Overarching Question:

How does the geography of Michigan affect the way people live?

Previous Unit:  
Second Grade Local Community

This Unit:  
The Geography of Michigan

Next Unit:  
The Economy of Michigan

Big Picture Graphic

Movement

Regions

How do geographers look at Michigan?

Place

Location

Human/Environment Interaction

Questions to Focus Assessment and Instruction:

1. How can the five themes of geography be used to describe Michigan?
2. How have people used, adapted to, and modified the environment of Michigan?

Types of Thinking:

Compare/Contrast Description
Questions for Students

In this unit, we are going to be learning about the geography of Michigan. Think about the focus questions:

1. How can the five themes of geography be used to describe Michigan?
2. How have people used, adapted to, and modified the environment of Michigan?

Use the chart below to write or draw about these questions.

<table>
<thead>
<tr>
<th>Things I Know</th>
<th>Questions I Have</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 1 Graphic Organizer

Communities ➔ The study of places ➔ States

Geography

Questions

Where is it? ➔ To what bigger places does it belong? ➔ What is it like?
### Big Ideas of Lesson 1, Unit 1

- Geography is the study of places.
- Geographers study small places like communities and big places like states and countries.
- To study a place geographers ask questions about the place and try to find answers.
- A state is one of the fifty parts of our country.
- To learn about a state, it can be helpful to think and work like geographers.

### Word Cards

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> geography</td>
<td><strong>2</strong> geographer</td>
</tr>
<tr>
<td>the study of places</td>
<td>someone who studies places</td>
</tr>
</tbody>
</table>

Example: In geography people study about places like communities, states and countries.

Example: Geographers study places such as deserts, communities and states.
3. **natural characteristics**  
Things that were not made by humans.

*Examples*: Trees, soil and animals are natural features.

4. **human characteristics**  
Parts of a place made by people

*Example*: Bridges, roads and buildings are human characteristics.

5. **county**  
A division of a state

*Example*: Michigan is divided into 83 counties.

6. **state**  
one of the 50 parts of our country

*Example*: States have their own land, borders and government.

7. **border**  
The place where one area ends and another begins.

*Example*: You can see the borders of states on a United States map.

8. **government**  
A group of elected citizens who make and carry out the rules for a community, state or country.

*Example*: A city government may have a mayor and a city council.
What is Geography?

Geography is the study of places.
<table>
<thead>
<tr>
<th>Questions about the Geography of our Community</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Where is our community?</strong></td>
</tr>
<tr>
<td><strong>What are some important natural characteristics of our community?</strong></td>
</tr>
<tr>
<td><img src="image.png" alt="Image of natural characteristics" /></td>
</tr>
<tr>
<td><strong>What are some important human characteristics of our community?</strong></td>
</tr>
<tr>
<td><img src="image.png" alt="Image of human characteristics" /></td>
</tr>
</tbody>
</table>
# Questions about the Geography of the Community We Read About

<table>
<thead>
<tr>
<th>Where is the community?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>What are some important natural characteristics of the community?</td>
<td>![Image of trees]</td>
</tr>
<tr>
<td>What are some important human characteristics of the community?</td>
<td>![Image of bridge]</td>
</tr>
</tbody>
</table>
Regions to Which My Community Belongs

- Community
- County
- State
- Country
- Continent
Counties of Michigan

Michigan Counties Selection Map. U.S. Census. 3 August 2014
<http://quickfacts.census.gov/qfd/maps/michigan_map.html>.
Lesson 2 Graphic Organizer

**Absolute Location**

- Where the exact location of a place is

**Relative Location**

- Where a place is in relation to other places

**LOCATION**

- Where is the place?

**Where is Michigan?**

- In the northern part of the United States
- East of the state of Wisconsin
- West of the state of New York
- South of the country of Canada
### Big Ideas of Lesson 2, Unit 1

- To study a place geographers ask the question: Where is the place located?
- The absolute location of a place is the exact location of the place. Your address is the absolute location of your house.
- The relative location of a place means where the place is in relation to other places.
- Direction words like north, south, east, and west are used to describe the relative location of places.

### Word Cards

<table>
<thead>
<tr>
<th>9 location</th>
<th>10 absolute location</th>
</tr>
</thead>
<tbody>
<tr>
<td>definition</td>
<td>where a place is found</td>
</tr>
<tr>
<td>example</td>
<td>where the exact location of a place is</td>
</tr>
</tbody>
</table>

**Example:** An address helps to describe the location of a house.

**Example:** Your address shows the absolute location of your house.
<table>
<thead>
<tr>
<th>11 relative location</th>
<th>12 direction words</th>
</tr>
</thead>
<tbody>
<tr>
<td>where a place is in relation to other places.</td>
<td>words like north, south, east and west</td>
</tr>
</tbody>
</table>

**Example:** The relative location of Michigan is in the northern part of the United States.

**Example:** Direction words are used to help describe the relative location of places.

<table>
<thead>
<tr>
<th>13 map</th>
</tr>
</thead>
<tbody>
<tr>
<td>A picture that shows the location of something.</td>
</tr>
</tbody>
</table>

**Example:** A map could show a city, river or country.
Direction
Describing the Relative Location of Michigan

Michigan is ______________________________________

__________________________________________________

Michigan is ______________________________________

__________________________________________________

Michigan is ______________________________________

__________________________________________________

Michigan is ______________________________________

__________________________________________________

Michigan is ______________________________________

__________________________________________________

Michigan is ______________________________________

__________________________________________________
Lesson 3 Graphic Organizer

**Landforms**
- Peninsula
- Mountain Range
- Sand Dunes
- Islands

**Natural Characteristics of Michigan**
- How special purpose maps help us locate them
- How glaciers helped to form them

**Bodies of Water**
- The Great Lakes and inland lakes
  - Bays
  - Rivers
  - Waterfalls
Big Ideas of Lesson 3, Unit 1

- To study a place geographers ask the question: What is the place like?
- To answer that question geographers study the natural characteristics of the place.
- Natural characteristics include landforms, bodies of water, vegetation and climate.
- Special purpose maps can be used to learn about these natural characteristics.
- Important landforms of Michigan include peninsulas, islands, mountain ranges and sand dunes.
- Important bodies of water include the Great Lakes, inland lakes, rivers and waterfalls.

**Word Cards**

Word Cards from previous lessons needed for this lesson:

- Natural Characteristics – Word Card #3 From Lesson 1
- Map – Word Card #13 from Lesson 2

<table>
<thead>
<tr>
<th>Landforms</th>
<th>Peninsula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landforms</td>
<td>Different kinds of land on the Earth</td>
</tr>
</tbody>
</table>

*Example:* Mountains, hills and islands are different landforms.

*Example:* Michigan is made up of two peninsulas.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16</strong> island</td>
<td><strong>17</strong> special purpose maps</td>
</tr>
<tr>
<td>a piece of land that is surrounded by water</td>
<td>maps that show characteristics of an area such as landforms, climate, or forests</td>
</tr>
<tr>
<td><em>Example:</em> Beaver Island and Mackinac Island are important Michigan islands.</td>
<td><em>Example:</em> Studying special purpose maps can help you better understand a place.</td>
</tr>
<tr>
<td><strong>18</strong> elevation</td>
<td><strong>19</strong> mountain range</td>
</tr>
<tr>
<td>how high a place is</td>
<td>a row of connected mountains</td>
</tr>
<tr>
<td><em>Example:</em> A mountain has higher elevation than a hill.</td>
<td><em>Example:</em> The Huron mountains are a mountain range in Michigan.</td>
</tr>
<tr>
<td><strong>20</strong> sand dunes</td>
<td><strong>21</strong> The Great Lakes</td>
</tr>
<tr>
<td>ridges or hills of loose sand piled up by the wind</td>
<td>Five huge lakes located in the northern part of the United States.</td>
</tr>
<tr>
<td><em>Example:</em> There are many sand dunes along the shore of Lake Michigan.</td>
<td><em>Example:</em> Four of the Great Lakes border Michigan.</td>
</tr>
<tr>
<td><strong>22</strong> bay</td>
<td><strong>23</strong> glacier</td>
</tr>
<tr>
<td>a body of water that is partly blocked off by land</td>
<td>giant sheets of slowly moving ice</td>
</tr>
<tr>
<td><em>Example:</em> Michigan has many bays.</td>
<td><em>Example:</em> Glaciers help create many of the natural characteristics of Michigan.</td>
</tr>
</tbody>
</table>
Michigan Elevation Map

LANDFORMS OF MICHIGAN

Peninsulas

Landforms are natural characteristics of the Earth. They include mountains, hills, valleys, plains, plateaus, and islands. When you look at a map of Michigan, the first landform most people think about is a peninsula. That’s because Michigan is made of two peninsulas, the Upper and the Lower Peninsula.

Mountains

Compared to states like Vermont and Colorado, Michigan is not very mountainous. Much of it is level with some rolling hills. The Upper Peninsula does have two mountain ranges, however. Mountain ranges are rows of connected mountains. Michigan’s two ranges are called the Huron Mountains and the Porcupine Mountains. Michigan’s highest point is Mount Arvon. It is located in the Huron Mountains and is about 2000 feet high.

Islands

Because Michigan has so much water it also has a lot of islands. An island is a piece of land that is completely surrounded by water. More than 500 islands belong to Michigan. Michigan’s largest island is Isle Royale, which is located in Lake Superior. Isle Royale is Michigan’s only National Park. Other important islands include Beaver Island and Mackinac Island.

Sand Dunes

Probably Michigan’s most famous landforms are sand dunes. These are hills of loose sand that have been piled up by the wind. Most of Michigan’s sand dunes are found along the shores of Lake Michigan. This area has the largest amount of freshwater sand dunes in the world. Sand dunes support many plants and animals that cannot be found any place else. Michigan’s most famous dunes are the Sleeping Bear dunes.
BODIES OF WATER OF MICHIGAN

Two of Michigan’s nicknames are “The Great Lakes State” and “Water Wonderland.” Both of these names show the importance of water to the state.

Lakes

Michigan borders four of the five Great Lakes. These are Huron, Erie, Michigan and Superior. Besides the Great Lakes, Michigan has over 11,000 inland lakes. The largest of these is Houghton Lake, which is found in the northern part of the Lower Peninsula. Other big lakes include Lake Gogebic, Black Lake and Burt Lake.

Bays

Bays are also an important natural characteristic of Michigan. Bays are bodies of water that are partly enclosed by land. Many early towns in Michigan were located on bays. Important bays include Saginaw Bay on Lake Huron and Grand Traverse Bay on Lake Michigan.

Rivers

Rivers are large, flowing bodies of water that usually empty into a large lake, sea or ocean. Michigan’s rivers all empty into one of the Great Lakes. Michigan has more than 49,000 miles of rivers.

The longest river is the Grand River, which flows through cities like Lansing and Grand Rapids. This river is about 260 miles long. The Escanaba River is the longest river in the Upper Peninsula. Other important rivers include the Au Sable, Detroit Muskegon River and Menominee Rivers.

Waterfalls

Michigan is known for its many beautiful waterfalls. These are formed when a river falls steeply down. Most of Michigan’s waterfalls are found in the Upper Peninsula. Two famous waterfalls are the Upper and Lower Falls of the Tahquamenon River. Many tourists visit these waterfalls each year.
<table>
<thead>
<tr>
<th>Body of Water</th>
<th>Definition</th>
<th>Important Facts</th>
<th>Michigan Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>bay</td>
<td>A body of water that is partly enclosed by land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lake</td>
<td>A large body of water surrounded by land on all sides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>river</td>
<td>A large, flowing body of water that usually empties into a large lake, sea or ocean.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>waterfall</td>
<td>Where a river falls steeply down</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GLACIERS AND MICHIGAN’S GEOGRAPHY

• Long ago in Michigan glaciers worked like bulldozers. They carried rocks, pebbles, soil, and sand along in front of them.

• Many of the soils in Michigan developed from these rocks, sand, and other materials left behind by the glaciers.

• Big boulders from the northern parts of the state were carried to southern Michigan and left there.

• Glaciers picked up the soil in northern parts of the state also. This soil was deposited in the southern part of the state leaving this area with richer farmland.

• Glaciers carved out deep holes. As the glaciers melted these holes filled with water and became Great Lakes.

• The glaciers also helped form many of the inland lakes and rivers.
LESSON REVIEW

List three important landforms of Michigan that you learned about:

1

2

3

List three important bodies of water of Michigan that you learned about:

1

2

3

Describe one other important thing you learned in this lesson.
Lesson 4 Graphic Organizer

Natural Characteristics of Michigan

- Forests
- Orchards

Vegetation (Plants)

How special purpose maps help us locate them

Climate

- Four Seasons
- Temperature
- Precipitation
- Lake Effect

Our State Symbols
Big Ideas of Lesson 4, Unit 1

• To study a place geographers ask the question: What is the place like?
• To answer that question geographers study the natural characteristics of the place.
• Natural characteristics include landforms, bodies of water, vegetation and climate.
• Special purpose maps can be used to learn about these natural characteristics.
• Forests and orchards are important types of vegetation in Michigan.
• Michigan’s climate has four seasons and is influenced by the Great Lakes.

Word Cards

Word Cards from previous lessons needed for this lesson:

• Natural Characteristics – Word Card #3 from Lesson 1
• Map – Word Card #13 from Lesson 2
• Special Purpose Map – Word Card #17 from Lesson 3

24 vegetation

the plants of an area

Example: The vegetation of Michigan includes apple trees, white pines and many different wildflowers.

25 climate

weather over a long period of time

Example: Michigan’s climate has four different seasons.
<table>
<thead>
<tr>
<th>26 temperature</th>
<th>27 precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>how hot or cold the air is</td>
<td>water that falls to the ground as rain, sleet, hail or snow</td>
</tr>
</tbody>
</table>

**Example:** Temperatures in the Upper Peninsula are often colder than in the Lower Peninsula.

**Example:** Areas near the Great Lakes often get more precipitation than other areas.
**MICHIGAN ORCHARDS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Year chosen</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State flower</strong>&lt;br&gt;Apple Blossom</td>
<td>1897</td>
<td>• 8.5 million apple trees in Michigan&lt;br&gt;• Michigan is the second leading apple-producing state</td>
</tr>
<tr>
<td><strong>State bird</strong>&lt;br&gt;Robin</td>
<td>1931</td>
<td>• Sponsors of the robin as state bird said the robin was “the best-known and best-loved of all the birds in Michigan.”&lt;br&gt;• Michigan has over 9 million robins</td>
</tr>
<tr>
<td><strong>State soil</strong>&lt;br&gt;Kalkaska</td>
<td>1990</td>
<td>• Can only be found in Michigan&lt;br&gt;• Covers nearly a million acres of land in Michigan</td>
</tr>
<tr>
<td><strong>State stone</strong>&lt;br&gt;Petoskey Stone</td>
<td>1965</td>
<td>• Fossilized coral that existed in the northern part of the Lower Peninsula about 350 million years ago</td>
</tr>
<tr>
<td><strong>State Fish</strong>&lt;br&gt;Brook Trout</td>
<td>1988</td>
<td>• Found throughout the state&lt;br&gt;• Has a long body with a large mouth that extends past the eye.&lt;br&gt;• Olive green, blue-gray, or black above with a silvery white underside</td>
</tr>
<tr>
<td><strong>State Reptile</strong>&lt;br&gt;Painted Turtle</td>
<td>1995</td>
<td>• Chosen after a group of fifth graders discovered that Michigan did not have a state reptile</td>
</tr>
<tr>
<td><strong>State Fossil</strong>&lt;br&gt;Mastodon</td>
<td>2002</td>
<td>• Fossils of this prehistoric mammal have been found in more than 250 locations in the state</td>
</tr>
<tr>
<td><strong>State Tree</strong>&lt;br&gt;White Pine</td>
<td>1955</td>
<td>• Chosen as a symbol of lumbering, one of Michigan’s greatest industries</td>
</tr>
<tr>
<td><strong>State Gem</strong>&lt;br&gt;Chlorastrolite (Isle Royale Greenstone)</td>
<td>1972</td>
<td>• Found mainly in the Upper Peninsula&lt;br&gt;• Ranges in color from yellow-green to almost black</td>
</tr>
<tr>
<td><strong>State Wildflower</strong>&lt;br&gt;Dwarf Lake Iris</td>
<td>1998</td>
<td>• An endangered flower&lt;br&gt;• Grows along the northern shorelines of Lake Michigan and Lake Huron</td>
</tr>
<tr>
<td><strong>State Game Mammal</strong>&lt;br&gt;White-Tailed Deer</td>
<td>1997</td>
<td>• A group of fourth graders led the campaign to make this the state game mammal&lt;br&gt;• Found in every Michigan county</td>
</tr>
</tbody>
</table>
READING A CHART

1. What symbol has been a state symbol the longest?

2. Which is the newest symbol to be chosen?

3. Which two things involved students working to make them symbols?

4. Which two symbols are both related to fossils?

5. Which three symbols are examples of the natural characteristic of vegetation, or plants?

6. Besides being a beautiful flower, what is another reason you think the apple blossom was chosen as the state flower?
Michigan Average Temperature Map

Michigan Average Precipitation in Inches Map

Source: Michigan Statewide Data Index. 30 June 2009
<http://www.iwr.msu.edu/edmodule/data/datainx.html>. 
Lesson Review

Describe two things you learned about the vegetation of Michigan

1

2

Describe two important things you learned about climate.

1

2

Describe one other important thing you learned in this lesson.
Lesson 5 Graphic Organizer

Human Characteristics of Michigan

Bridges
Highways

How special purpose maps help us locate them

Connections to Natural Characteristics

Cities
Lighthouses
### Big Ideas of Lesson 5, Unit 1

- To study a place geographers ask the question: What is the place like?
- To answer that question geographers study the human characteristics of the place.
- Human characteristics are often connected to natural characteristics. For example, people often build bridges across rivers and cities next to rivers.
- Human characteristics include bridges, highways, cities and buildings.
- Special purpose maps can be used to learn about these human characteristics.

### Word Cards

**Word Cards from previous lessons needed for this lesson:**

- Human Characteristics – Word Card #4 from Lesson 1
- Map – Word Card #13 from Lesson 2
- Special Purpose Map – Word Card #17 from Lesson 3

#### 28 lighthouse

A tall building like a tower that has a light in the top to guide ships

**Example:** Lighthouses are found along the shores of the Great Lakes and on islands in the Great Lakes.
## Reviewing What We’ve Learned

<table>
<thead>
<tr>
<th>LANDFORMS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BODIES OF WATER</td>
<td></td>
</tr>
<tr>
<td>VEGETATION</td>
<td></td>
</tr>
<tr>
<td>CLIMATE</td>
<td></td>
</tr>
</tbody>
</table>
Different Points of View

**Directions:** Describe how each of these characters in the book viewed the building of the Mackinac Bridge

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The father</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The youngest son</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The oldest son</strong></td>
<td></td>
</tr>
</tbody>
</table>
Major Highways Map. Michigan Economic Development Website. 30 June 2009
<http://ref.michiganadvantage.org/cm/attach/ab7251e3-c65b-4867-8584-90278c437381/majorhighways.pdf>.
Reading a Highway Map

1. If you were traveling from Detroit to Mackinaw City what highway would you probably take?

2. If you were traveling from Lansing to Flint what highway would you probably take?

3. What highway goes around Michigan’s Thumb?

4. What highway goes from St. Ignace all the way to Ironwood?

5. What highway goes from Detroit through Ann Arbor and all the way to Benton Harbor?

Plan a trip!

Choose a city in the Lower Peninsula to start with and write it here:

Choose a city in the Upper Peninsula to travel to and write it here:

List the highways you would have to travel to get to the city in the Upper Peninsula:
Michigan Lighthouses

Big Ideas of Lesson 6, Unit 1

- To study a place geographers ask the question: How have people interacted with the environment of the place?
- To answer that question geographers study how people have used the natural resources of the place.
- Natural resources are things in nature that people find useful.
- Important natural resources of Michigan include trees, fertile soil, the Great Lakes, other bodies of water and minerals.
- It is important for people to use natural resources wisely.

Word Cards

Word Cards from previous lessons needed for this lesson:

- Natural Characteristics – Word Card #3 from Lesson 1
- The Great Lakes – Word Card #21 from Lesson 3

29 natural resources
things in nature that people find useful

Example: Water, soil and trees are natural resources.

30 fertile soil
soil that is good for growing things

Example: Michigan has a lot of fertile soil in the Lower Peninsula.
<table>
<thead>
<tr>
<th>31</th>
<th>minerals</th>
<th>natural resources found in the ground such as iron ore</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Example:</td>
<td>Minerals are removed from the ground by mining.</td>
</tr>
<tr>
<td>32</td>
<td>iron ore</td>
<td>a mineral that is used to make steel</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Iron ore is mined in the Upper Peninsula.</td>
</tr>
<tr>
<td>33</td>
<td>copper</td>
<td>a mineral that is used to make things such as pipes for plumbing.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>For many years Michigan was a world leader in copper mining.</td>
</tr>
<tr>
<td>34</td>
<td>limestone</td>
<td>a stone that is mined and used to make steel and cement</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Limestone is mined in Rogers City, Michigan.</td>
</tr>
<tr>
<td>35</td>
<td>renewable resources</td>
<td>natural resources that can be replaced</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Water and trees are renewable resources.</td>
</tr>
<tr>
<td>36</td>
<td>nonrenewable resources</td>
<td>natural resources that cannot be replaced</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td>Iron and oil are nonrenewable resources.</td>
</tr>
</tbody>
</table>
Natural Resource Cards

1

2

3

4
### Natural Resources Chart

<table>
<thead>
<tr>
<th>Natural Resource</th>
<th>Where Found</th>
<th>How is it used?</th>
</tr>
</thead>
</table>
|                  | Around and throughout Michigan | • Shipping  
• Recreation  
• Drinking  
• Fishing |
| • Upper Peninsula | • Northern part of the Lower Peninsula | • Shade  
• Paper  
• Lumber |
| • Southern part of the Lower Peninsula | • Along the Lake Michigan shoreline of the Lower Peninsula | • Farming |
| • Iron and copper in Upper Peninsula | • Limestone, salt and sand in Lower Peninsula | • Construction |
| • Lower Peninsula | | • Fuel for heating |

Maps of Oil and Gas Wells.
## Consequences of Using Natural Resources

<table>
<thead>
<tr>
<th>Natural Resource</th>
<th>Positive Consequence</th>
<th>Negative Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertile soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minerals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas and Oil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 7 Graphic Organizer

- **Water**
  - Pollution of the Great Lakes
  - River Pollution

- **Land**
  - Problems with shorelines
  - Loss of farmland and open space
  - Loss of Wetlands

- **Modifying (Changing) the Environment**
- **Human/Environment Interaction**
- **Adapting to the Environment**
- **Houses**

Problems with shorelines:
- Loss of farmland and open space
- Loss of farmland and open space
- Problems with shorelines

Problems without shorelines:
- Pollution of the Great Lakes
- River Pollution
- Problems with shorelines
- Loss of farmland and open space
- Loss of Wetlands

Pollution of the Great Lakes
- River Pollution
- Pollution of the Great Lakes
- Problems with shorelines
- Loss of farmland and open space
- Loss of Wetlands

Adapting to the Environment
- Houses
### Big Ideas of Lesson 7, Unit 1

- To study a place geographers ask the question: How have people interacted with the environment of the place?
- To answer that question geographers study how people changed the environment of the place.
- People changed the environment of Michigan by polluting the Great Lakes and rivers.
- They also changed the environment of Michigan by filling in wetlands, cutting down forests and building cities.
- Geographers also study how people have adapted to the environment of a place.
- In Michigan, houses can be studied in order to understand how people adapt to Michigan’s four seasons.

### Word Cards

**Word Cards from previous lessons needed for this lesson:**

- Natural Resources – Word Card #29 From Lesson 6

<table>
<thead>
<tr>
<th>37</th>
<th>human/environment interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>modifying the environment</td>
</tr>
</tbody>
</table>

**Example:** When people build new roads they are interacting with the Earth.

**Example:** People in Michigan modified the environment by cutting down trees to clear land for farming.
39
adapting to the
natural environment
when people change to fit the environment

*Example:* People in Michigan wear warm coats, hats and mittens to fit the environment in winter.
### Using and Modifying the Environment

#### How People Used the Environment in the Story

<table>
<thead>
<tr>
<th>River</th>
<th>Land</th>
<th>Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### How People Changed the Environment in the Story

<table>
<thead>
<tr>
<th>River</th>
<th>Land</th>
<th>Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lake Erie Timeline

The coastline of Lake Erie became more and more developed. Farms, factories, and cities increased.

Pollution began to fill Lake Erie. Phosphorous from fertilizer and soap was the main problem.

These pollutants caused plant growth and algae to increase. Lots of plants began growing, dying, and decomposing in the lake.

This caused a severe lack of oxygen at the bottom of the lake. It also caused the surface to become smelly.

Fish began to die. Tourists were kept away by the smelly surface and dying fish.

Growing public concern led to the Great Lakes Water Quality Agreement. This did much to reduce phosphorous levels and Lake Erie made a comeback.
Comparing Two Houses


Michigan Home. 30 June 2009
<http://www.salinemichiganrealestate.com/m/blogs/vanceshutes/Beaver%20Crossing%20925.JPG>
### Lesson Review

<table>
<thead>
<tr>
<th>Ways people have changed the environment of Michigan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ways people have adapted to the environment of Michigan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Lesson 8 Graphic Organizer

- **Big Ideas of Lesson 8, Unit 1**
  - To study a place geographers ask the question: How is the place connected to other places?
  - To answer that question geographers study how people, goods and ideas move?
  - Geographers also study why people, goods, ideas and jobs move.
  - The Great Lakes are very important in moving goods within, to and out of Michigan.
  - Sometimes things move into an area that people don’t want like zebra mussels.
### Word Cards

<table>
<thead>
<tr>
<th><strong>40 movement</strong></th>
<th><strong>41 transportation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>the theme of geography that explains how and why people, goods and ideas move</td>
<td>ways of moving things and people from one place to another</td>
</tr>
<tr>
<td><strong>Example:</strong> The theme of movement helps us understand how places are connected to other places.</td>
<td><strong>Example:</strong> Boats, trains and cars are methods of transportation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>42 hub</strong></th>
<th><strong>43 port</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a city where many roads and railroads meet</td>
<td>a city on a body of water where ships load and unload</td>
</tr>
<tr>
<td><strong>Example:</strong> Detroit is a transportation hub in Michigan.</td>
<td><strong>Example:</strong> Detroit is an important Michigan port.</td>
</tr>
</tbody>
</table>
Major Highways

Major interstate highways move goods to every major city in the Western Hemisphere. I-95 begins at the Canadian border with northern Michigan and runs to South Florida. I-94 starts at Michigan’s eastern border with Canada and goes through both Detroit and Chicago on its way to the West Coast.

All Michigan highways are toll-free.
Expressways 1,863 mi (3,000 km)
State Trunklines 25,978 mi (41,349 km)

Michigan-Caranda Link
3 vehicular bridges, 1 vehicular tunnel
Commercial Ports

- 31 deepwater ports
- Essential to the largest vegetable oil producer in the world — the Great Lakes — 64,740 sq. mi. (167,100 sq. km).
- All ports have access to the Great Lakes shipping system and to the Atlantic via the St. Lawrence Seaway.
- Connect to the Gulf of Mexico via the Mississippi River and U.S. Customs and Border Protection-approved Mississippi River Bridge Route.
- U.S. Customs offices serve all Michigan ports from Detroit, South Boston, Savannah, and Port Huron.
- Excellent intermodal facilities and service.
- 90 recreational boating facilities.
St. Lawrence Seaway Map. 30 June 2009
Railroads

Michigan's rail lines connect with the major Canadian rail network as well as Chicago, Toledo, and all of North America.

- 3,800 miles (6,100 km) of mainline track
- Linked to Canada and resided via a rail bridge at Sault Ste. Marie and railheads in Detroit and Port Huron providing high speed and double track access
- 25 points of rail height optimization
- 4 main Class I carrier
- Passenger rail service provided by Amtrak
- Some Class 2 railroads facilitate service
Zebra Mussels Information Cards

What are they?

- Zebra mussels are small, freshwater animals like clams about three centimeters long.
- They were originally from Caspian Sea region of Asia. Now they have spread throughout the Great Lakes region.

Where do they get their name?

They get their name from small white and black markings on their shells.

Where do they live?

Zebra mussels live in large rivers and lakes.
What carries zebra mussels from one place to another?

- Plants and animals
- Fishing gear, bait buckets, boats, and boat trailers
- Water
- Snorkeling and scuba gear

How did they get into the Great Lakes?

- They were carried in ballast water of ships.
- Ships carry ballast water to keep them stable as they cross the ocean.
How do they affect or change the ecosystem?

- They are killing off some of our Great Lakes water creatures.
- When water birds or fish eat zebra mussels they often get contaminated.

How do they affect the food web?

- They decrease the food supply for fish.
- They filter feed on algae which is very important in the Great Lakes food chain.
- They eat so much that it cuts down on the food supply for baby fish that also eat algae.
## How do they affect humans?

- They clog water intake pipes like those at water intake plants and power plants.
- They mess up docks, buoys, breakwalls, and boats.
- They can completely cover historical sunken ships and artifacts.
- The shells are sharp and can easily cut human skin.

## How can people prevent or control the spread of zebra mussels?

- Rinse boat hulls with hot water.
- Wash bait pails with hot water.
- Check boat trailers for water and drain it on land.
- Inspect screens and water intakes for mussels.
Zebra Mussels

This shopping cart was left in zebra mussel-infested waters for a few months. The mussels have colonized every available surface on the cart.
(J. Lubner, Wisconsin Sea Grant, Milwaukee, Wisconsin.)
Source: http://www.epa.gov/glnpo/atlas/glat-ch4.html

Zebra Mussels on a Barge. 21 June 2009


Zebra Mussels Attached to a Crayfish. 30 June 2009

Zebra Mussel Photos from the National Atlas
Source: [http://nationalatlas.gov/articles/biology/a_zm.html](http://nationalatlas.gov/articles/biology/a_zm.html)

Worker removing zebra mussels from water intake pipes.

Clump of zebra mussels on native clam.

Zebra mussels on Luna Pier beach, Monroe County, Michigan.

Closeup of zebra mussels on stick.
Lesson Review

1. What is one reason a person might move within Michigan?

2. What is one reason a person might move out of Michigan?

3. What are two ways goods move into and out of Michigan?

4. Why do goods move?

5. What are two ways information, or ideas, move in and out of Michigan?

6. What is an example of something moving into Michigan that people did not want?
Lesson 9 Graphic Organizer

Dividing Michigan into Regions

- Lower Peninsula
- Upper Peninsula
- Central Lowland
- Superior Upland
- Upper Peninsula
- Northern Lower Peninsula
- Southern Lower Peninsula

Regions to Which Michigan Belongs

- Midwest Region
- Great Lakes Region

Unique Regions of Michigan

- The Fruit Belt in the northwestern part of the Lower Peninsula
- The Thumb
- Metropolitan Detroit
### Big Ideas of Lesson 9, Unit 1

- A region is an area that has at least one feature that sets it apart from other areas.
- Regions can be many different sizes.
- One way to divide Michigan into regions is the Upper Peninsula and the Lower Peninsula.
- Michigan also has some unique regions like the Thumb.
- Michigan belongs to U.S. regions such as the Midwest Region and the Great Lakes Region.

---

### Word Cards

<table>
<thead>
<tr>
<th>Number</th>
<th>Word</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>region</td>
<td>an area with one or more common features</td>
<td>Example: The Upper Peninsula can be one region of Michigan.</td>
</tr>
<tr>
<td>45</td>
<td>Midwest Region</td>
<td>a region of the United States that includes the state of Michigan</td>
<td>Example: States in the Midwest Region have many things in common.</td>
</tr>
<tr>
<td>46</td>
<td>Great Lakes Region</td>
<td>the states of that border the Great Lakes along with the province of Ontario, Canada</td>
<td>Example: Michigan belongs to the Great Lakes Region</td>
</tr>
</tbody>
</table>
Dividing Michigan into Regions Activity

Describe the regions

Why did you divide it this way?

Describe the regions

Why did you divide it this way?
Two Natural Regions of Michigan

Central Lowland (Great Lakes Plains)

- All of the Lower Peninsula and the eastern part of the Upper Peninsula
- Part of the Interior Plains of the United States
- A mainly flat area with a few areas of hills

Superior Upland

- Part of the Canadian Shield, a large rocky area
- Lots of natural resources
- Includes the Huron and Porcupine Mountains
Five Regions of the U.S.

The Midwest Region

- Mainly flat land
- Lots of fertile farm land
- Includes with lots of manufacturing near cities
- Largest city is Chicago, which is an important port and railroad center.
- Includes four of the Great Lakes
- Also called the “Heartland”
- Also called the “Breadbasket” of the U.S. because a lot of food crops like corn and wheat come from here.
Mystery Map
Lesson Review

Describe a way to divide Michigan into regions:

<table>
<thead>
<tr>
<th>Regions</th>
<th>Reason for dividing Michigan like this</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe one unique region of Michigan:

<table>
<thead>
<tr>
<th>Region</th>
<th>What characteristics make it a region?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe a region of the U.S. to which Michigan belongs:

<table>
<thead>
<tr>
<th>Region</th>
<th>What characteristics make this a U.S. Region?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 10 Graphic Organizer

Location
- In relation to other places
- Using maps

How do geographers look at Michigan?

Regions
- Within Michigan
- To which Michigan belongs

Place
- Natural characteristics
- Human characteristics

Human/Environment Interaction
- Using the environment
- Changing the environment
- Adapting to the environment

Movement
- People, goods, jobs, ideas
- To, from and within Michigan
- How and why?
Big Ideas of Lesson 10, Unit 1

- To study a place geographers ask questions about the place and try to find answers.
- Geographers explore where a place is located by studying maps.
- Geographers explore what a place is like by studying the natural and human characteristics of the place.
- Geographers study how people have used the environment of a place by exploring its natural resources.
- Geographers explore how people have changed the environment of the place and how they have adapted to the environment.
- Geographers explore how a place is connected to other places by studying how people, goods and ideas move in and out of the place.
- Geographers explore how a place can be divided into regions and to what regions the place belongs.
## Project Planning Sheet

What kind of presentation will we make? ____________________________________________

<table>
<thead>
<tr>
<th>Question</th>
<th>How will you answer this question in your project?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where is Michigan located?</td>
<td></td>
</tr>
<tr>
<td>What are important natural characteristics of Michigan?</td>
<td></td>
</tr>
<tr>
<td>What are important human characteristics of Michigan?</td>
<td></td>
</tr>
<tr>
<td>What are important natural resources of Michigan?</td>
<td></td>
</tr>
<tr>
<td>How have people changed the environment of Michigan?</td>
<td></td>
</tr>
<tr>
<td>How have people adapted to the environment of Michigan?</td>
<td></td>
</tr>
<tr>
<td>How and why do goods move into and out of Michigan?</td>
<td></td>
</tr>
<tr>
<td>How can Michigan be divided into regions?</td>
<td></td>
</tr>
<tr>
<td>To what regions of the United States does Michigan belong?</td>
<td></td>
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</tbody>
</table>
Unit 1 Graphic Organizer

Movement
- People, goods, jobs, ideas
- To, from, and within Michigan

Regions
- Within Michigan
- To which Michigan belongs

Location
- Absolute
- Relative

Place
- Physical Characteristics
- Human Characteristics

How do geographers look at Michigan?

Human/Environment Interaction
- Using the environment
- Adapting to the environment
- Changing the environment
### Unit 1 Vocabulary Words

<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
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<td>absolute location</td>
<td>13</td>
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<tr>
<td>adapting to the natural environment</td>
<td>54</td>
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<tr>
<td>bay</td>
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<td>border</td>
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<tr>
<td>climate</td>
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<td>copper</td>
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</tr>
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<td>Great Lakes region</td>
<td>78</td>
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<td>hub</td>
<td>60</td>
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<td>human characteristics</td>
<td>5</td>
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<td>human/environment interaction</td>
<td>53</td>
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<td>iron ore</td>
<td>46</td>
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<td>island</td>
<td>20</td>
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<td>landforms</td>
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state ........................................................................................................... 5
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Key Concepts

geography
Great Lakes
human/environment interaction
location
Michigan
movement
natural resources
place
region
state