

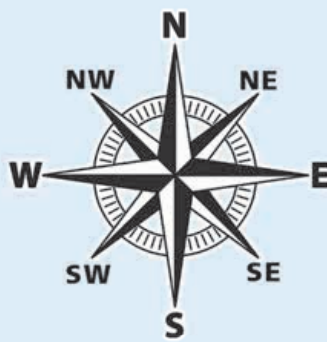
Western Hemisphere Studies Weekly 5

REGIONS AND PEOPLE

Maps and Globes

Maps are important tools. They are models of the world we live in and come in many different forms. Some show us where the boundaries or borders of a place are. These are called political maps and can include the location of cities and towns, too. Other maps show physical characteristics, such as mountains, lakes and rivers. When you want to use a realistic map, reach for the model called a globe. Globes are 3-dimensional models of Earth that are shaped like a sphere. They are divided into hemispheres, or half spheres, by imaginary lines called the equator and the prime meridian. Since Earth is not flat, globes are more realistic than flat maps. That is a very good thing! But globes are not very practical when you travel or if you want to see places up close.

No matter what kind of model or map you choose, trust a good one to have several tools to help you use and understand them. First, look for a compass rose, which shows the cardinal directions – north, south, east and west – as well as intermediate directions, including northeast, southeast, northwest and southwest. Next, find a box on the map called a legend or key. A key explains the symbols that map makers use to help us find places at a glance. Symbols are used to represent places. Campgrounds may be shown using a picture of a tent, or a fuel pump might be used to show where a gas station is. Finally,



you may notice that many maps have lines on them. Lines of latitude are called parallels and run from east to west. They are parallel to the equator. Lines of longitude are called meridians and are drawn from north to south. The prime meridian is at 0 degrees longitude. The grid created by these imaginary lines helps us measure distance and locate places like streets and addresses do. Maps and globes are amazing tools!

Connections

Satellites

A satellite is an object that orbits around Earth. Satellites can be natural, like our moon. They can also be artificial, or man-made. Scientists created artificial satellites so we could learn more about our planet.

The first satellite was named Sputnik. It was launched in 1957 by the Soviet Union. Sputnik sent information to scientists back on Earth. It allowed them to analyze how radio signals traveled through Earth's atmosphere from space. The United States recognized that satellites could give us valuable information. And so, the boom in space exploration began.

As of 2017, more than 2,000 satellites are orbiting our planet. They're all collecting and sending out information. Some of this information includes photographs of Earth. These crystal-clear photographs are called satellite imagery. They show us exactly what the surface of our planet looks like. At night, satellite imagery can take pictures of glowing cities. In the light, satellites can pick up even small details. They can show the depth of oceans, the length of rivers, and cracks in the earth's crust. Thanks to satellites, we have more accurate information about Earth than we've ever had before. And, we're able to see Earth from a perspective that was once impossible.





Tools of Geography

In this issue, we will learn about maps and globes and how to use them to find places, measure distances and get important information. When you are finished with the lesson, you will be ready to make your own map!

Globes and Maps

You have seen both round globes and flat maps of the world. What is the difference between the two? Both a round globe and a flat map of the world show the same cities, countries, oceans and landforms, but they are useful to us in different ways.

A globe is a round model of the world. A globe shows Earth just as it is in real life, only smaller. By using a globe, you can see how the Earth rotates, or turns, and where each country is in relation to other countries.

A flat map shows the same information as a globe, but it allows us to see the entire world all at once, rather than in pieces as with a globe. You can only see one side of a globe at a time, but when the globe is flattened out into a map, you can see everything all at one time. One type of flat map that is commonly used is called the Mercator map. It is based on a cylindrical projection. This means they took our round Earth and reshaped it into a cylinder so that all of the lines of latitude and longitude are perfectly parallel and perpendicular with one another. Flattening the globe this way causes distortion to the sizes and shapes of Earth's features. However, flat maps like these are helpful for sailors as navigation charts.

Parts of a Map

Maps include more than just countries, cities, oceans and landforms. Maps also include many special tools that help you to find what you are looking for. Many maps

have a title at the top to inform you about the information you can find on them. The title of a map can tell you what location, or place, the map shows. Some maps that you may be using this year could be titled "Map of the World," "United States of America" or "Landforms of the United States."

Compass Rose

All maps have a compass rose, a small drawing showing the directions on the map. The compass rose always shows the cardinal directions, which are north, south, east and west. North is always at the top of the compass rose, east is on the right, south is at the bottom and west is on the left.

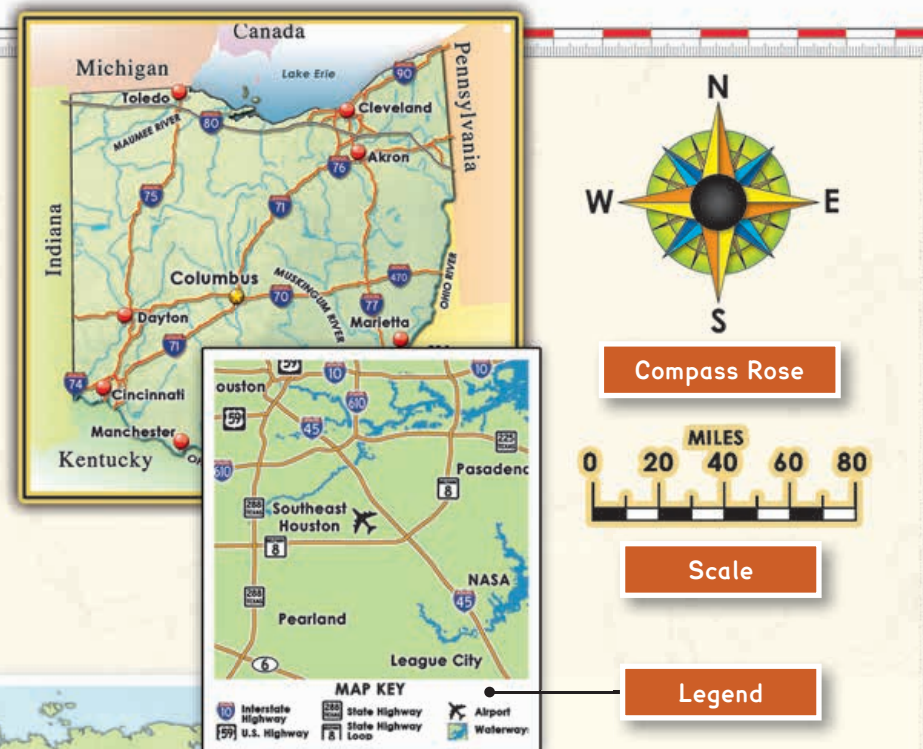
The compass rose can also show the intermediate directions. Intermediate directions are the directions directly between the cardinal directions. The intermediate directions are northeast, southeast, northwest and southwest. By looking at the compass rose, you can find out exactly where each item on a map is located.

Legend

The legend of the map is a key that lists all of the symbols on a map. These symbols stand for things such as the streets, rivers, monuments, parks, buildings, capital cities, schools and more. The legend of the map helps you to know what each symbol on the map means.

Scale

Another tool used on a map is a scale. A map's scale shows the distance represented on the map. One inch on the map will be equal to an actual distance in miles. For example, an inch on the map may be equal to 1,000 real miles.



Grid System

Some maps use a grid system, or a system of numbered and lettered lines, to help you find places more easily. On a map that uses a grid system, there will be letters such as A, B, C, etc., running across the top of the map and numbers such as 1, 2, 3, etc., running down the side of the map. If you know that a certain city is located at point 2A on the map, you can find it easily using the grid system of the map.

In our study of history, geography and social studies this year, we will be using maps to help us find out where things are and how they relate to each other.

Cartographers

A cartographer is a mapmaker. Cartographers work to turn data about Earth and its features into maps people can use.

People have been mapping out the world they live in since prehistoric times. Maps of hunting grounds, travel routes, bodies of water and even maps of the stars have been found sketched on the walls of caves. These maps are less accurate than the maps we have today. But they still served the purpose of helping people learn about their surroundings.

Over time, people made improvements in cartography. The ancient Greeks used astronomy and scientific estimation to map the world. The Romans created maps for political reasons - to expand the Roman Empire. With better technology came better maps. Explorers like Meriwether Lewis and William Clark had improved boats and equipment. This gave them greater access to the world. Lewis and Clark led a famous expedition that crossed the wild North American continent through to the Pacific Northwest in the early 1800s.

Today, cartography is an exact science. Our maps are very accurate and they keep getting more accurate with the help of technology. They can tell us precise coordinates of cities, roads and trails. We know exactly where each continent is. We've defined each body of water. We know it's exactly 24,901 miles around the equator. Some maps can even talk to us, to tell us how to get from one place to another.

Our present-day cartographers have less exciting lives than Lewis and Clark. They don't explore the wilderness, at least not most of the time! But they have a quiet and great satisfaction. Today's cartographers make maps that are precise. They use data provided by satellites. They're able to give us the most accurate information about the planet we live on.



Trades & Technology

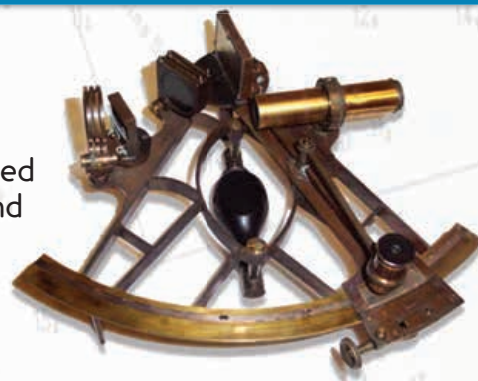
The Sextant

The sextant was invented in both America and England at about the same time, around 1731. The sextant is a special gadget used to measure how high the sun or stars are above the horizon.

These measurements (also called "readings") are then used to figure out a person's location on Earth. Using the sextant, people have been able to make accurate maps. They've also been able to navigate ships at sea and learn more about the sun, moon and stars.

The sextant is a triangular frame attached to a telescope and a mirror. The sextant reflects the image of the sun in the mirror, and the user can measure how high in the sky the sun is found. It's a neat way to figure out where on Earth a person is standing.

The sextant is one of the great inventions that helped early cartographers, or mapmakers, to create maps that were more accurate than ever before.



Biography

Alexander von Humboldt (1769-1859)

Alexander von Humboldt was one of the founders of modern geography. Born in Germany in 1769, von Humboldt traveled all around the world, including Latin and South America. In 1800, he traveled over thousands of miles of previously uncharted territory. In fact, many places and species of animals he discovered are now named after him. In his lifetime, von Humboldt studied and researched Earth's magnetism, climate zones and human interaction with the environment. His book "Kosmos," published in parts from 1845 to 1862, included all that was known about Earth at that time. Von Humboldt was one of the first scientists to believe that Africa and South America were at one time joined, now recognized in the Theory of Plate Tectonics. Charles Darwin, a famous scientist who developed the Theory of Evolution, described von Humboldt as, "the greatest scientific traveler who ever lived." What a great compliment!



Why Geography?

Natalia is running late. "I'll take the shortcut through the woods," she decides, turning her bicycle to cross onto the dirt path. However, her tires squish in the mud and a puddle from last night's rain sprays up against her backpack.

"Rats!" she says, braking to a stop and craning her neck to check on her backpack.

At school, Natalia takes her seat as Ms. Johnson announces, "This week, we're learning about geography and the shape of our land."

"Yes!" says Steven. "Geography is fascinating!"

Natalia isn't so sure. "Geography is great to learn about," she says, "but is it useful? I mean, don't we already know what the entire world looks like? It's already been mapped out for us."

"Well," explains Ms. Johnson, "geography is more than just mapping the land. Knowing how the land affects us — and how we affect the land — helps us to run our governments, schools and businesses. We do already know a lot about what our world looks like, but it's important that we know how to use that information. Who knows one way that we use our knowledge of geography?"

Claire raises her hand. "What about schools? This school was built years ago. The city planners had to know about the land just to be able to plan out the school. And architects had to know about the land so they could choose the right materials to build with."

"That's one idea," Ms. Johnson says. "But how does this school need geography, even though it's already built?"

"Schools educate students about geography! Otherwise, there won't be any good planners in the future!" answers Claire.

"Another valid point," Ms. Johnson says. "But what do we need geography for right now?"

"They need geography to plan the bus routes," Steven says.

"That's a good example," Ms. Johnson replies. "Six hundred kids attend this school, and many of them get here by bus. A lot of knowledge of the layout of our land goes into creating those bus routes."

"I guess the government uses geography in a similar way," Claire ponders. "Governments need to know about people, houses and businesses. People are taxed differently, depending on where they live." Natalia's mind clicks into gear. "And governments need to know where people live — and about the land they live on — in order to distribute resources, like water, electricity and gas!" she says excitedly.

"Correct!" beams Ms. Johnson. "The government also builds and maintains our roads. Imagine how difficult it would be for engineers to design a road thousands of miles long if they had no knowledge about the land. The land could be too soft, too steep or too wet to build on."

"I guess if I had known more about the geography of my shortcut, I would've known it would be too muddy to ride across," laughs Natalia.



Name _____

My Global Address

Activity

Have you ever sent someone a letter or received a package? The address that is on the package tells the delivery person where you live.

Let's use that concept with maps. Make a flip book for note-taking that represents your global address. There are approximately eight levels to your global address. For each level, create or color a map or draw a picture that represents where you live. Your teacher will help with this activity.

1. Where are you in the world? - On a world map, you live in the United States.
2. Where are you in the United States? - In the United States, you live in a specific state.
3. Where are you in your state? - In your state, you live in a specific county.
4. Where are you in your county? - In your county, you probably live in a city or town.
5. Where are you in your town? - In your town, you live on a certain street.
6. Where are you on your street? - On your street, you live at a certain house.
7. Where are you in your house? - In your house, you probably have a specific room.



Map Features

Activity

Study this map and complete the following activities.

1. What type of map is this? (political or physical)

Explain how you know it is this type of map.

2. Choose a good title for the map. Write the title where it belongs on the map.

3. Find the compass rose on the map. Label it with the cardinal directions. North is already marked for you.

4. The grid system for the map has not been completed. Study the grid system and add the rest of the labels for the grid.

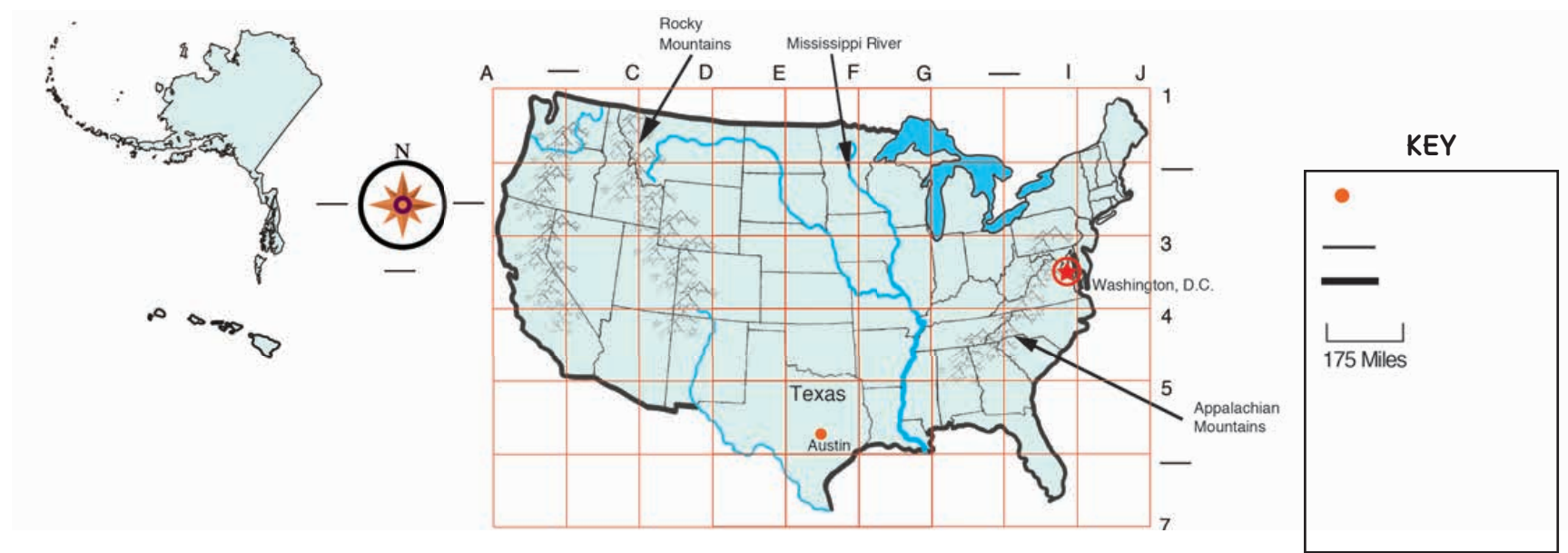
5. What is the symbol for the national capital?

Add the symbol and its meaning to the key. Fill in the rest of the key.

6. Find and name the national capital of the United States.

7. The Mississippi River is more than 2,300 miles long. Find and trace this river with a colored pencil.

8. Find the Rocky Mountains on the map. How many U.S. states include part of the Rocky Mountain range?



1. Why were imaginary lines placed on maps and globes?
2. Ms. Johnson says that geography is more than mapping the land. What does she mean by that statement?
3. What is one main benefit of sending satellites into space?
4. In what scenario would you rather look at a map rather than a globe?
5. Why did maps improve in accuracy and quality over time?

Think & Review

Think about the satellites that we have today. In your opinion, how do you think using satellites affects our everyday lives? Consider when and for what purpose that satellites are used by your teacher, your parents and maybe even yourself. What might be different if we did not have access to satellites?

Let's Write