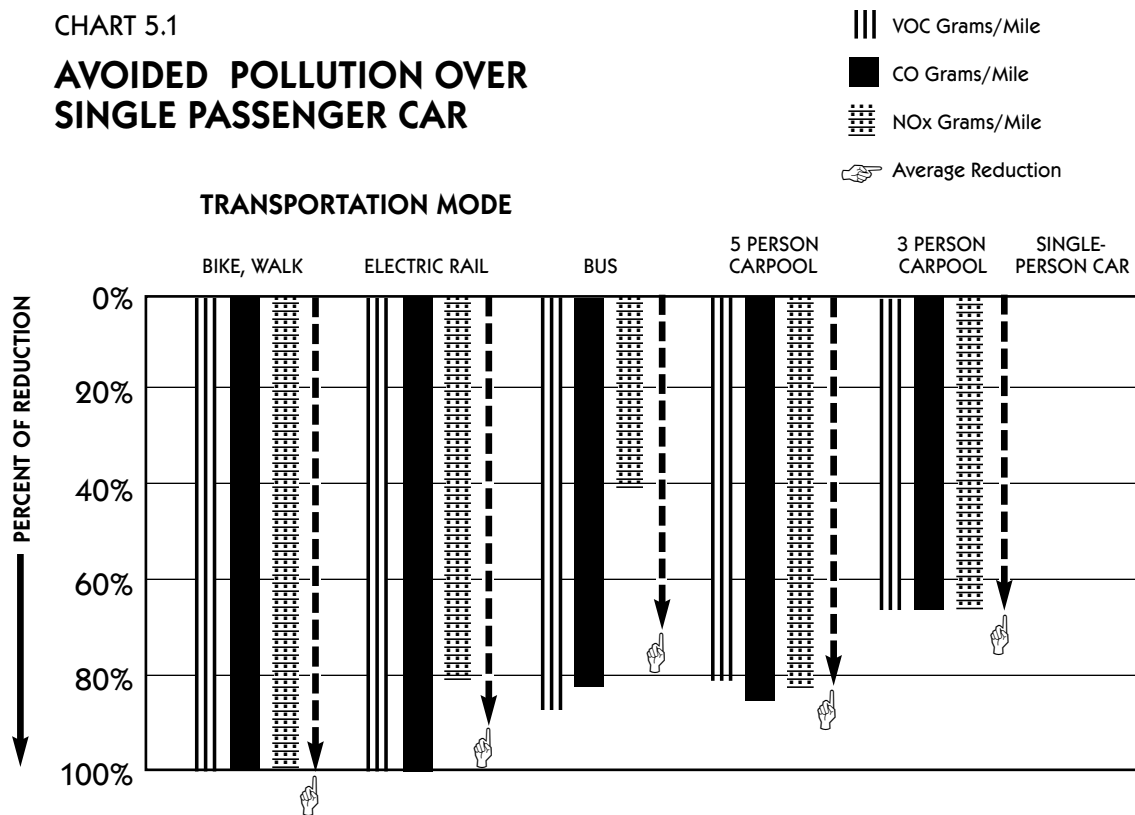
POLLUTION BY MODE OF TRAVEL

For typical work trips based on national average vehicle occupancy rates, pollutant emissions in grams per passenger mile are:

	Grams/Passenger Mile of		
	VOC	CO	NOx
Bike, Walk	0	0	0
Electric Rail	0.01	0.02	0.47
Bus	0.2	3.05	1.54
5-Person Vanpool	0.36	2.42	0.38
3 Person Carpool	.06	5.9	0.8
Single-Person Car	1.9	17.8	2.5

CHART 5.1

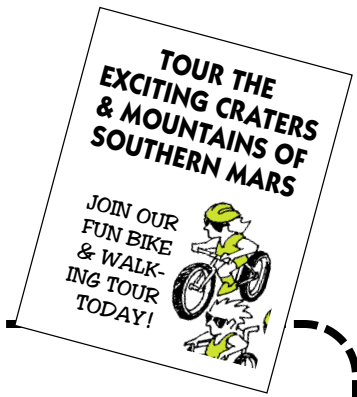
AVOIDED POLLUTION OVER SINGLE PASSENGER CAR



Design a Travel Guide Entry

Name: _____

Choose a destination: _____



List all travel modes that you can use to get there.
You can combine different modes in one trip.

Which travel mode(s) would be best for the environment and why?

Which travel modes best balance environmental, time, and cost considerations and why?

What are the vital times and locations: **To get there?**

_____	_____
_____	_____
_____	_____
_____	_____

What are the vital times and locations: **To get home?**

_____	_____
_____	_____
_____	_____
_____	_____

What is the total cost per person? _____

Rubric

Name: _____

Check appropriate boxes.

Add number of checks in each column to complete the grading equation in last row.

(Maximum is 100) _____

Required Components	Exceptional Job	Well Done	Adequate. Complete	Inadequate. Lacking quality or quantity	Not Done. Missing major pieces
SUMMARY					
TRIP APPEAL					
MAP					
ENVIRONMENTAL STATEMENT					
NARRATIVE					
PRESENTATION					
GRADE: _____ = 4	+ _____ X 16	+ _____ X 12	+ _____ X 8	+ _____ X 4	+ 0

ACTIVITY 5.B

INTERMODAL TRAVEL GUIDE

OUTCOMES

As a result of this activity students will:

- Work as integrated teams to plan, implement, and complete a publishable travel guide.
- As a team, make a class presentation.

TIME REQUIRED

- Ongoing over several days.

MATERIALS

- A set of completed Travel Guide.
Worksheets for each working group.

TEACHER PREPARATION

Assign roles or devise method for determining roles.

Contact community agencies for support. (optional)

ACTIVITY OVERVIEW

The students will work as a publishing house to assemble an intermodal travel guide of *Clean and Green Ways to Get to Fun and Interesting Places* in their community.

ACTIVITY

Divide the class into teams, each with its own function. You will need:

- **Environmental Raters** to decide on environmental standards to use for consistency throughout the guide. They will rate each trip by the same standard (perhaps a five-star system based on average emissions per mile).
- **Editors** to check and correct the written pieces. You may want several groups for this task. One for each written section.
- **Content Designers** to complete the page layout, including where maps go and how the written entries are formatted.
- **Cover Designers** to design the cover, write the guide's introduction, and develop a table of contents.
- **Marketers** in charge of advertisement and distribution.

Have each group give a presentation to the class explaining the steps they took to complete their task and why they made the decisions they did.

How each team completes its task and interacts with the other teams will depend largely on the resources available to the class. Access to computers, scanners, or other graphic tools versus needing to cut, paste, and photocopy will influence how this activity is set up.

Celebrate completion of the *Guide* by taking a trip to one of the fun or interesting locations listed.

