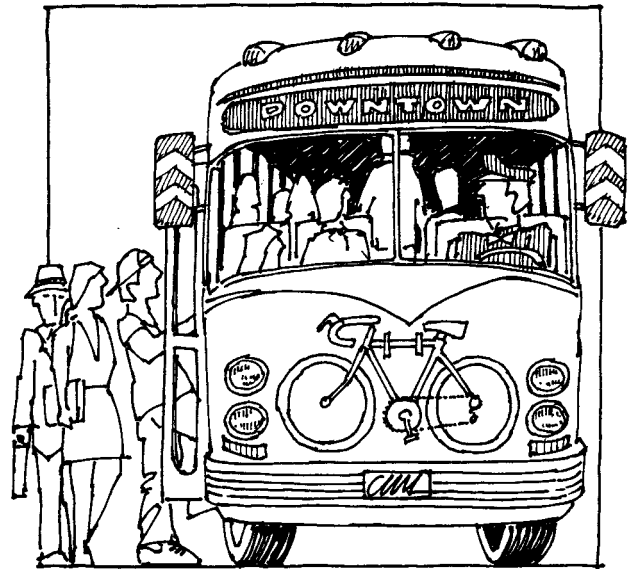
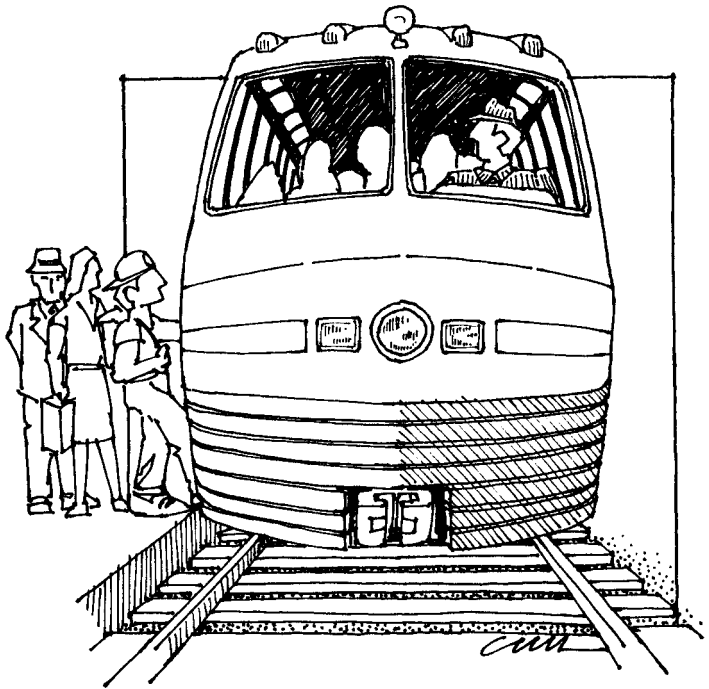
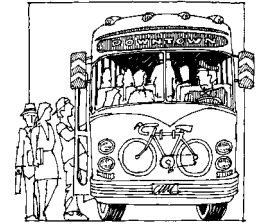


# CHAPTER 4

## MASS TRANSIT



# MASS TRANSIT



## ESSENTIAL QUESTIONS

- ▲ What is mass transit?
- ▲ What mass transit is available in my community and how do I use it?
- ▲ Does using mass transit reduce pollution?

## OBJECTIVES

The students will:

- Understand the concept of mass transit.
- Evaluate environmental and social factors relating to mass transit.
- Read and analyze a local mass transit schedule and map.

## ACTIVITIES

### PLAN A MASS TRANSIT OUTING

Time: 45 minute-class.

## STUDENT PREREQUISITES

- Some familiarity with reading maps.

## STANDARDS

**Technology:** Understand a transportation system: Document a design process.

**Mathematics:** Read charts and graphs.

**Social Studies:** Recognize the importance of individual choices and actions. Read maps.

**Economics:** Natural limits require people to choose between conflicting goals.

**Civics:** Role of the government at the national, state, and local levels.

**Health:** Recognize environmental factors on health.

**Language Arts:** Oral presentations.

## TEACHING NOTES

Mass transit, or public transportation, drastically reduces the amount of pollution that is emitted into the air.

This lesson includes a brief introduction to the concept of mass transit but focuses primarily on the practical aspects of using local mass transit systems (reading a schedule and planning an outing). Some school districts will have to look beyond their immediate communities to nearby cities. Urban districts may choose to focus on a variety of mass transit systems available to them.

By introducing this topic, rural and urban children alike will have a new appreciation for the role mass transit plays in contemporary society.

**Assessment:** During the first activity, there will be an opportunity to informally assess individuals as they learn to read a transit schedule. Worksheets will allow for more formal assessment. Students will document a travel plan, the results of which will be verified by classmates. The challenge in lesson #5 will allow students to apply conceptual information gained in this lesson.

## BACKGROUND INFORMATION

Americans are traveling more miles each year. Because the automobile is the travel mode of choice for most Americans (there is one car for every 1.7 individuals), and because it is also the largest polluter of our air, we have reasons to explore and encourage alternatives. Because pollution threatens our quality of life, we should re-examine our lifestyles, including our transportation choices. One way to significantly decrease air pollution, traffic congestion, and land loss to roads is to establish and use mass transit systems.

Buses, trains, ferries, subways, airplanes, trolleys, and other vehicles designed to transport large numbers of people are all forms of mass transit.

### *What makes a mass transit system successful?*

#### SYSTEM GOALS

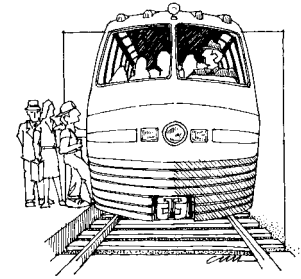
**Convenient:** “stops” need to be accessible to homes, places of employment, schools, commercial establishments, and entertainment centers. A successful mass transit system must get you to where you want to go when you want to go there.

**Safe:** People need to feel that they will not be threatened either by the vehicle itself, or by other people.

**Comfortable:** The vehicles need to be designed to fit the human body well. They need to be large enough to transport the numbers of people using the system.

**Economically feasible:** The cost of transporting an individual must be reasonable. It must compare favorably to other modes of transportation.

**Well used:** A critical number of passengers need to use the system for it to be feasible and for it to continue.



**Reliable:** Passengers need to know that the vehicle will be where it is scheduled to be and that they can depend on it to get them where they need to be.

**Efficient:** Time is important. Passengers want to know that they are getting where they want to go in a reasonable amount of time.

#### Other Considerations:

People concerned for public health and a healthy environment would consider a mass transit system successful if it helped to make a cleaner world.

At one time mass transit systems played a much larger role in transporting people, and not only in large cities. But cars offered people unrivaled freedom, enjoyment, and personal efficiency. As a result the landscape of cities, towns, and even the countryside, changed to accommodate the car.

Today automobile transportation is central to our way of life. As communities attempt to balance the transportation needs of their citizens with economic, social, and environmental pressures, mass transit offers many benefits. When successful, it can, and does rival the appeal of the automobile.

## ACTIVITY 4.A

# PLAN A MASS TRANSIT OUTING

### OUTCOMES

As a result of this activity students will:

- Interpret maps and schedules.
- Plan an outing using information from maps and schedules.
- Evaluate environmental benefits of using mass transit over single passenger cars.

### TIME REQUIRED

- 45-minute class.

### MATERIALS

- Overhead or copies of “Pollution By Mode Of Travel” and “Feet, Pedals, or Tracks.”
- Overhead projector if using transparency.
- Local mass transit schedules (enough for each student or photocopies of pertinent information).
- Local map.

### TEACHER PREPARATION

Locate source for mass transit schedules.

Be familiar with schedules, information.

## ACTIVITY OVERVIEW

By planning a group outing using mass transit, students will become familiar with local mass transit opportunities, terminology, schedules, and routes. Individual students will follow this up by planning another outing for homework. Inviting someone from a local mass transit authority to speak to the class would make an excellent introduction to this activity.

Depending upon the community, students may or may not be familiar with local mass transit opportunities and terminology. Adapt your approach to their understanding and experience.

## ACTIVITY

Write the vocabulary words on the board and introduce mass transit with the overheads “Pollution by Mode of Travel” and “Feet, Pedals, or Tracks”.

### VOCABULARY:

<b>Mode of transportation</b>	<b>Departure time</b>
<b>Mass transit route</b>	<b>Connection</b>
<b>Mass transit stop</b>	<b>Passenger mile</b>
<b>Arrival time</b>	

Begin a discussion on mass transit and define the vocabulary words as they come up in conversation.

### Here are some suggested questions to begin with.

- What is mass transit?
- What mass transit travel modes are available in this community? (Rural areas may need to consider the closest city).
- Does mass transit play an important role in transporting local people? Why or why not? Display the overhead “Public Transportation.” Ask for volunteers to decipher “Tires, Pedals, or Tracks.”
- What are the environmental implications of the graphic, “Pollution By Mode Of Transportation.” Ask for volunteers to decipher this graphic. (Passenger miles are determined by dividing the total emissions of each by the average number of passengers.)
- How does mass transit get started?
- What are the roles of government and the private sector?
- What factors (system goals) would be important for a mass transit system to be successful?

Pass out local mass transit schedules. If this is a problem, photocopy relevant charts and information. As a class, read through a schedule. Use a local map to help orient the students. Locate different landmarks, routes, stops, days, times, cost, etc. Discuss safety issues. Guide the class through a simple trip to a local destination.

**For practice, students can present riddles to the class or small group.**

“I am leaving the town hall on the 10:30 bus. Traveling on the green line, I’ll arrive at the cinema at 10:55. If the movie starts at 11:10 and lasts two hours, which bus will I leave on to get back home?”

Individually or in small groups have students use a mass transit schedule to plan an afternoon outing in the local or neighboring community. Hand out the Mass Transit Travel Plan Worksheet to guide them through the process. You will need to establish the parameters at the top of the worksheet: beginning and ending times, beginning and ending location, and the destination. Modify the challenge as needed.

**Parameters:**

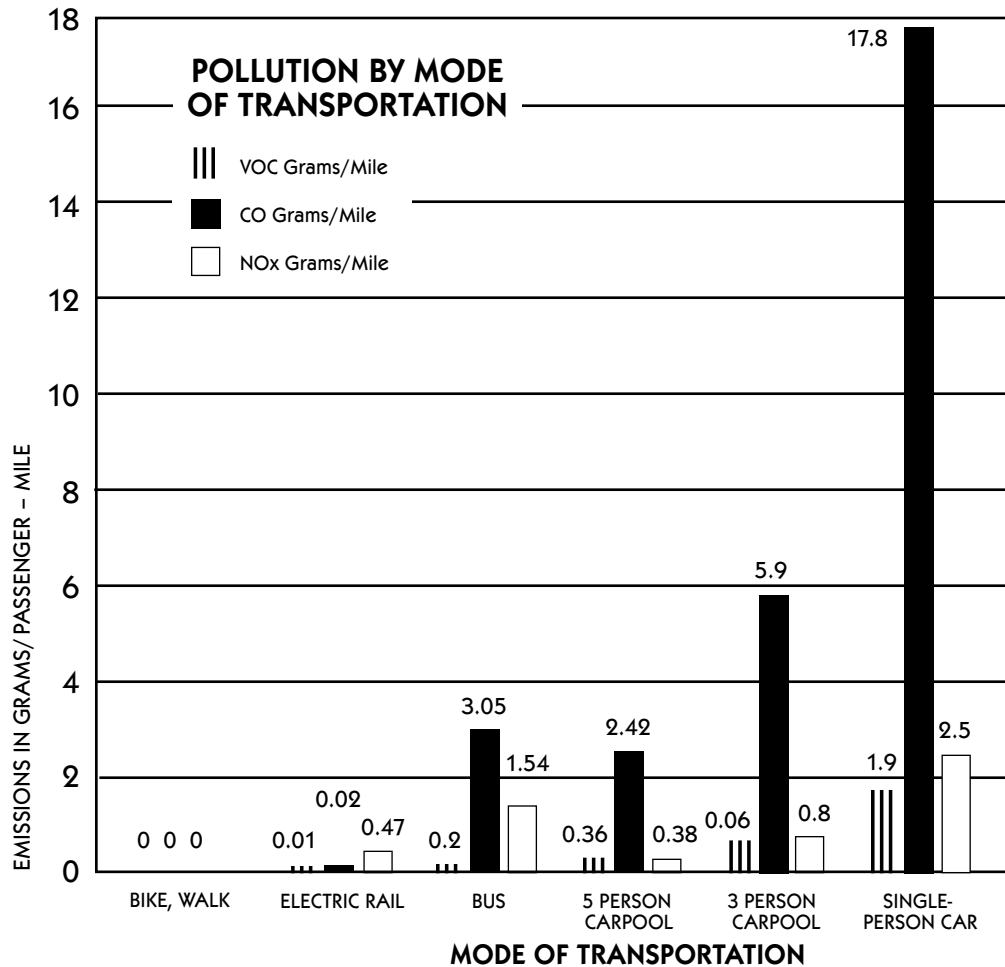
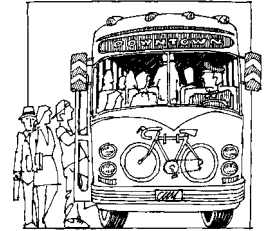
- All students begin and end at the school. (Make sure there is an official stop there or somewhere nearby).
- Their outing can begin when school ends for the day.
- They need to decide on a destination and have a plan as to how they will get there and back by 6:00 PM.
- Using the worksheet provided, each student will record the information as requested.

Brainstorm some possible destinations with the students. Is there somewhere to go watch a sporting event, movie, ice cream, shopping, or exercise?

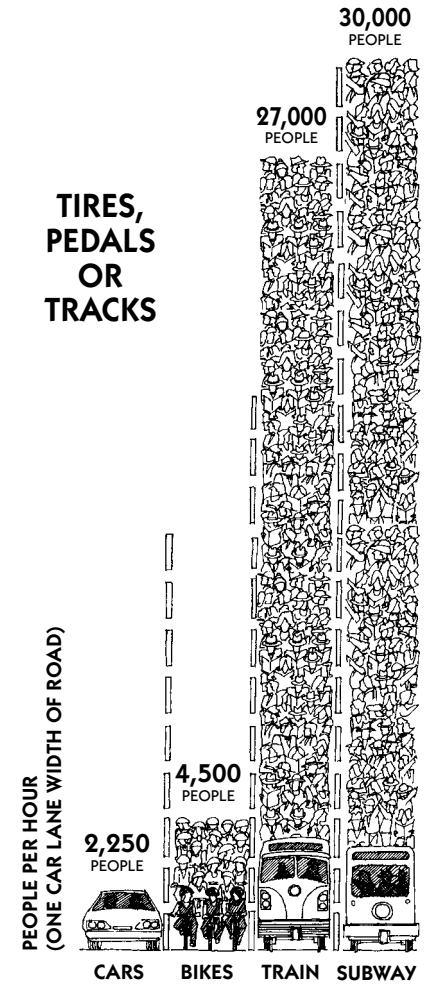
Upon completion, travel plans should be shared with the class. Meanwhile classmates can verify the results.

# Public Transportation

Using public transportation can drastically reduce the amount of pollution that is emitted to the air. Look at the following charts to compare the pollution created by using different forms of transportation.



Source: American Public Transit Association (based on national average vehicle occupancy rates)



# Mass Transit Challenge

Name: \_\_\_\_\_

**The Challenge:** Using mass transit schedules and a local map, plan an afternoon outing in your own or a neighboring community.



1. Your outing must:

☞ Begin no earlier than \_\_\_\_\_

☞ End no later than \_\_\_\_\_

☞ Begin and end at (location) \_\_\_\_\_

2. **Decide on a destination.** Where would you like to spend some time after school? Follow a route noting times and locations. Be sure you will be able to get from your starting point to your destination and back, in the time allowed.

Destination: \_\_\_\_\_

3. Which mass transit system will you use? \_\_\_\_\_

4. Which route? \_\_\_\_\_

5. Where is the nearest "stop" where you can board? \_\_\_\_\_

6. When does it depart? \_\_\_\_\_

7. How much will it cost? \_\_\_\_\_

8. What time will you arrive at your next location? \_\_\_\_\_

9. Where is that location? \_\_\_\_\_

10. Is this the nearest stop to your destination? \_\_\_\_\_

11. Is this in walking distance to your destination? \_\_\_\_\_ If yes, go to Question # 14

12. Will you need to make a connection? \_\_\_\_\_

## Mass Transit Challenge, page 2

13. If so, list all routes you will need to take to get yourself to your destination:

ROUTE	LOCATION	ARRIVAL	DEPARTURE TIME

14. When do you need to be back at the “stop” for your return trip? \_\_\_\_\_  
*(Be sure you will make all connections on your return trip.)*

15. How long will you have at your destination? (Leave time for walking.) \_\_\_\_\_

16. If you need to make one or more connections, list them here:

ROUTE	LOCATION	ARRIVAL	DEPARTURE TIME

17. What time will you arrive back at your final destination? \_\_\_\_\_

18. Is it before your designated finish time? \_\_\_\_\_

19. Check a local map to determine how many miles this trip covers. \_\_\_\_\_

20. Use the table Pollution by Mode of Travel to determine the amount of pollution a single passenger car and a bus would produce traveling this distance.  
 How much pollution would this trip avoid producing if you choose the bus over the car?

\_\_\_\_\_