Chapter 2

Region:
a geographic "big idea"
to help us remember places

A region is a group of places that are
similar to each other and located close to each other.

Grouping places into regions can make it easier to remember things about them -
where they are, what they're like, and what other things might be related to them.

The value of this skill is obvious when you look at maps of North America -
maps that show mountains, growing season, rainfall, forests, grasslands,
land use, population, Civil War history, and even religion.

Our goal in this chapter is to learn how to interpret maps like these.

A pioneer family, heading west – and the idea of culture shock

Shortly after the Civil War ended, a family decided to leave their home and move west. The government was giving free land to anyone who wanted it. All they had to do was plow a field, build a house, and live there. The family wanted to claim some of that free land!

First, they bought a wagon. Then they tried to decide what to take with them.

They knew that the nearest store might be many miles away from their new home.
They also knew the wagon had a limited amount of space. They had to decide carefully!

This little story is an illustration of an important idea about geography. Here is the idea:

Your *culture* is a powerful influence on what you do in a given situation.

Definition: A **culture** is a set of shared mental rules about how to act –
how to plant crops, build houses, make art, write laws,
organize cities, run schools, and even pray to your God.

You can tell a lot about the culture of people by looking at the things they own.

For example, look at what this family chose to take along when they headed west:

- some guns and powder, in order to hunt for animals to cook and eat;
- some extra clothes, blankets, and towels;
- an axe or two to clear land (or maybe just one axe and an extra axe-head – that would save space, and they could use one axe to cut wood for another handle later);
- saws, hammers, and nails (because they would have to build a house and furniture when they got to their new land. Their wagon could not carry much furniture!
- shovels to dig a well, and buckets or pails to carry water;
- a wood-burning stove and some pots and pans for cooking;
- seeds to plant – corn and pumpkins and beans, maybe some flowers;
- tools for planting and harvesting these crops . . .

And so on – one decision after another until the wagon was full.

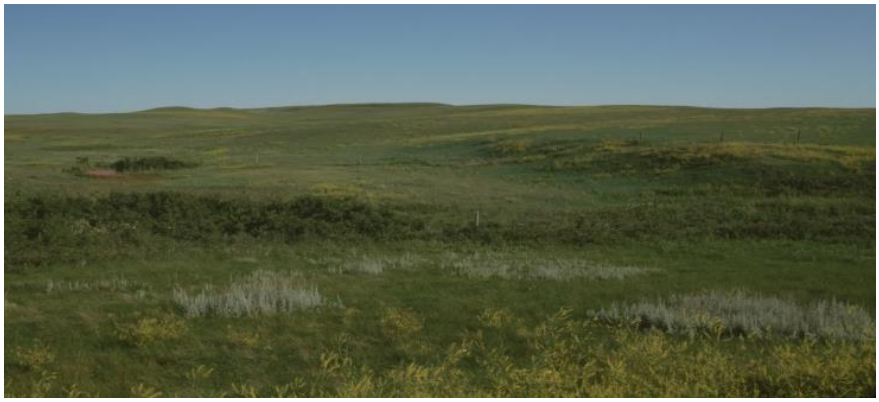
Then they traveled,
for a long time.

When they finally arrived,
they looked at their land,

and

there were no trees.

This family had come into
a different *region*
of the country.



They had left the region of forests, log cabins, and corn fields. They were now in a grassland. In a grassland, with no trees, an axe or a saw is about as useful as an airplane made of bricks. Many of their carefully chosen tools were worthless. That realization is called *culture shock*.

Definition: **Culture shock** is what happens when you go into a place
where your culture does not fit the conditions around you.

Let's be honest. The story about a family probably never happened in exactly that way.

A real family would try to plan better. They might try to find people who had already seen the new land. These people would know that things were different there.

In effect, these people had a kind of map in their heads. The map would show where the land was covered with trees or grasses. You could call this "a regional map of plant cover."

Definition: A **Regional map** shows groups of places that are similar in some way.

People can make many kinds of regional maps.

- **Geologic regions** are areas where certain kinds of rocks are found.
- **Economic regions** are groups of places where people do certain kinds of jobs, like farming, working in factories, writing computer software, and so forth.
- **Language regions** are areas where people speak specific languages.
- **Religious regions** are areas where people follow certain religions.

You could make a regional map that shows where people cheer for different sports teams. You can make maps that show where people like monster movies, drive pickup trucks, or plant flower gardens. You can make a regional map about nearly anything.

As a result, there is no such thing as "the" regions of an area like North America. A continent can be divided into many different kinds of regions. Sports regions, for example, are likely to be different from forest regions. So let's repeat, for emphasis.

There is no such thing as "the" regions of a state, country, or continent.

Some regional maps, however, are more useful than others. These maps have good *criteria*.

Definition: A **Criterion** is a measure that you use to divide things into groups. For example, you might put places into a group if they have a certain kind of rock, or a lot of fields of corn, or mostly people who came from China.

If you choose good criteria, a map of regions can help you remember many other facts. For example, a map of forest and grass regions can help you remember where Native American people built log houses and where they lived in buffalo-skin teepees. Today, it can tell store owners whether they should try to sell chainsaws or mowing equipment.

In a similar way, a map of rock regions could tell people where they might find gold or oil. A map of religious regions can help politicians predict voting patterns.

In this chapter, we will describe simple criteria that make four useful lines in North America. These lines can help us organize our knowledge of the environments of North America. This, in turn, can make it easier to compare conditions in other places around the world.

These lines also illustrate the *process* of making regional maps. This knowledge can help you read other regional maps. You will realize that *regional maps are generalizations*. They have:

- **inliers** (places within a region that are not like the other places in the region) and
- **outliers** (places that are like a region but too far away to be included in the region).

So, let's try to divide North America into a few regions that are easy-to-remember but useful.

QUESTION: *What might be the most important dividing line for an entire continent?*

Line #1 goes between two big landform regions.

Draw a line that goes roughly from the north edge of Alaska to the east coast of central Mexico.

This line separates North America into two regions:

- The **western region** has high mountains made of relatively young rocks. Many mountains are still being formed by volcanoes and earthquakes.
- The **eastern region** has worn-down old mountains and nearly flat plains made out of older rock.

A geology book or website can give you details about *plate tectonics*. These are the geologic processes that make mountains.

This map line is a *generalization*. The real border actually curves a little. It is OK to draw it as a straight line. Just remember that it is a generalization!

Here are a few effects of these geologic processes:

- **Most of the land in the west is high** - often more than a mile above sea level. Rules like this, however, usually have exceptions. Some coastal plains, valleys, and canyons are low, but *most* of the land is high.
- **Most of the good food-producing land is in the east.** High mountains are too cold for farming. Mountains also block moisture-carrying wind. As a result, low areas between mountains are dry. (Exception: Some valley farmers can irrigate their crops with water from the snow that falls on the mountains.)
- **Transportation is easier in the east.** It is usually easier to build roads and railroads on flat land. Most big tunnels, steep slopes, and spectacular views are in the west.
- **All of the active volcanoes of North America are in the west.** Most major earthquakes are also in the west. Earthquakes in the east are rare and generally small. (When one does occur, however, it can cause a lot of damage, because people do not expect it.)
- **The processes that make mountains also make *ores*** (deposits of gold, silver, copper, and other metals). Most of the valuable metal mines in North America are in the west. Iron is an exception to this generalization. It is formed by a different geologic process. (Some eastern states have old metal mines, which were dug before the country expanded to the west. Most of these old mines were abandoned long ago.)
- **Most coal mines and oil wells are in eastern and central states.** Coal and oil are the remains of plants and animals that lived in swamps at specific times in geologic history. The major oil regions are just east of our line – in Texas, Oklahoma, Kansas, N. Dakota, Canada and northern Alaska. (A few other states have oil, but not nearly as much.)

This list shows why the idea of region is useful. One simple line can help you organize a lot of information about a continent – its scenery, farming, transportation, and minerals. All you have to remember is the general location of one line and some logical cause-effect statements.

Question: what do you think would be a good criterion to use in drawing another useful line?

Line #2 goes between farm and forest regions.

The second line goes roughly east-west through the Great Lakes. You could draw it as a big curve shaped like a hammock (see map). The line goes right through the "mitten" of Michigan.

This line separates places that have fewer than four frost-free months from places that have more.

Here is why this line is important. Most food crops need at least 90 days of warm weather, with no chance of frost at night. The date of the last frost in spring is not exactly the same every year. Neither is the date of the first frost in fall. To be safe from frost, therefore, farmers like to have an average growing season that is at least four months long.

The extra weeks give them time to prepare the ground after the last spring frost. They can also finish the harvest before the weather gets too cold.

This map line, therefore, marks the boundary between:

- a cold northern region where farming is risky or impossible,
  and
- a warmer region with longer summers, where farming is possible.

Very few people live in the cold northern region. Forests cover most of the land. The trees grow slowly, because this region has long, cold winters.

Most of Canada is in the cold region. This helps explain why Canada has only one-tenth as many people as the United States, even though Canada has more land. In fact, nearly all of the people of Canada live close to the border with the United States. In other words, they live near or south of the line that we just drew on the map!

The warmer southern region has most of the population, but it also has differences inside it. We will eventually draw two more lines to divide this area into a total of three regions.

A SCIENTIFIC CAUTION: The line between the high western region and the low eastern region is fixed by geologic processes. As a result, it is not likely to move. The 4-month frost-free line, however, could change position as a result of global warming.

This does not necessarily mean that people could start farming in northern Canada.

Here's why: The northern forests have been there for thousands of years. Before that, the land was covered by ice. The ice and trees had an effect on the soil. Most of the soil is thin, stony, and acid. Even if the climate got warm enough for farming, it would take decades of work and trillions of dollars to make the soil good for farming. As a result, it is foolish to say that we can solve global warming by moving north to farm new land!

Summary of what we've done so far. If you can remember just two lines, you can divide North America into three regions that have different characteristics and potential uses.

Question: What do you think we should use as the criterion for a third line?

Line #3 goes between forest and grassland.

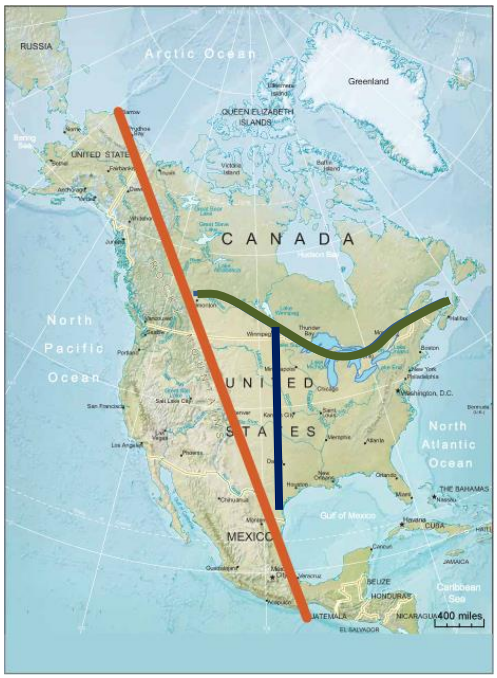
The third line goes straight north from south Texas.

Here is why this line is important: When airmasses from the Gulf of Mexico move north, they can drop rain and snow on the land. As a result, this line does a good job of dividing the land into two regions – a rainier eastern region and a drier middle region.

(P.S. This is the line that the pioneers crossed in the beginning of this chapter!)

In the chapter on the United States, we will draw this line more accurately by using actual measurements from many weather stations. A straight north-south line, however, is a good generalization. It divides the region where farming is possible into two parts:

- The eastern region gets more rain than trees need.
- The mid-continent grassland region does not get enough rain to support forests.



People can grow food in both regions, but they grow different crops. In the east, people can grow water-loving crops such as corn, soybeans, and vegetables. They can also grow tree crops like apples, and cherries. In hot places, they can even grow oranges and lemons.

The middle region is natural grassland. Unless they have a river, deep well, or other source of water for irrigation, farmers in this region are more likely to grow short-grass crops like wheat and barley. These crops are able to get by with less water than corn needs.

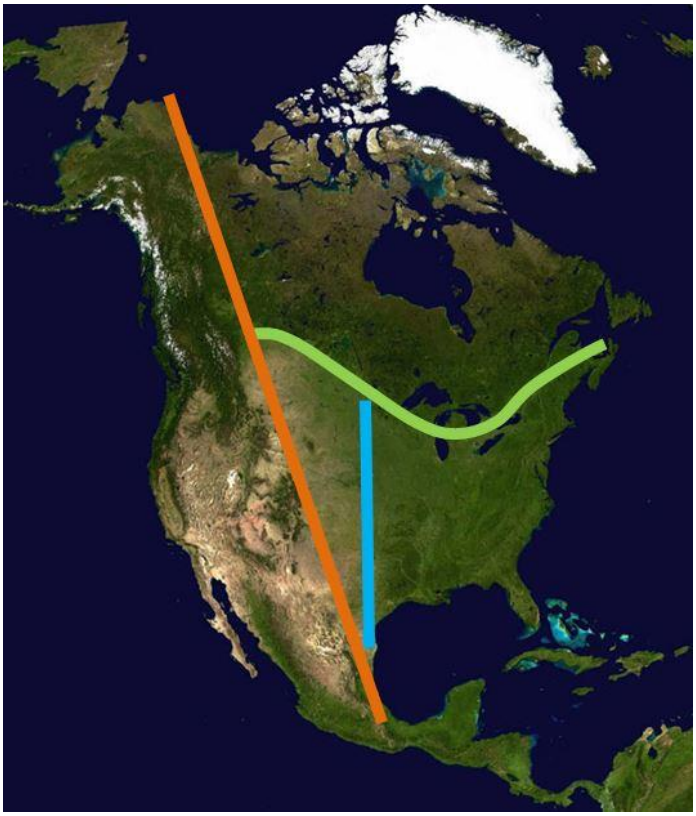
In a grassland region, there is always a danger of drought – dry conditions that can kill crops. The most famous drought was the so-called Dust Bowl in the 1930s. You can read about it in a history book or website. One of the main causes of the Dust Bowl was the fact that many pioneers did not adjust their farming "culture" to fit the actual conditions on the Great Plains. These people were still using seeds, tools, and techniques that fit better in the rainy region east of this third line. (The resulting crop failure and hardship is a kind of culture shock. Remember the definition? It's what happens if your culture doesn't fit your environment.)

Extra rain has many other consequences besides just being able to grow trees. For example:

1. **Surplus water can make rivers.** Rivers in the eastern forests (like the Tennessee or the Hudson) tend to get larger as they flow to the ocean. Other creeks join and add water. Rivers in the grasslands (like the Platte or the Missouri) are different. Most of them start in western mountains. Many actually get *smaller* as they flow across the Plains.
2. **Surplus water can remove nutrients from the soil.** For this reason, farmers in the rainy east have to add lime and fertilizer in order to get good crop yields.
3. **Surplus water can fill spaces in the soil and underlying rock.** People can get this *groundwater* by drilling wells. In the dry west, wells must be much deeper in order to reach water. (Actually, in many western places it is impossible to get any water at all.)
4. **Surplus water can cause landslides and soil erosion.** This can be a problem in places where people cut trees down to make space for buildings or roads. A large tree can use 50 gallons of water every day. If the tree is killed, the water has to go somewhere else. This is why smart builders in cities make ponds to store rainwater after storms.

Let's take a short break and see how these three lines work on other maps.

This satellite image of North America is from NASA (National Aeronautics and Space Administration).



We have drawn the three lines:

1. The long diagonal line separates the young rocks of the mountainous west from the older rocks and lower land in the east.
2. The curving east-west line separates the cold northern forests from the warmer areas where farming is possible.
3. The straight north-south line separates the eastern areas that get plenty of rain and snow from the middle areas that do not get enough rain for trees.

These three lines divide North America into broad environmental regions, which are obvious even on a satellite image. The northern forests are dark green (except in the far north, where the cold land is covered by scattered low plants or even just snow and ice). The central grassland is pale yellow-green. The eastern forests and farms are a middle green.

The western region has a complicated mixture of colors. This is because conditions for plants can change quickly as you go up from a low valley to a high mountain.

- **High mountains are covered with white snow.** This is understandably more common in the cold Canadian mountains than in the hot southwestern part of the United States.
- **Lowlands between mountains are hot and dry.** These lowland deserts have few plants. The color on the satellite image, therefore, is the tan or brown color of bare soil or rock. In a few really dry places, the ground is covered by white salt. (Trivia fact: people sometimes race cars on dry salt flats. To see some images of these race cars, do an image search on the internet using the keywords "Bonneville Salt Flats" and "race.")
- **Trees can grow on the sides of high mountains.** These trees are the same dark green as the northern forest. In some places, people cut these mountainside trees to make wood or paper. Many mountain slopes, however, are really steep. It's hard to get to the trees, and the wood is hard to transport after it is cut. As a result, many steep mountain areas are called National Parks or National Forests. People go there to hike, camp, hunt, or fish.

So, you see, these three lines divide the continent into regions we can see on a satellite image.

Question: If we were going to add one more line to the eastern part of the United States, what criterion would you use to draw that line?

Line #4 goes between heating and cooling regions.

The fourth line goes east-west across the middle of the region where farming is possible.

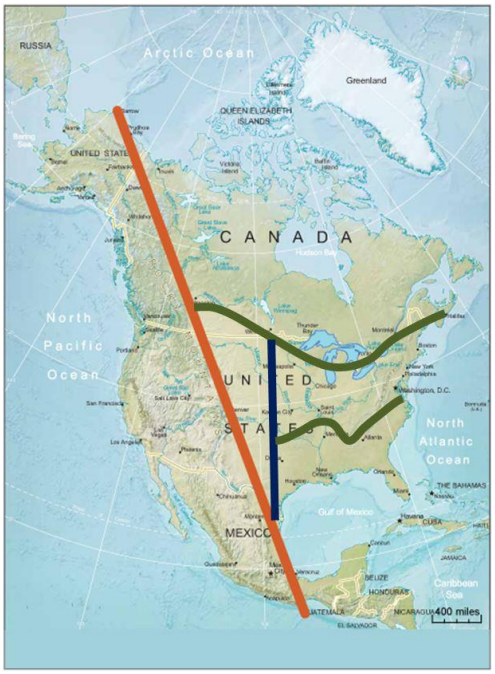
South of this line, places have at least seven frost-free months. North of the line, places have fewer than 200 days between the last killing frost in spring and the first freezing weather in autumn.

This line is important in American history because:

Cotton needs about 200 frost-free days to grow.

Because it needs a long summer, cotton could grow only in the South. In the chapter about the United States, you will see why cotton also needs a lot more work than corn or wheat. The demand for labor helps explain why Southern farm owners wanted slaves. Slavery led to the Civil War, Reconstruction, and many other events in American history.

For this reason, we think it is useful to remember where this line goes on a map of North America.



Like the other lines, this one also can help us remember other useful facts. For example:

- **The line generally marks a balance-point for energy use.** North of the line, people spend more money for heating. South of the line, they spend more for air-conditioning. This is important because heating and cooling often use different kinds of energy. Most northern people heat with natural gas or oil, but nearly all air-conditioners use electricity.
- **The line marks the area where dead leaves can decay in one year.** North of the line, dead leaves and roots decay slowly. Partly-decayed leaves and roots form dark brown or black *humus* in the soil. Humus makes soil easier to plow. It also helps to store plant nutrients and water. South of the 7-month line, leaves and roots decay quickly. As a result, most southern soil is red or orange (like rusted iron). These soils are harder to plow, and they do not hold water or fertilizer as well.
- **The line tells us roughly where trees grow fast enough to make planting worthwhile.** North of the line, trees grow slowly. People often just let natural processes replace a forest after the trees are cut. South of the line, trees grow faster. People are willing to pay for tree planting. As a result, you see more *managed forests* in the South. These have trees planted in straight rows, with nearly bare ground around them.
- **Finally, ice once covered most of the land north of this line.** These *glaciers* scraped soil off high places and filled low places. They often ground the soil to a fine powder. They left irregular ground with many low hills, lakes, and swamps. (If you want to draw the glacier line more accurately, trace along the Missouri and Ohio Rivers.)

All these differences are important for land use, road construction, houses, and recreation.

In other words, this line can help us organize a lot of other useful information about the continent. That, of course, is the whole purpose of *regionalization*.

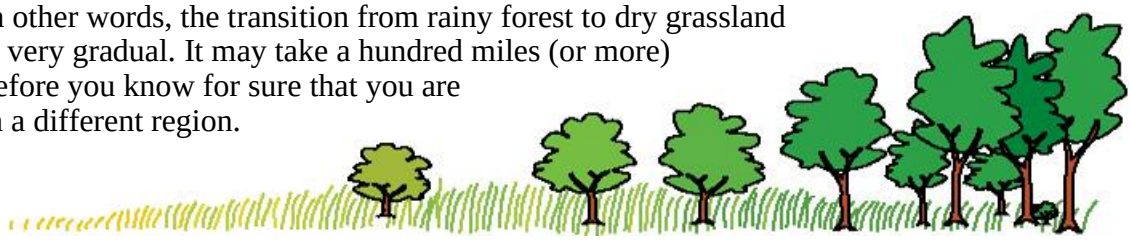
Definition: **Regionalization** is the process of dividing an area into smaller areas, where each small area is a group of places that have important features in common.

Transitions between regions – are they sharp lines or gradual changes?

We have now drawn four lines. These lines divide North America into five major regions:

- The **western mountain region** has young rocks, high mountains, and mostly dry valleys. People can bring water from the mountains to valley farms and to cities near the coast.
- The **northern forest region** is too cold for farms. Few people live there. Most land is covered by slow-growing trees. Near the Arctic Ocean, it is too cold even for trees.
- The **Great Lakes region** is good for farming. Much of it was covered by glaciers in the past. These sheets of ice flattened the ground and made the soil richer.
- The **southeastern forest region** has red soils and a long growing season. Crops like cotton and rice can grow here. This region is especially good for fast-growing pine trees.
- The **mid-continent grassland** does not get enough rain for trees. Native Americans hunted buffalo there. Today, cattle ranches are common, and some farmers grow wheat.

Some lines between regions are sharp. For example, you go from grassland to mountain forest within a few miles in Colorado. The transition between eastern forests and mid-continent grasslands, by contrast, is gradual. As you go west, water-loving trees like maple and beech disappear. Then the oak trees get lower and more widely spaced. Then there is a tall-grass *prairie*, with a few trees in sheltered places. Still farther west, the grasses get shorter. In other words, the transition from rainy forest to dry grassland is very gradual. It may take a hundred miles (or more) before you know for sure that you are in a different region.



The transition from Southern red soil to Great Lakes black soil is even more gradual. The growing season gets shorter as you go north. Soil, however, is influenced by a combination of many local conditions – rock type, slope, and even whether the slope faces north or south. The result is patches of soil with many different colors, gradually getting darker as you go north. In fact, you could say that the entire natural environment is really just a slow transition from the hot rainforest near the Equator to the frozen icecaps near the North and South Poles.

Question: Why do we draw lines, then?
Answer: Because if they are based on useful criteria, these lines help us remember things.

In the chapter on world patterns, a map overlay showed that very few people live north of the 4-month growing-season line anywhere in the world. Likewise, few people live in places that do not get enough rain for trees (unless they can find another source of water). In other words, the cold and dry lines in North America have similar meaning on other continents.

Other continents have some other lines that are important. For example, in Africa the 3-month rainy-season line marks the edge of the area where malaria-carrying mosquitoes are common. We will suggest more lines in other chapters. Here, let us just remember that the purpose of *regionalization* is to put places into groups that have similar conditions. When we do that, we don't have to remember facts about all of the individual places. This can save a lot of time!

Remember, too, that people can make regions based on many different criteria. In other chapters, we will draw regions based on prisons, Viking raids, religion, rice-growing, oil deposits, etc. People can also make regions in states, cities, or even small parks.

Photos from "our" regions in North America

Northern cold forest region

Western mountain region

Great Lakes farming region

Mid-America grassland region

Southeastern pine forest region

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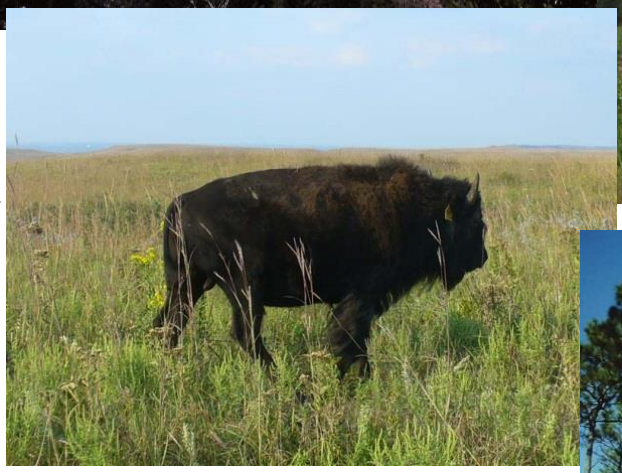

Notice, we use slightly different names every time we list these five regions. This is one way to remind you of this fact:

People made up these regions.
They were not given to us as "the truth!"

You should learn to recognize and describe scenes from these different parts of the country, not just try to memorize a few specific names.

So look at the pictures on this page, and carefully describe what you see.

Summary – how the big idea of region can help us understand North America

Ultimate cause: Places are different. One good way to help us remember the differences is to draw lines that divide a large area into smaller *regions*.

Definition: A **region** is a group of places that are similar to each other in some way.

A study area: North America is a good place to use the skill of regionalizing. Travel, TV, books, and the internet have "taught" us many facts about places in North America. Using regions to organize these facts will make it easier to compare other places.

Big idea: With just four carefully drawn lines, we can divide the North America into five major regions. These can help us organize a lot of other facts about North America.

Line #1: The old/young rock line. Start by drawing a long diagonal line from northern Alaska to the eastern coast of Mexico. This line divides the continent into two regions. The western region has young rocks, high mountains, and deep valleys. The eastern region has older rocks, worn-down mountains, low hills, and flat plains.

Line #2: The forest/farming line. This line runs generally east-west through the Great Lakes. It divides the East into two parts. In most of the northern forest region, it is too cold to make a living from the land. South of the line, people can grow food.

Line #3: The trees/grasses line. This line runs roughly north from the south tip of Texas. It divides the farming region into two parts. The eastern region gets enough rain for trees. The mid-continent grassland region does not.

Line #4: The cotton line. North of this east-west line, it is colder, and people pay more for heating than for air-conditioning. South of the line, people pay more for air-conditioning. This line also marked the northern edge of cotton growing, widespread slavery, and the Confederate side of the Civil War.

Transitions between regions can be sharp or gradual. Some lines between regions are very obvious – things change within a few miles. Other lines between regions are more "fuzzy." Things change gradually as you cross these transition zones from one region to another. This is the way the world is – the lines on textbook maps are generalizations. You have to "read between the lines" to see what things are really like!

Putting it all together:
Knowing the general location of just four lines can help us organize a lot of other knowledge about North America. We just need to remember three principles:

Principle #1. Regions can help us organize knowledge.

BUT

Principle #2. Regional lines are not "real." They are generalizations, based on measurements and human choices about what criteria are important.

AND

Principle #3. Regions often have exceptions - both **inliers** and **outliers**.

Inliers are places within a region that are not like most places in the region.

Outliers are places that are similar to the places in a region but too far away to be included in the region.