

City by Design

This lesson was created as a supplement to the *City by Design* program at the National Building Museum. It is designed to be used in your classroom independently, or as an activity before or after a school program at the Museum. For more information about and to register for the National Building Museum's school programs, visit <http://www.nbm.org/schools-educators/school-visit/>.

The *City by Design* program introduces kindergarten through sixth grade students to city planning. It encourages young people to explore the complexity of cities and helps them understand the impact of people's everyday decisions on the places where they live, work, and play.

National Building Museum

Created by an act of Congress in 1980, the National Building Museum explores, celebrates, and illuminates achievements in architecture, design, engineering, construction, and planning. Since opening its doors in 1985, the Museum has become a vital forum for exchanging ideas and information about such topical issues as managing suburban growth, designing and building sustainable communities, and revitalizing urban centers. A private, nonprofit institution, the Museum creates and presents engaging exhibitions and education programs, including innovative curricula for school children.

Over the past two decades, the Museum has created and refined an extensive array of youth programming. Each year, approximately 50,000 young people and their families participate in hands-on learning experiences at the Museum: 2-hour-long school programs for grades K–9; major daylong festivals; drop-in family workshops; programs helping Cub and Girl Scouts earn activity badges; and three innovative outreach programs, lasting between 30 and 60 hours, for secondary school students. The Museum's youth programming has won the Washington, D.C., Mayor's Arts Award for Outstanding Contributions to Arts Education and garnered recognition from the National Endowment for the Arts.



NATIONAL BUILDING MUSEUM
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Red Line Metro, Judiciary Square

Moving From Place to Place



Transportation is the way we travel within and between communities. There are several ways to move around a community such as buses, cars, bikes, and subways—or your feet. Transportation is not categorized like buildings because it is not stationary; it takes people where they want to go.

Transportation significantly influences the development and organization of cities. For example, a community that offers public transportation on trains would need to set aside land for train tracks and would encourage more development around the train stations. A city that offers few public transportation choices might need more land for roads and parking areas and have development that is more spread out. By examining the effects of different forms of transportation, students will be able to understand the influence of these modes of transportation on the environment and their lives.

Materials

Large pieces of paper (optional)

Photocopies of worksheets (pages 28–30)

Brainstorm

Ask students to list the different forms of transportation available in their community. Use the chart, *Transportation Choices: Pros and Cons*, as a guide to prompt discussion.

Action

Using the coloring sheet on page 30, have each student color all the different modes of transportation. Then, have students circle the ways by which they travel around their community. After students have completed their coloring sheet, as a class identify the different forms of transportation represented on the sheet.

Create a diagram that lists all of the types of transportation found on the chart, *Transportation Choices: Pros and Cons*. Have students share the ways by which they travel each day. Record the information on the chart. Use the results to compare and contrast how the class moves around their community, and discuss the impact of the class's transportation choices. If half of the class changed the type of transportation they use, how would this affect their community and the environment?

Discussion and Analysis

Discuss the impact of each form of transportation on the community. How do students' transportation choices influence the environment? Traffic? Their health? Does the local community provide enough transportation choices for students?

Taking it Further

- Have the class, or individual students, use magazines, newspapers, and the Internet to create a collage depicting the forms of transportation found in communities.
- To illustrate the need for choices that encourage mass transit, create a “highway” in the classroom by laying mural paper on the floor. Discuss which forms of transportation are found and not found on highways. Have each child represent a car on the highway. What is it like when only one car is on the highway? Could there be more? Then, have students get on the highway, one by one. What happens when everyone is on the highway? Is it crowded? How could we reduce the traffic? Have students brainstorm about possible solutions. Discuss what might happen if half the cars stopped using the highway. Maybe some people could take a subway, if available, or maybe some could ride a bus or car-pool. How would reduced traffic help a community and the local environment?
- Review the images that show transportation methods in 1909, 1967, and today, that are included on the worksheets *Transportation Over Time I, II, and III*, pages 31–33. How has transportation affected America's built environment over time?

Transportation Choices: Pros and Cons



Transportation methods help us move from one area of a city to another, for example from home to work. Each type of transportation has different consequences.

Type of Transportation

Walking



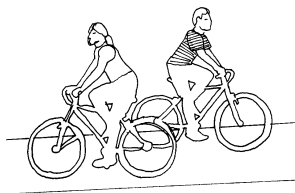
Pros

- Good for one's health
- Good for the environment
- Relatively inexpensive
- Fun to see the community by foot

Cons

- Does not permit carrying heavy items
- Does not protect from the weather
- Not possible if the destination is far away, or if safe and well-lit sidewalks are not available

Bikes



Pros

- Good for one's health
- Good for the environment
- Relatively inexpensive
- Fun to see the community by bike

Cons

- Dangerous if there are no designated bike lanes
- Does not permit carrying heavy items
- Does not protect from the weather
- Not possible if the destination is too far away

Cars



Pros

- Convenient for the driver
- Allow driver to be independent
- Offer privacy
- Require less planning to get from place to place
- Allow driver to transport people and heavy items

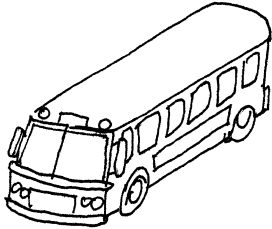
Cons

- Emit exhaust fumes that are harmful to the environment
- Cause drivers to become frustrated with traffic delays
- Require a lot of land for highways
- Expensive (cost of car, insurance, maintenance, parking fees, and traffic and parking tickets)
- Require a lot of land for parking spaces

Transportation Choices: Pros and Cons



Buses



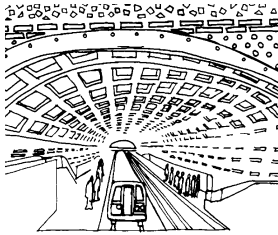
Pros

- Transport many people, reducing traffic
- Cheaper than maintaining a car
- Passengers read or relax while riding
- Newer buses use natural gas and emit less exhaust fumes than buses using gasoline

Cons

- Emit exhaust fumes that are harmful to the environment
- May be crowded during rush hour
- Passengers must follow bus schedule
- Location of bus stops may not be convenient for some people

Subways



(trains that run above and below ground) Example: Metro in Washington, D.C

Pros

- Transport many people, reducing traffic
- Do not emit harmful exhaust fumes
- Passengers avoid the frustration of sitting in traffic
- Passengers read or relax while riding
- Stations can be centers of mixed-use development

Cons

- Expensive to build
- Passengers must follow subway schedule
- Crowded trains may not have adequate seating
- Location of stops may not be convenient to some people
- Require a lot of land for tracks and stations

Light Rail



(trains that can run on streets or on separate rights-of-way)

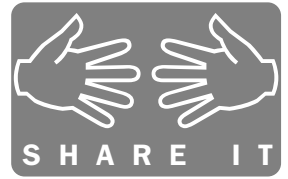
Pros

- Can run on existing streets
- Carries many people, reducing traffic
- Does not emit harmful exhaust fumes
- Passengers avoid the hassles of driving
- Cheaper than maintaining a car

Cons

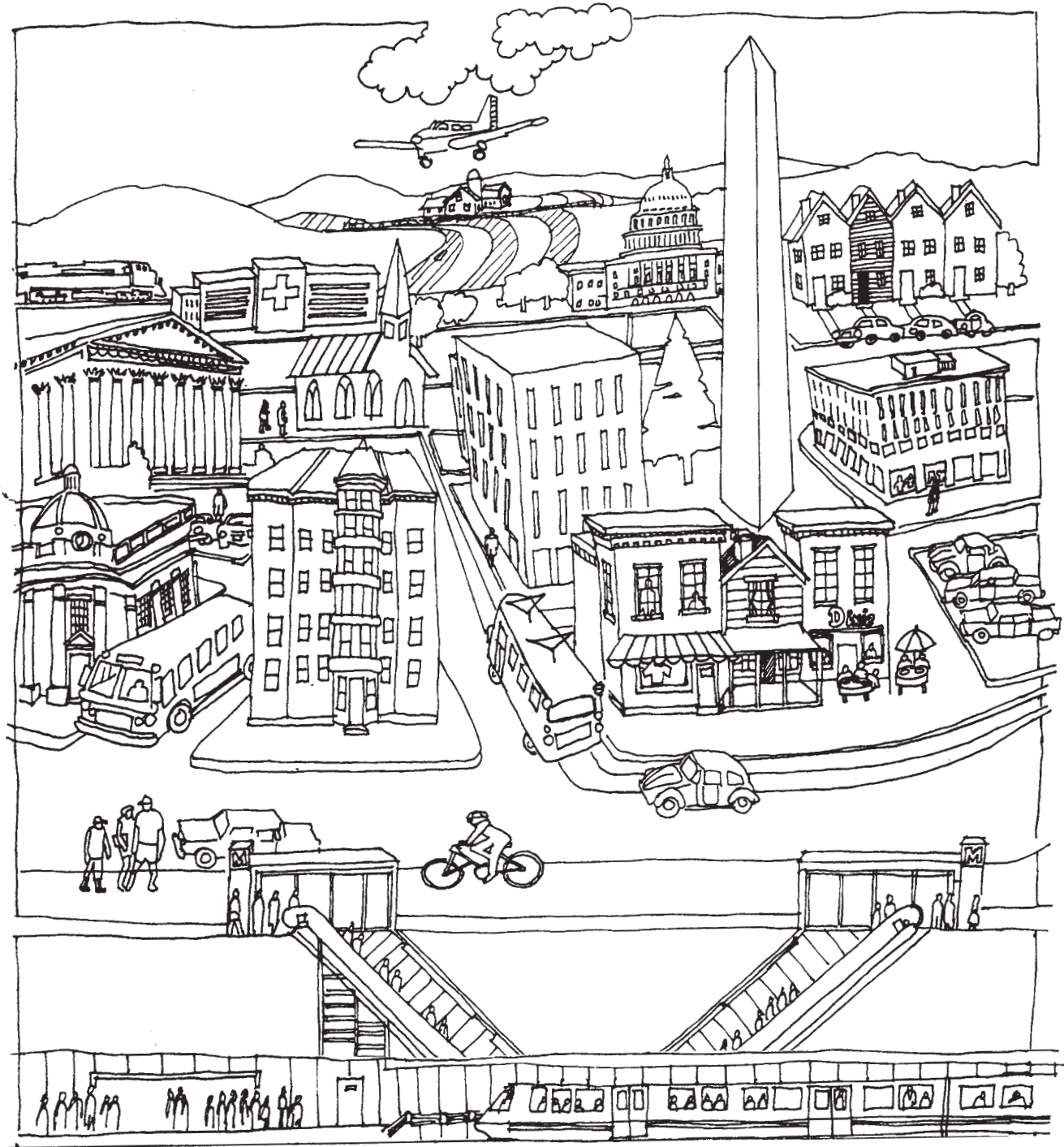
- May be affected by traffic on the street
- Passengers must follow light rail schedule
- Crowded trains may not have adequate seating
- Transports fewer people than subways
- Location of light rail stops may not be convenient to some people

Moving Around



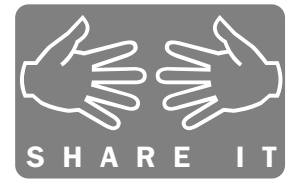
Name: _____

- 1 Color the different transportation methods that people are using to move around the city.
- 2 Circle the ones that you use to travel around your city.
- 3 How do you travel from home to school everyday? What do you like and dislike about the way in which you go to school? Turn this sheet over and write a paragraph to explain your answer.



Transportation Over Time I

1909



Name:

About 100 years ago, many people moved from the countryside into the city, and cities became very crowded. Traffic jams like the one in this photo caused streetcars to be moved underground or onto tracks that were built above the ground.

Identify different ways people traveled and circle the following:

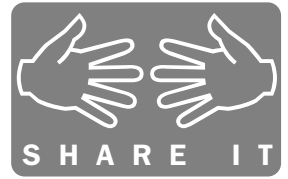
- 1 *A man riding a horse*
- 2 *A horse-drawn wagon*
- 3 *Two streetcars*
- 4 *People walking*



PHOTO: Traffic jam on Dearborn Street near Randolph Street, Chicago, Illinois, 1909
Courtesy of Chicago Historical Society, Photograph ICHI-04191

Transportation Over Time II

1967



Name: _____

Cars help people travel over long distances. They allow people to live in suburbs, far away from the center of the city. As more and more people bought cars, more roads were built to allow these cars to travel. Fewer people used streetcars to travel around cities. More roads and cars meant more traffic.

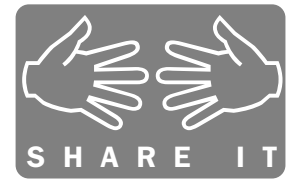
- 1 *Circle a delivery truck*
- 2 *Count the number of lanes of cars*
- 3 *Circle a van*
- 4 *Count the number of houses*



Photo: Interstate 76, Schuylkill Highway, Spring Garden Bridge, 1967, Philadelphia, Pennsylvania
Courtesy of Federal Highway Administration

Transportation Over Time III

Today



Name:

The more cities and suburbs grew, the more traffic became a problem. People wanted ways other than cars to get around. Today, many people are using transit again. They ride the subway or new light rail trains, hop on the bus, or take a commuter train. How do you travel around your community? Do you ride in a car or bus or train? Can you walk to where you need to go?

Identify different ways people travel.

- 1 *Circle the Metro train*
- 2 *Count the number of cars*
- 3 *Circle a man walking*
- 4 *Count the number of buses*



Photo: Metro station, Silver Spring, Maryland
Courtesy of Washington Metropolitan Area Transit Authority