

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
401 F Street, NW Washington, DC 20001
202.272.2448/www.NBM.org
Red Line Metro, Judiciary Square

Understanding Land Use



As people observe their surroundings, they realize that the built environment is comprised of different buildings, varying amounts of open space, and roads. Upon closer examination, people begin to comprehend that there is a certain organization to these essential components of any city. It is important for young people to understand the ways buildings and open spaces are organized in a city because its plan profoundly affects the everyday lives of its citizens. By understanding the ways buildings and land are organized—and why—students can make better judgments about the places where they live.

Teacher Tips

Many people and organizations influence the community planning process. They include city planners, local government officials, developers, and citizens. Their work results in laws and land-use plans. A land-use plan is a visual tool that helps people understand where different uses (e.g., open space, commercial, residential) are located and the kinds of buildings and spaces that serve those uses. State laws and the federal government also affect community planning locally and nationally.

Land

When designing a community, people need to consider how much land should be used for buildings and how much should be reserved for open space and parkland. The latter provides places for people to enjoy nature and play.

Buildings

Without buildings, where would people live, shop, and learn? Buildings offer shelter, house government services, and provide places for communities to recycle materials. Buildings are assigned to different land-use categories according to how they are used. There are six different land-use categories—commercial, residential, institutional, industrial, open/public space and parks, and mixed use (see page 17).

Arranging Buildings and Land

Communities use various tools to organize buildings and land. A land-use plan lays out growth for towns, and zoning laws specify where buildings can be located. On a land-use map, each category is represented with a different color.

Mixed Use

Some buildings or areas do not necessarily belong in one land-use category. Buildings may have apartments on the top floors and stores on the first floor. This type of building would be called a mixed-use development, and it would be assigned to a mixed-use category that would allow both commercial and residential uses on the land. Mixed-use areas allow buildings that serve different uses to exist in the same area. Mixed-use neighborhoods allow people to live closer to the things they need and want. On land-use maps, mixed-use areas are designated by using striped colors to represent multiple land-use categories.



Materials

Newspapers, magazines, and Internet access

Crayons or markers

Photocopies of worksheets (pages 18–26)

Color-coded land-use map of your city or county

Brainstorm

Discuss the process of creating a community with your students, emphasizing the various groups of people that influence it. Review the importance of a land-use plan and of balancing the need for parkland and open space with different land-use categories, including mixed-use buildings and areas.

Land

Ask your students why open space and parks are important to a community. Students may draw a picture of their favorite green space (e.g., park, playground, or open area) and write a short paragraph about why it is important to them.

Buildings

With your students, make a list of different types of buildings found in a community. Identify each building as a place people WANT (e.g., restaurant, gym) versus NEED (e.g., hospital, grocery store). Emphasize the importance of satisfying a community's needs first, before building places it wants. Explain that including places that people want is important because these buildings help make a community an enjoyable place to live.

Arranging Buildings and Land

Define the six land-use categories with your students and brainstorm the types of buildings found in each of them. Refer to the class's original list of buildings and assign each building to one of the categories. Explain that each land-use category is assigned a color to make mapping and organizing easier, and review the assigned colors with your students (see pages 18–23).

Mixed Use

Discuss mixed-use developments in a community and how they allow people to live closer to the things they need and want. Ask your students to name examples of mixed-use buildings or neighborhoods in their community (see pages 17 and 23).



Action

Divide your class into groups and assign each one a land-use category. Each group is responsible for examining its land-use category and collecting information about places found there, and what they look like. Newspapers, magazines, the Internet, and specific Web sites in the resources section of this booklet are good sources for pictures of different buildings. Designate a place in your classroom for students to display pictures, drawings, and written information about each land-use category. TIP: Photocopy the line drawings on pages 18–23 to place on posters for display.

Have students in grades four through six map out their school's neighborhood. Then, have them add places to make the community a more enjoyable, healthy, and/or convenient place to live. Ask them to discuss and defend their changes.

Discussion and Analysis

Discuss the different buildings found in each land-use category and ask your students a series of questions.

- Why is each one important?
- Why is it preferable to have open space in addition to buildings?
- What would a city be like without a recycling center, fire station, open spaces to enjoy nature, etc.?

Cities are like people, and, like a human body, a city needs all of its parts to function properly.

Discuss how city planners organize buildings, land, and open space in the best way possible so that the residents have access to the places that they need and want. Ask the students to name places and buildings they live near and ones that are far away. If given a choice, would they move buildings around in their neighborhood to better meet their needs and wants? Why or why not?

Create a webbing diagram (a drawing that shows connections between different parts) to summarize how land-use categories and open space should be arranged in a community.

Taking it Further

- To help students think about architectural elements before they design and create a model building at the Museum, have them study and record the appearance of a building using the attached Building Survey worksheet (see pages 24–25).
- Obtain a color-coded land-use map from your local planning department, and use it to demonstrate how land and buildings are organized in your city, town, or county. Have students identify the land uses indicated on the map, and have them find the location of their school and homes. Sources for land-use maps for the Washington, D.C., metropolitan area are located in the resources section (see page 52).
- Invite a local city or county council member or community planner to visit the class and explain his or her job and discuss some current community planning issues.
- On your way to the Museum, have students use the attached I Spy Buildings and Places worksheet (page 26) to investigate the Washington, D.C., metropolitan area. Try to find as many buildings as possible. You may also use this sheet to find places in your school's neighborhood.

Which Buildings and Places Go Where?



Land-Use Categories and What Belongs in Them

There are various ways in which to categorize land and buildings, and each community uses slightly different definitions and names for each category. The categories below represent general uses and how they are defined.

Residential— Yellow

Places where people live

Single family home
Apartment building
Condominium
Townhouse
Retirement home
Duplex
Mobile home

Commercial— Red

Places where people buy and sell things

Grocery store
Clothing store
Bank
Gas station
Shopping mall
Pharmacy
Office building (business transactions occur in office buildings)
Sports arena
Movie theatre
Restaurant

Institutional— Blue

Places where people get help, learn, or receive government services

Hospital
School
Library
Place of worship (e.g., mosque, church, synagogue)
Police station
Fire station
City hall
Community center
Museum and zoo
Courthouse
Military base
Government building

Industrial— Purple

Places where things are made, disposed of, or processed

Landfill
Trash transfer station
Recycling center
Water plant
Power plant
Factory
Transportation facilities (e.g., airport, train station)

Open/Public Space and Parks— Green

Places where people play, exercise, or enjoy nature

Open space can be included in other land-use categories, or be a separate category. Open space is important because in areas where many people live and work, public plazas or small parks allow people to enjoy the outdoors and nature.

Park
Playground
Town square
Plaza
Hiking and/or biking trail
Recreation center
Basketball or tennis court
Monuments

Mixed Use— Combination of colors

Places that serve more than one function

Not all places can be assigned to just one land-use category. Those buildings or areas of a community that serve more than one function are called mixed-use developments. Mixing buildings of different purposes together allows people to live closer to the things they need and want. Also, mixed-use developments encourage people to use forms of transportation other than the car, thereby

reducing traffic and parking problems, and improving people's health. Some examples:

Building with apartments on the upper floors and stores on the bottom floor

Area of a city that allows both commercial and residential buildings

Neighborhood that includes houses and apartments; commercial uses like a coffee shop, dry cleaners, and grocery store; institutional uses like a school; and open space like a park.

Local Examples:

Pentagon Row, adjacent to Pentagon City Mall in Arlington, VA, includes apartments and retail space mixed together

Kentlands neighborhood in Gaithersburg, Maryland, includes houses, townhouses, shops

Connecticut Avenue in Cleveland Park includes apartments, restaurants, stores, and even a zoo

Old Town neighborhood in Alexandria, Virginia, includes stores, restaurants, townhouses, and parks

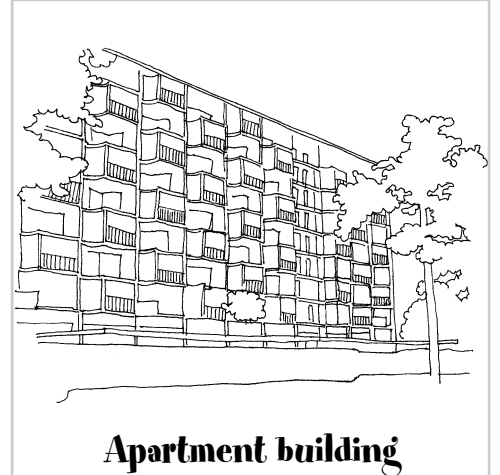
Residential—Yellow

Places where people live



Single family home

House boat



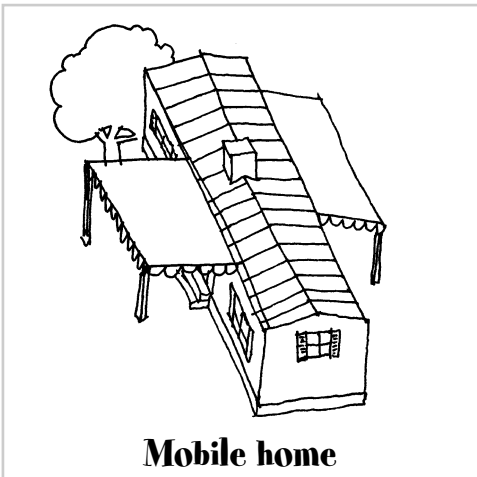
Apartment building

Castle



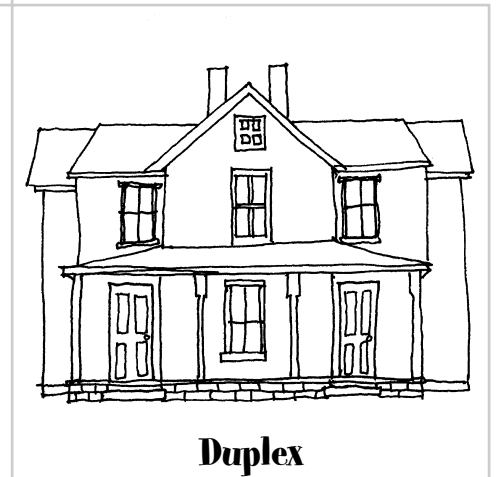
Townhouse

Condominium



Mobile home

Retirement home



Duplex

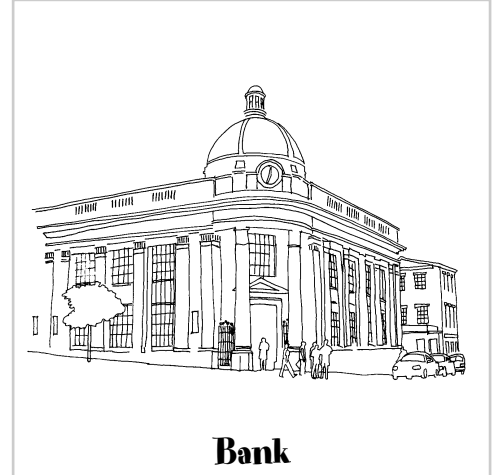
Commercial-Red

Places where people buy and sell things



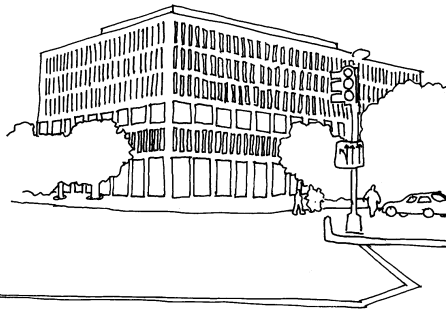
Clothing store

Grocery store



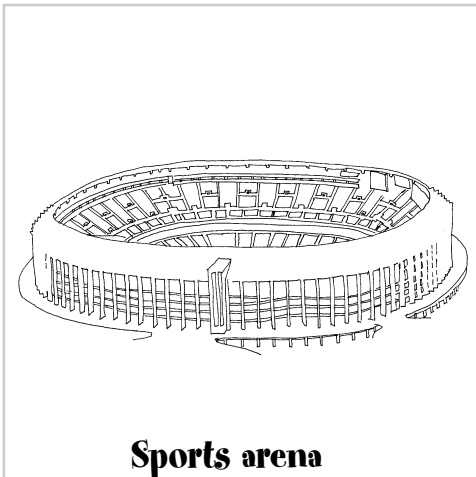
Bank

Gas station



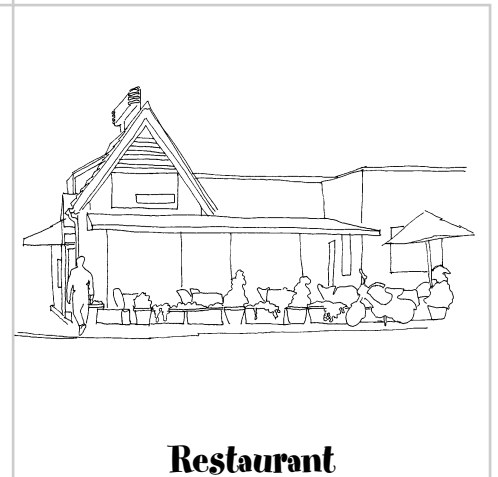
Office building

Shopping mall



Sports arena

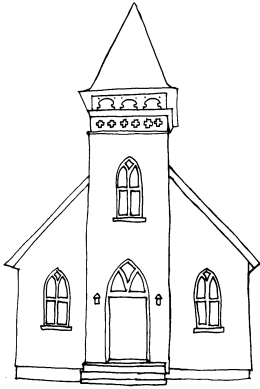
Movie theatre



Restaurant

Institutional-Blue

Places where people get help, learn, or receive government services



Place of worship

Police station

City hall



Library

Hospital

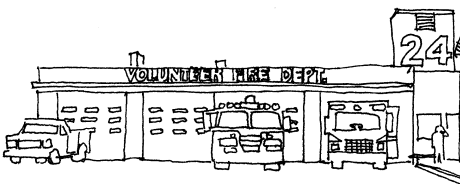
Courthouse



Government building

Post office

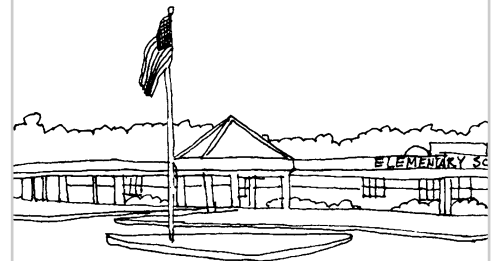
Military base



Fire station

Community center

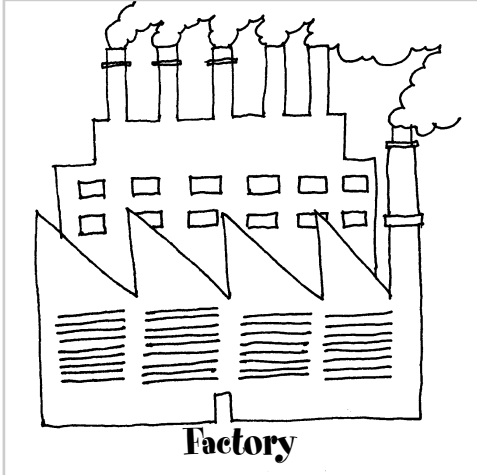
Museum and zoo



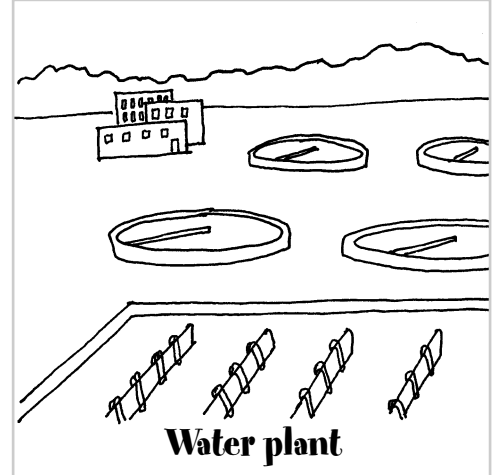
School

Industrial-Purple

Places where things are made, disposed of, or processed



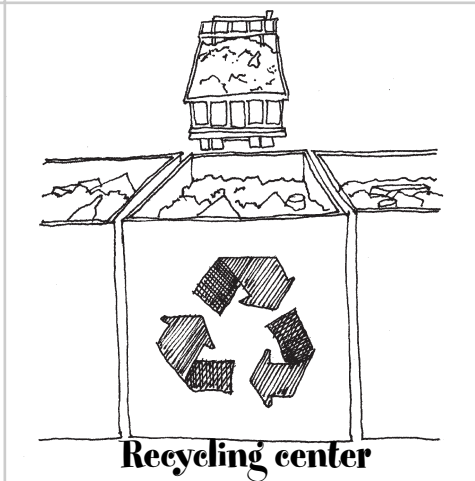
Factory



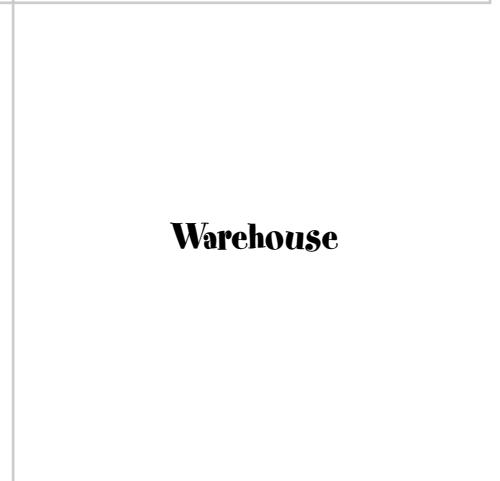
Water plant



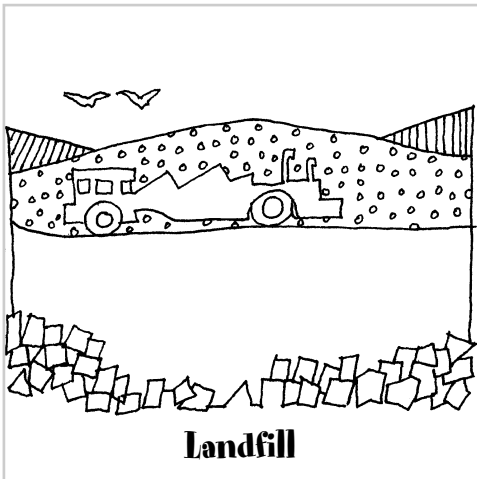
Trash transfer station



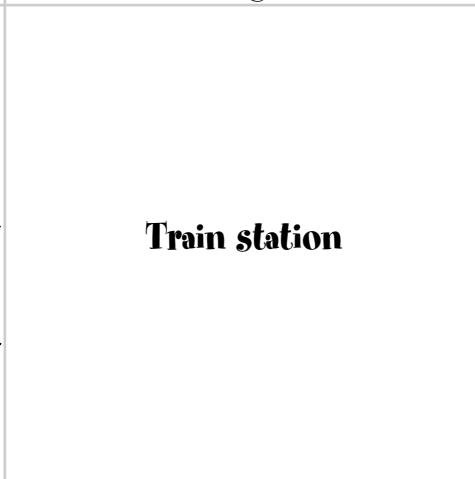
Recycling center



Warehouse



Landfill



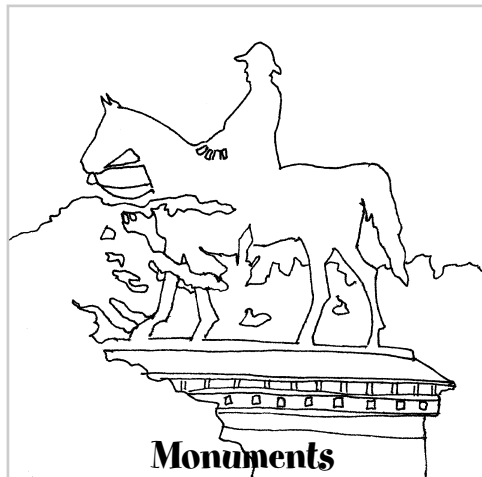
Train station



Airport

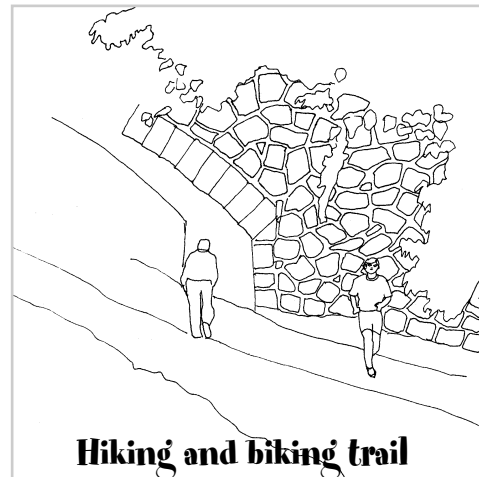
Open/Public Space and Parks—Green

Places where people play, exercise, or enjoy nature



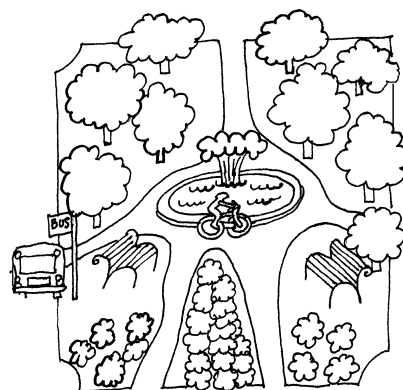
Monuments

Town square



Hiking and biking trail

Park



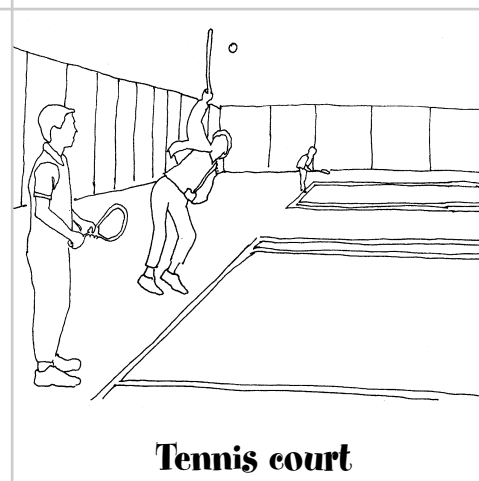
Plaza

Basketball court



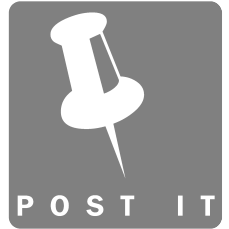
Playground

Recreation center



Tennis court

Mixed-Use – Combination of colors

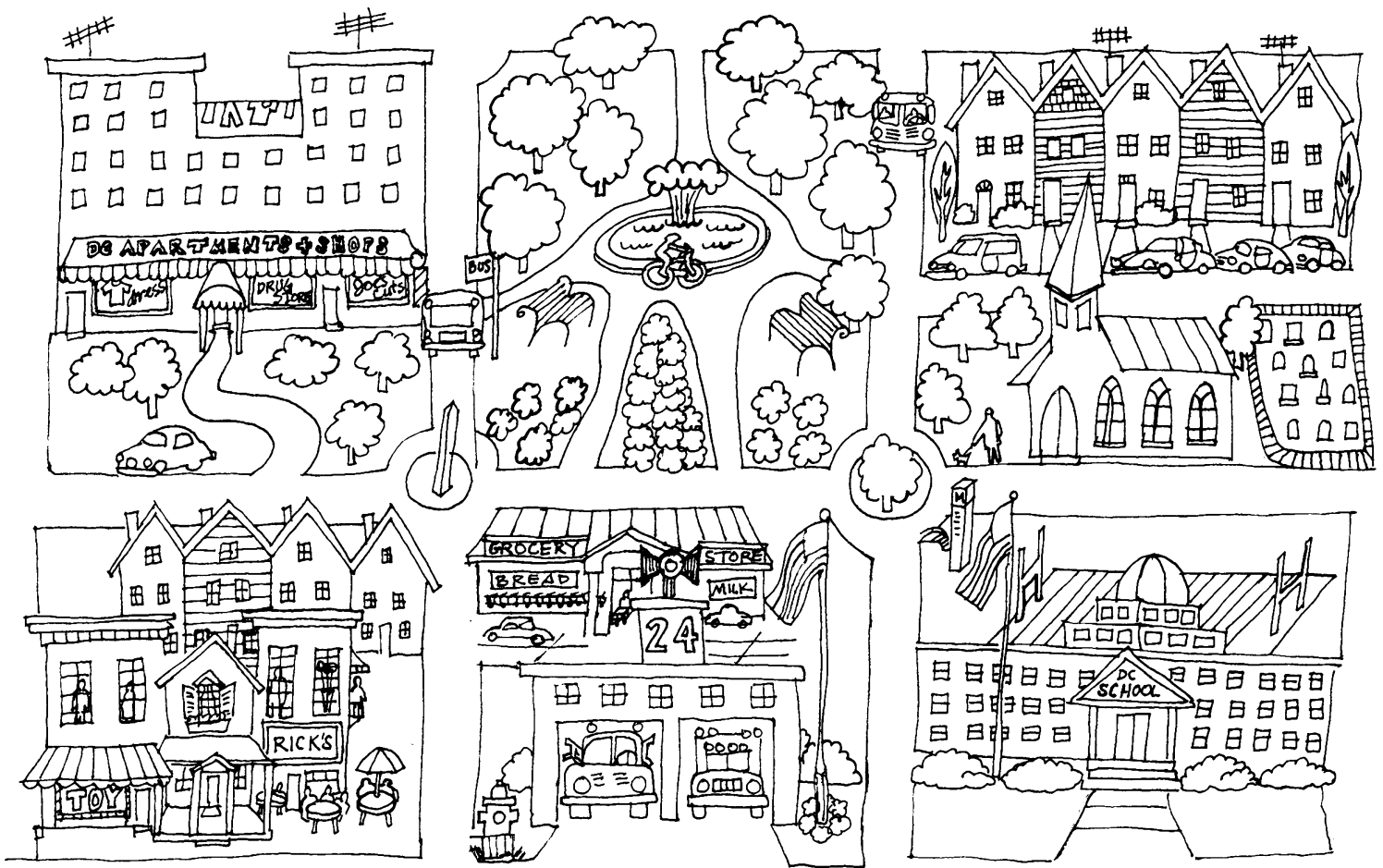


Places that serve more than one function

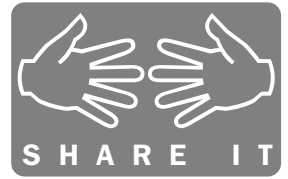
A building with apartments on the upper floors and stores on the bottom floor.

An area of a city that allows both commercial and residential buildings.

A neighborhood that includes residences such as houses, apartments, and townhouses; commercial uses like a coffee shop, dry cleaners, and grocery store; institutional uses like a school; and open space like a park.



Building Survey



Name: _____

- Visit a building in your community and record what you see on this worksheet.
- If you are not able to visit a building, you may study a picture of a building. Newspapers, books, magazines, and the Internet are good resources.

Name or Type of Building: _____

Land Use Category (circle one):

Residential

Commercial

Industrial

Institutional

Open/Public Space and Parks

Mixed Use

Circle the correct answers below.

LOCATION

My building is located in a/an _____ area.



Urban

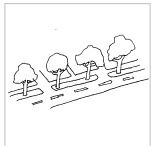


Suburban



Rural

My building is located on a:



Tree-lined street



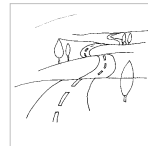
Park



Boulevard



Busy highway



Curvy road

Other? Draw it.

My building is:



Set back from the street



Close to the street

What types of buildings are near your building?

Places of worship

Businesses

Factories

Schools

Other? Write it.

Office buildings

Hospitals

Houses

Stores

None

TRANSPORTATION What types of transportation can be used to access your building? Circle if you see a:

Parking lot

Bus stop

Metro stop

Bike path

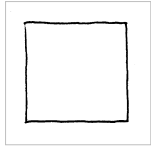
Sidewalk

Building Survey

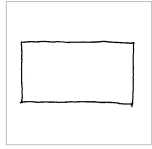


ARCHITECTURE *Look at the front of your building.*

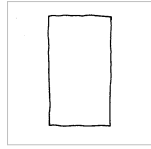
My building is shaped like a:



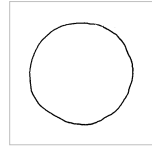
Square



Long rectangle



Tall rectangle



Circle

Other? Draw it.

My building is _____ stories high.



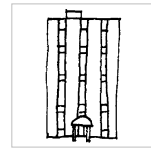
One story



Two stories



Three stories

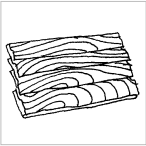


Four stories

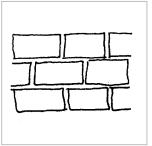


More? How many? _____

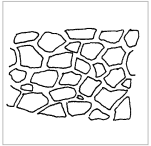
My building is made out of _____. (*circle all that apply*)



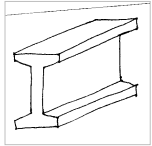
Wood



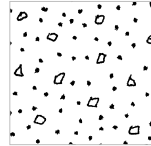
Brick



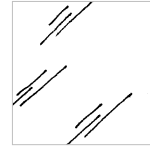
Stone



Metal

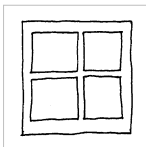


Concrete

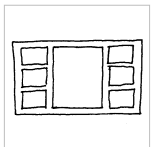


Glass

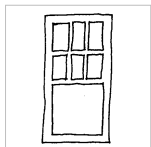
The shape of my windows is:



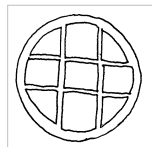
Square



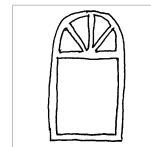
Long



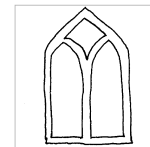
Tall



Round



Arched

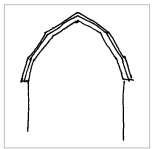


Pointed

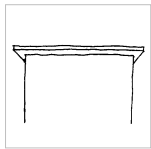
Look at the roof. What type is it?



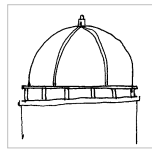
Pitched



Vaulted



Flat

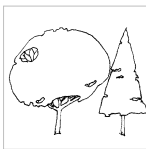


Dome

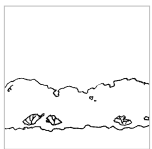
Other? Draw it.

Is there a sign on the building? If so, what does it say? _____

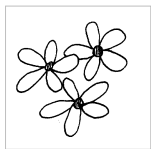
LANDSCAPING *The plants that are found near my building include: (circle all that apply)*



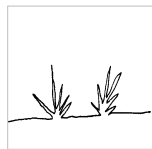
Trees



Bushes



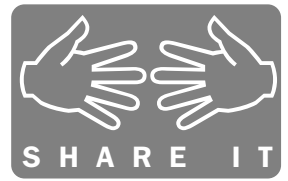
Flowers



Grass

Other? Draw it.

I Spy Buildings and Places



Teachers:
Bring pencils or pens on the bus
or Metro for students to be able
to complete this exercise.

Name:

As you travel to or from the National Building Museum, look around and see which buildings and places you can find.
As you spot one of these buildings or places, circle it.

Commercial Buildings

Grocery store



Pharmacy



Clothing store



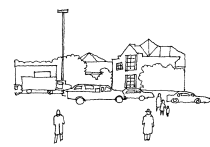
Bank



Office building



Shopping mall

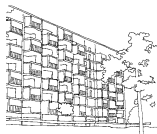


Residential Buildings

Single family home



Apartments



Townhouse



Duplex



Retirement Home



Mobile Home



Institutional Buildings

School



Fire station



Place of worship



Museum



Police station

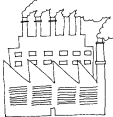


Library

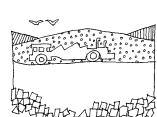


Industrial

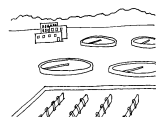
Factory



Landfill



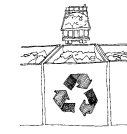
Water Treatment



Power Plant



Recycling Center



Airport

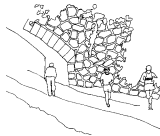


Open & Public Space/Park Recreation

Monument



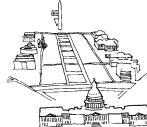
Park



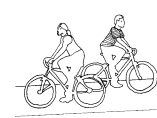
Playground



National mall



Bike trail



Town square

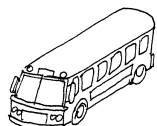


Transportation Types

Car



Bus



Metro



Bicycle



Person walking



Motorcycle

