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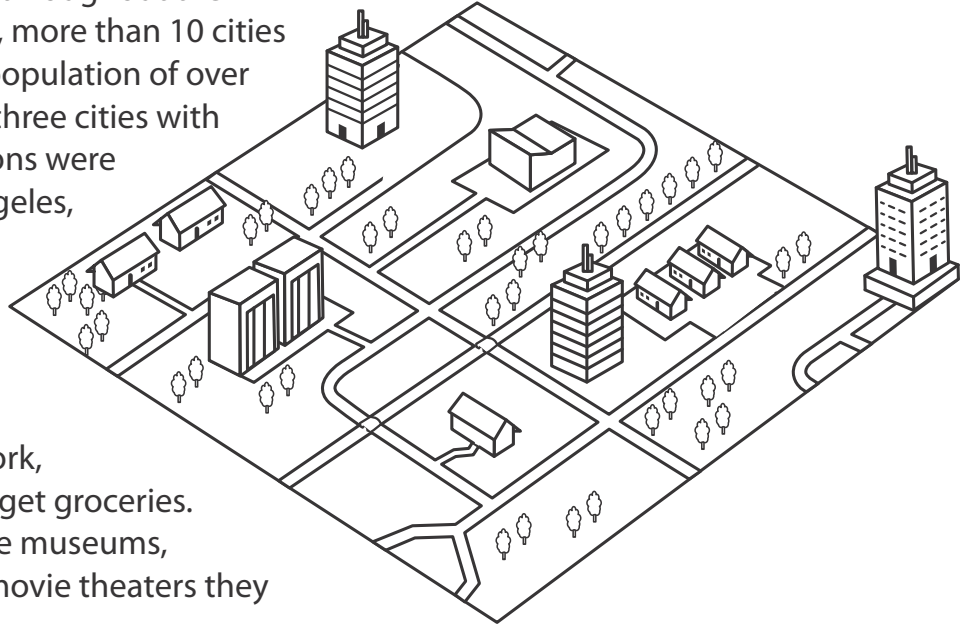
Pick a Project

Project 14A

Planning Cities

Large cities are found throughout the United States. In 2018, more than 10 cities in our country had a population of over 1 million people. The three cities with the greatest populations were New York City, Los Angeles, and Chicago.

People who live in cities need ways to get around town, travel to schools or work, get medical care, and get groceries. They also want to have museums, shopping malls, and movie theaters they can easily get to.



The people who figure out the best ways to lay out a city are called city planners. City planners decide where to place buildings and roadways. They make maps of where everything should be.

Your Project Plan a City

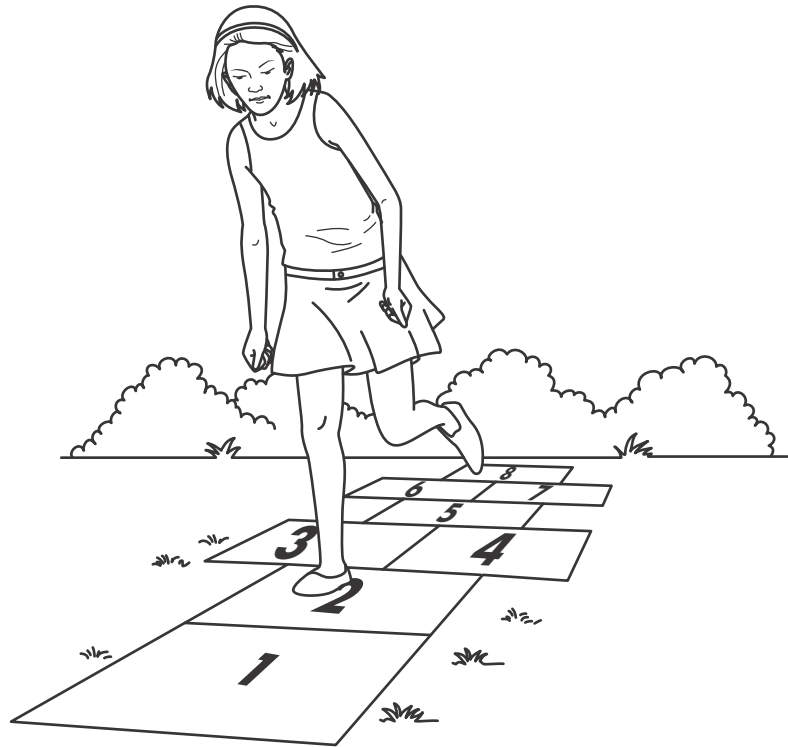
Research maps of large cities in your state. Look for maps that are laid out on a coordinate grid. Notice how these maps allow for roads and parking as well as buildings.

Now design your own city. Decide what you want to include, such as a library, community center, shopping center, or even a dog park. List eight places and structures you want to include.

On a coordinate grid, plot each of the places you listed for your city. Label each place using an upper case letter, such as A, B, or C. Then, attach a list of your places, the letter that shows each of them on your map, and the coordinates that correspond to each place.

Game Time!

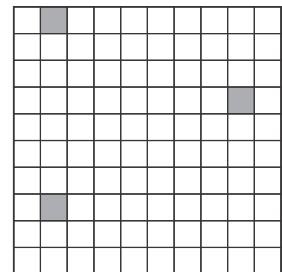
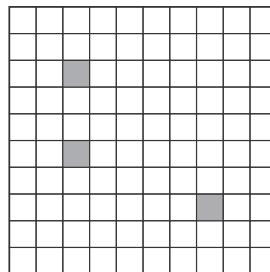
Some outdoor games, such as *Capture the Flag*, have been played by children for a long time. In *Capture the Flag*, there are two teams, each with a flag planted outdoors. The object is to capture the other team's flag without getting tagged by a member of the other team. Another outdoor game that is still popular is *Hopscotch*, which just requires some chalk and a sidewalk. Some reports show that *Hopscotch* may have been played more than 1,000 years ago!



Your Project Make Your Own Game

The name of the game is *Capture the Squares*.

You and a partner each have a 10-by-10 coordinate grid, on which you both plot squares that are each 1 unit by 1 unit. You have to capture your partner's squares by moving a certain number of squares up and down and/or left and right on their opponents gameboard to capture squares.



Create a set of rules for your game that explains the goal of the game, how many players, how to play, how to capture a square, if there are bonus points, and how to win. Create whatever rules will make a fun game for you and your friends to play. Then play the game and have fun!

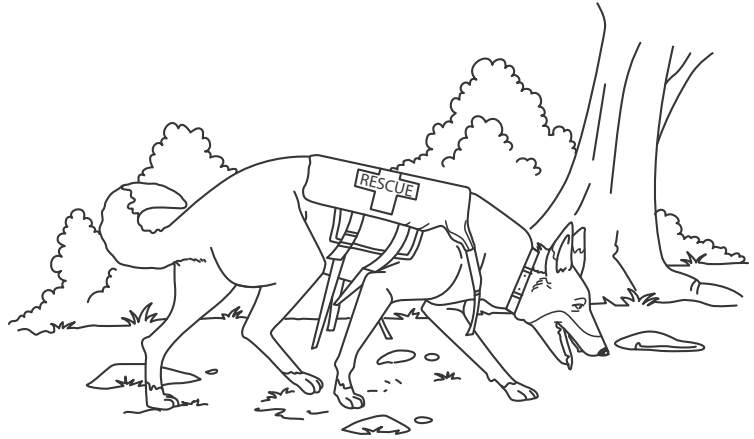
Name _____

Pick a Project

Project 14C

Search and Rescue Dogs

Dogs can be wonderful pets. But they can also save lives. When people become lost in the woods or trapped in buildings that have fallen down, dogs can help sniff them out. Some dogs can smell a scent from hundreds of meters away. They can use their sense of smell even in a thick forest and in the dark.

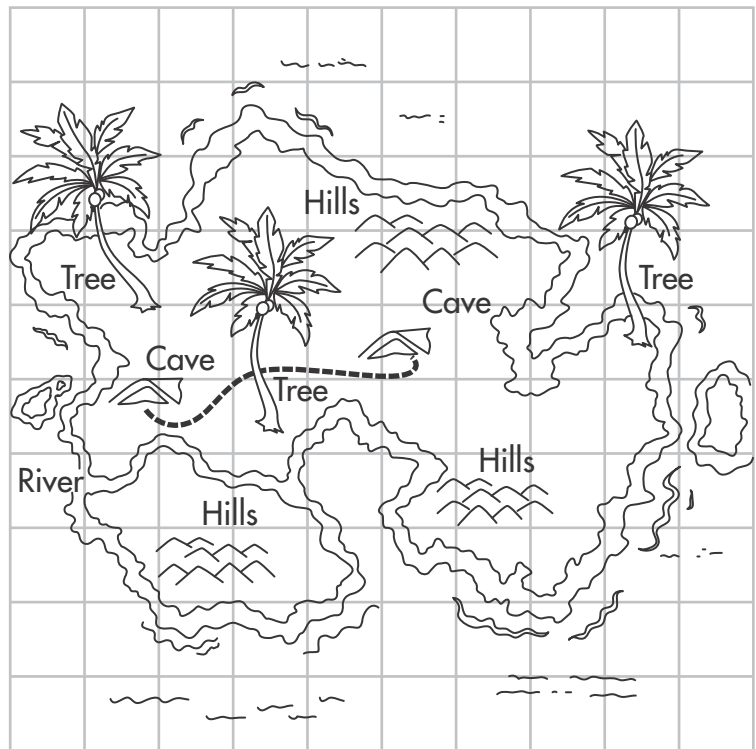


In addition to a great sense of smell, dogs have great hearing. They might be able to hear a person calling for help from far away. Some dogs can even squeeze into tight spaces to find a person who has become trapped.

Your Project Write a Story

Write a story about you and your dog searching for a missing hiker. Your story should describe the clues you and your dog discovered and include up to five places you looked but did not find the hiker. Describe how your dog helped your search.

Show each place on a 10-by-10 coordinate grid. Mark and label each stop with an ordered pair. Draw a picture, such as a cave or a cabin or a tree, that shows where you stopped. Tell what happened at each stop and describe any strategy you used in your search. And tell how you finally found the hiker.



Name _____

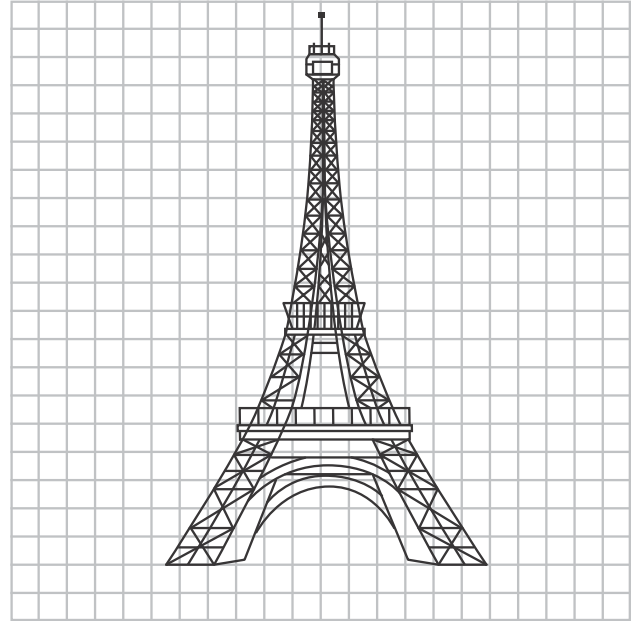
Pick a Project

Project 14D

Math and Art

Coordinate grids are not only for mathematicians. Sometimes artists use a coordinate grid to help with their drawings and paintings. Drawing with a coordinate grid can help an artist see the relationship between objects that are being drawn. A coordinate grid is an excellent way to practice making lines of all sizes, too.

Leonardo da Vinci is one of the most well-known artists of all time. In the 1400s, da Vinci drew images on a coordinate grid in the background to make sure the relationships and sizes were accurate.



Your Project Draw a Picture Using a Grid

Draw and color a picture on a grid. You can draw anything you would like. Use the grid to make sure matching parts of the picture are the same size. For example, the petals on a flower might all be the same length. Or you might show that the wheels on a car are all the same height and width.

Mark several points along the edge of your drawing. Label their coordinates on the grid. Explain to a partner how you can use the points to describe parts of your picture. For example, "I know the tree is taller than the mailbox because the y-coordinate of the top point is greater."

