Regions in the United States

Authors: Marty Mater, Phil Gersmehl,

Overview: Students will look at some natural characteristics of the United States that are not based on state boundaries, while learning the process (and importance) of making regional maps. They will predict human regions dependent on these natural conditions

Essential Questions:
- What are the four lines that divide the country into easy-to-understand and easy-to-remember regions?
- How do physical and human characteristics affect these regions?

Objectives:
- Describe characteristics of natural regions
- Divide United States into major regions
- Explain relationship between physical characteristics and human activities
- Describe the importance of regionalization

Subject/Grade Level: U. S. Geography, Grade 4-8

Student Materials: US Maps of physical characteristics; worksheets

Michigan Grade Level Content Expectations
- 4 – G1.0.2: Use cardinal and intermediate directions to describe the relative location of significant places in the United States
- 4 – G1.0.4 Use geographic tools and technologies, stories, songs, and pictures to answer geographic questions about the United States
- 4 – G1.0.5: Use maps to describe elevation, climate, and patterns of population density in the United States
- 4 – G2.0.1: Describe ways in which the United States can be divided into different regions.
- 4 – G2.0.2: Compare human and physical characteristics of a region to which Michigan belongs with those of another region in the United States.

National Geography Standards:
- Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.
- Standard 4: The physical and human characteristics of places.

Teacher Materials:
Teacher Background Information
Clickable maps of United States
Lesson PPT

This lesson is based on the Regions of North America unit on the Big Ideas CD. The lesson plan (and Big Idea units) are available on the Michigan Geographic Alliance website: cst.cmich.edu/mga/

Teacher Note: There are many ways to regionalize our country. The regions in this lesson are based on 4 simple criteria that make four useful lines in United States. This helps organize our knowledge of the environments in our country, and can make it easier to compare other places around the world.
Procedures:

1. Slides 5-12: Scaffolding:
   a. Discuss the word region
      o provide definition for “actively” defining a region
      o Remind students there are many ways to ‘regionalize” (click the map on slide 6 to see many types of regions)
      o Definition: a region is a group of places that are like each other and close to each other
   b. Name the countries and bodies of water that surround our country
   c. Vocabulary Development (terrain, water balance or precipitation, growing season)

2. Slides 14-15: Line #1: Line between two big landform regions
   a. A western region of high mountains and deep valleys.
      The mountains are made of relatively young rocks. Many of these mountains are still being pushed up by volcanoes and earthquakes.
   b. An eastern region of worn-down old mountains and nearly flat plains made out of older rock.

3. Slides 16-17: Some consequences of the geologic processes. (Assign Student Worksheet #1 and use PPT slide17 to show answers)
   a. Most of the land is more than a mile above sea level
   b. It is easier to build roads and railroads
   c. There are more big tunnels, steep slopes, and spectacular views
   d. Most valuable metal mines are here
   e. Most deposits of fossil fuels are here
   f. Most of the good food-producing land is here
   g. Most of the major earthquakes and all of the active volcanoes occur here

4. Slides 18-21: Line #2: a line between farm and forest regions
   a. A northern region with fewer than four frost-free months.
      In the places with short frost-free seasons, the temperature can go below freezing even in June.
   b. A southern region that has more than four frost free months
      Most food crops need at least 90 days of warm weather between the last killing frost in spring and the first day of freezing weather in autumn. Farmers like to have an average growing season that is at least four months long.
   c. Could this change? Why? How?

5. Slides 22-24: Line #3: a line between forest and grassland regions
   a. The west side – not enough water to grow trees (Semi-arid Great Plains)
   b. The east side (Rainy East)
   c. What might this mean for construction materials?

6. Slides 25-26: Some consequences of water balance (Assign Student Worksheet #2 and show answers on Slide 26)
   a. People grow crops such as corn, soybeans, and vegetables.
   b. People grow short grasses like wheat and barley.
   c. People grow tree crops like apples, pears, cherries, and even oranges and grapefruit.
   d. People are more likely to need to irrigate, if they have a water source.
   e. There is always a danger of drought, which can kill the crops.
   f. Surplus water can make rivers or lakes.
g. Rivers start in the mountains and actually get smaller as they flow.

h. Rivers tend to get larger as they flow toward the ocean.

7. **Slides 27-32: Line #4: Line more than 7 frost-free months**
   a. South of this line places have at least seven frost-free months
   b. North of this line, places have fewer than 200 days between the last killing frost in spring and the first freezing weather in autumn.
   c. What crop do you think might grow south of this line that couldn’t grow on the north side? (This is historically significant…..)

8. **Slides 33-34: Consequences of heating and cooling regions** (Assign **Student Worksheet #3** and show answers on Slide 34)
   a. People spend more money for heating (using mostly natural gas or oil)
   b. People spend more money for air-conditioning (using electricity)
   c. Dead leaves and roots decay slowly, making soil dark, rich in nutrients, and easier to plow.
   d. Dead leaves and roots decay quickly, making soil red or orange in color, and unable to store water or fertilizer as well
   e. Trees grow faster, so there are many managed forests
   f. Glaciers left many scattered lakes and swamps

9. **Slides 35-45: Review lines, names, and descriptions**

10. **Slides 46-50: Using regions to explain human characteristics.**
    a. Give students base map and maps of Terrain, Water Balance, and Growing Season. Using **Student Worksheet #4** (corn), have students answer questions, or use PPT slides to complete the assignment together.
    b. Students outline the area where most of the crop is produced. This might be more than one area and there might be outliers. This will not be exact. Discuss difficulties. People create regions when they decide which places are part of a group! People do not always agree exactly about what is included in the regional group, but different people often decide on something similar. And remember, boundaries are not exact!
    c. Students will then write a description of the location of the area, using some of the following words and place names:
        i. near, next to, inside,
        ii. west, east, south, north,
        iii. northeast, northwest, southeast, southwest
        iv. near names of bodies of water
        v. inside place names (e.g., Mexico, Canada)
    d. Describe the location of your crop by answering these questions
        i. Describe terrain (e.g., inside or not inside a mountainous area) of your crop region.
        ii. Describe the water balance (e.g., how much precipitation) in your crop region
        iii. Describe the growing season (e.g., how many warm months) of your crop region
    e. Answer a higher order thinking question: Why do you think corn is not grown in Wyoming? *(Not enough water and/or not long enough growing season in parts of Wyoming)*

11. **Slides 51-53: Optional:** Assign **Student Worksheets #5** (rice), #6 (wheat), #7 (cotton) to individuals or groups.

12. **Slides 54-57:** Review meaning, process and importance of Regionalizing
Options for Assessment
1. Use worksheets #5, #6, #7 for assessment
2. Slide 58: Using the clickable maps, turn on two or more human attributes and have students ask and answer questions to describe relationships (e.g., *between cotton and growing season; wheat and precipitation; population and corn growing region*).
3. Using a blank map of the United States, ask students to draw the lines and label (or describe) the regions.
4. Give students a map with the lines, and ask them to give a characteristic for each region.
Western Region or Eastern Region?

Put an E beside each statement that describes the Eastern Region, and a W beside those describing the Western Region:

- Most of the land is more than a mile above sea level
- It is easier to build roads and railroads
- There are more big tunnels, steep slopes, and spectacular views
- Most valuable metal mines are here
- Most deposits of fossil fuels are here
- Most of the good food-producing land is here
- Most of the major earthquakes and all of the active volcanoes occur here

Semi-Arid Region or Rainy Region?

Put an SA beside each statement that describes the semi-arid region, and RE beside those describing the rainy east:

- People grow crops such as corn, soybeans, and vegetables.
- People grow short grasses like wheat and barley.
- People grow tree crops like apples, pears, cherries, and even oranges and grapefruit.
- People are more likely to need to irrigate, if they have a water source.
- There is always a danger of drought, which can kill the crops.
- Surplus water can make rivers or lakes.
- Rivers start in the mountains and actually get smaller as they flow.
- Rivers tend to get larger as they flow toward the ocean.

Frost Free Months

Put an 7+ beside each statement that describes the region that gets more than 7 months of growing season, and 4-7 beside those describing the shorter growing season:

- People spend more money for heating
- People spend more money for air-conditioning
- Dead leaves and roots decay slowly, making soil rich in nutrients
- Dead leaves and roots decay quickly, making soil red or orange in color, and unable to store water or fertilizer as well
- Trees grow faster, so there are many managed forests
- Glaciers left many scattered lakes and swamps
Water balance: Wetter areas are darker shading. Drier areas are lighter shading.

Length of growing season: Darker areas are longer growing season. Lighter areas are shorter growing season.
1. Outline a corn-growing region on the U.S. map.
   2. Describe the location, using direction words from box and place names.

   ________________________________________________________________
   ________________________________________________________________

   Use other maps to complete the following:
   3. Describe terrain of your crop region.

   ________________________________________________________________
   ________________________________________________________________

   4. Describe the water balance (precipitation) in your crop region

   ________________________________________________________________
   ________________________________________________________________

   5. Describe the growing season of your crop region.

   ________________________________________________________________
   ________________________________________________________________

   6. Why do you think corn is not grown in Wyoming?

   ________________________________________________________________
   ________________________________________________________________
1. Outline a rice-growing region on the U.S. map.
2. Describe the location, using direction words from box and place names.
_____________________________________________________________________
_____________________________________________________________________

Use other maps to complete the following:
3. Describe terrain of your crop region.
_____________________________________________________________________
_____________________________________________________________________

4. Describe the water balance (precipitation) in your crop region
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_____________________________________________________________________

5. Describe the growing season of your crop region.
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_____________________________________________________________________

6. Why do you think rice is not grown in Michigan?
_____________________________________________________________________
1. Outline a wheat-growing region on the U.S. map.

2. Describe the location, using direction words from box and place names.

____________________________________________________________________
____________________________________________________________________

Use other maps to complete the following:

3. Describe terrain of your crop region.

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____________________________________________________________________

4. Describe the water balance (precipitation) in your crop region

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5. Describe the growing season of your crop region.

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____________________________________________________________________

6. Why do you think wheat can be grown in so many areas of our country?

____________________________________________________________________
1. Outline a cotton-growing region on the U.S. map.
2. Describe the location, using direction words from box and place names.

_____________________________________________________________________

_____________________________________________________________________

**Use other maps to complete the following:**

3. Describe terrain of your crop region.

_____________________________________________________________________

_____________________________________________________________________

4. Describe the water balance (precipitation) in your crop region

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5. Describe the growing season of your crop region.

_____________________________________________________________________

_____________________________________________________________________

6. What might be an important physical characteristic necessary to grow cotton (why it can’t be grown in other places)?

_____________________________________________________________________

_____________________________________________________________________

**Cotton**

near, next to, inside, West, East, south, north southeast, southwest, northeast, northwest
Teacher Background Information

Line #1: a line between two big landform regions
This line separates the continent into two regions:
  A **western region** of high mountains and deep valleys. The mountains are made of relatively young rocks. Many of these mountains are still being pushed up by volcanoes and earthquakes.
  An **eastern region** of worn-down old mountains and nearly flat plains made out of older rock.

Here, we will just mention a few consequences of these geologic processes:
- Most of the land in the west is high, except near the coast and in some deep valleys. In fact, most of the western land is more than a mile above sea level.
- Transportation is easier in the east. It is easier to build roads and railroads over flat land and small hills. Most of the big tunnels, steep slopes, and spectacular views are in the west.
- The processes that make mountains also make deposits of gold, silver, copper, and other metals. Most of the valuable metal mines in North America are in the west. Iron is one important exception to this generalization. Most iron ore is formed by a very different geologic process. (There are a few old metal mines in some eastern states. People dug them before the country expanded to include the west. Most of those old mines were abandoned long ago.)
- Coal and oil were formed from the remains of plants and animals that lived in swamps at a particular time in geologic history. Most of the deposits of fossil fuels are in the eastern and central states. The major region goes from Texas and Oklahoma through North Dakota and central Canada to northern Alaska. (California does have some oil – that’s another exception.)
- Most of the good food-producing land is in the east. The high western mountains are generally too cold for farms, even as far south as southern California and New Mexico. A few large western valleys, however, are very productive. Farmers on the low, flat valley land can use irrigation water from the snow that falls on the mountains.
- Most of the major earthquakes and all of the active volcanoes of North America are in the western region. Earthquakes are rare and generally small in the east. When one does occur, however, it can cause a lot of damage because people do not expect it.

Line #2: a line between farm and forest regions
The second line goes roughly through the middle of the Great Lakes. You could remember it as a straight east-west line or a big hammock-shaped curve. The line goes through the middle of the “mitten” of Michigan.

This line separates places that have fewer than four frost-free months from places that have five or more. In the places with short frost-free seasons, the temperature can go below freezing even in June.

Most food crops need at least 90 days of warm weather between the last killing frost in spring and the first day of freezing weather in autumn. The dates of frost vary from year to year, however. To be safe, therefore, farmers like to have an average growing season that is at least four months long. The extra weeks also give them plenty of time to prepare the ground after the last spring frost, and to finish the harvest before the weather gets too cold.

This map line, therefore, marks the boundary between:
  - a warm-summer region where farming is possible, and
  - a colder region where farming is risky or impossible. Forests cover most of the land in this region.

Line #3: a line between forest and grassland regions
The third line goes straight north from the tip of Texas. The main source of rainwater for most of North America is the Gulf of Mexico. Air masses from the Gulf can move northward and drop rain and snow on the entire eastern part of the continent. This line therefore does a reasonably good job of dividing the rainy eastern part of the country from the drier middle part.
  - the eastern region of natural forests, where there is more rain than trees need, and
  - a mid-continent grassland region, which does not get enough rain to support forests.
People can make farms in both regions, but they have to choose 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, pears, cherries, and, in the warmest places, oranges and grapefruit.

In the drier grassland areas, people are more likely to grow short grasses like wheat and barley, unless they have a source of water for irrigation. Moreover, there is always a danger of drought, which can kill the crops. Extra rain has a lot of other consequences besides just being able to grow trees. For example:

- Surplus water can make rivers or lakes. Rivers in the east tend to get larger as they flow toward the ocean. Other creeks join and add water to them. Few rivers start in the dry middle region of the continent. The rivers that are in this region (like the Platte, Missouri, or Kansas) all start in the western mountains. In fact, many of them actually get smaller as they flow across the Plains.
- Surplus water can remove nutrients from the soil. For this reason, farmers in the east have to add lime and fertilizer in order to get good crop yields. In really dry places, the opposite happens. Salt accumulates in the soil if there is not enough rain to wash it out.
- Surplus water can fill spaces in the soil and underlying rock. This water is then available for people who drill wells. In the dry west, many wells have to be hundreds of feet deep in order to reach water (and in many places it is impossible to reach any water at all).
- Surplus water can cause soil erosion, even landslides. This is especially important in cities, where people have cut trees down and built buildings and roads. A big tree can evaporate 50 gallons of water into the air every day. If the tree is cut down, that water has to go somewhere else. This is why smart builders often build temporary ponds to store extra rainwater after storms.

**Line #4: a line between heating and cooling regions**
The fourth line goes roughly east-west across the middle of the region of possible farms.

This line is also based on measurements of temperature. On the south side 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 for one very important reason – cotton requires about 200 days of warm weather between the freezing times.

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

- The line generally marks a kind of balance-point between heating and air conditioning. North of the line, people have to spend more money for heating. South of the line, air-conditioning is more expensive. This fact can help us understand how Americans use energy in different regions. Most people use natural gas or oil for heating, 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 give the soil a dark color. This dark *humus* holds a lot of nutrients and water, and it makes soils easier to plow. South of the line, leaves and roots decay in less than a year. As a result, the soil is often red or orange in color (that’s the color of rusted iron). These reddish soils do not store water or fertilizer as well.
- The line is a rough indication of where trees grow fast enough to make it worthwhile to spend money planting them. North of the line, trees grow slowly, and people often just let natural processes replace a forest after the trees are cut. South of the line, trees grow faster, and people are willing to pay for tree planting. As a result, you see a lot more managed forests in the southern part of the country (with trees in straight rows, and few small shrubs).
- Finally, the glaciers that once covered much of North America reached just about down to this line. These glaciers did many things to the land – they scraped soil off high places, filled low places, ground soil to a fine powder, and left irregular ground with many scattered lakes and swamps.

All these differences have implications for land use, road construction, house building, and recreation.

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