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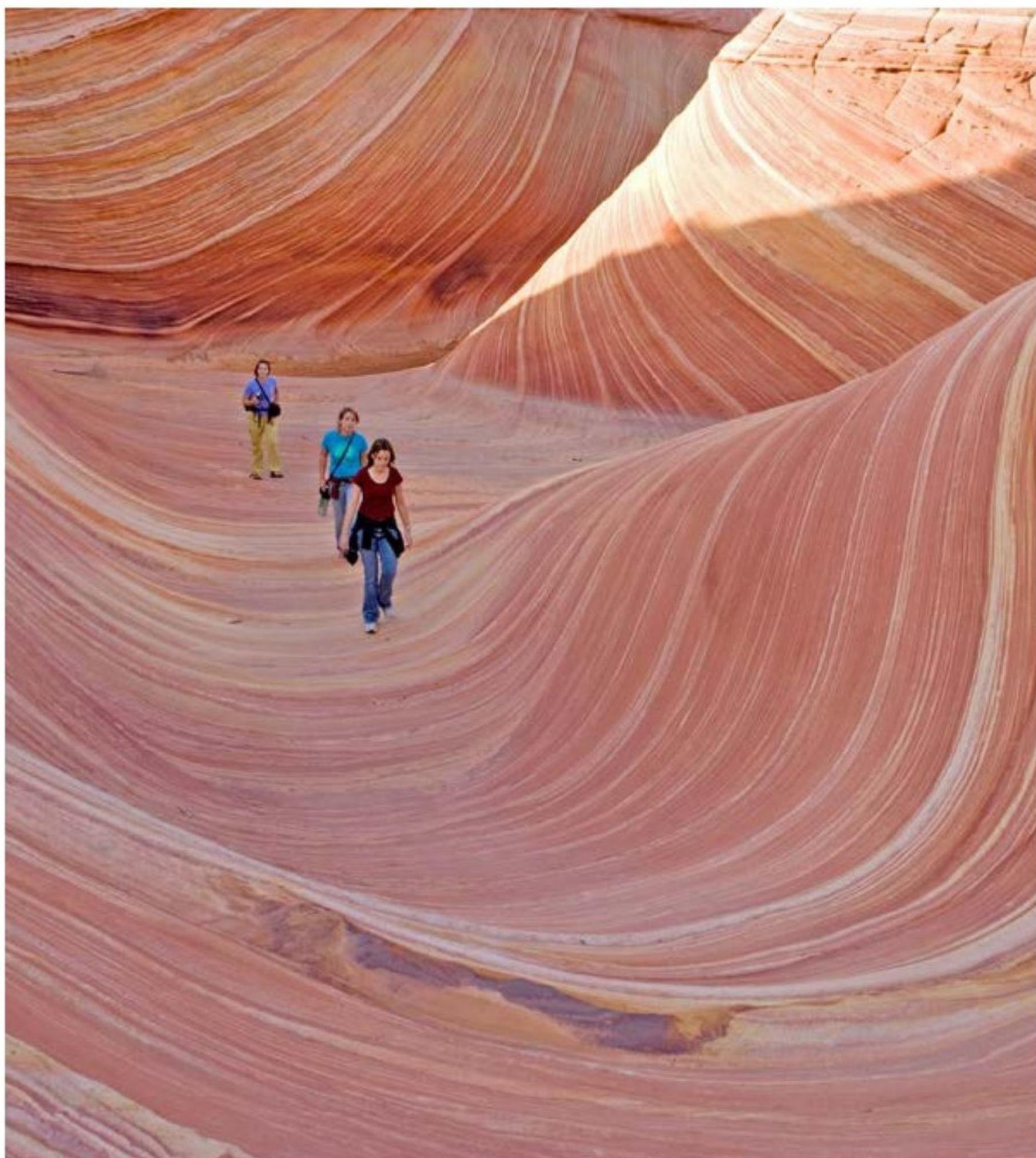
A Landforms Adventure

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Written by Rose Brooker

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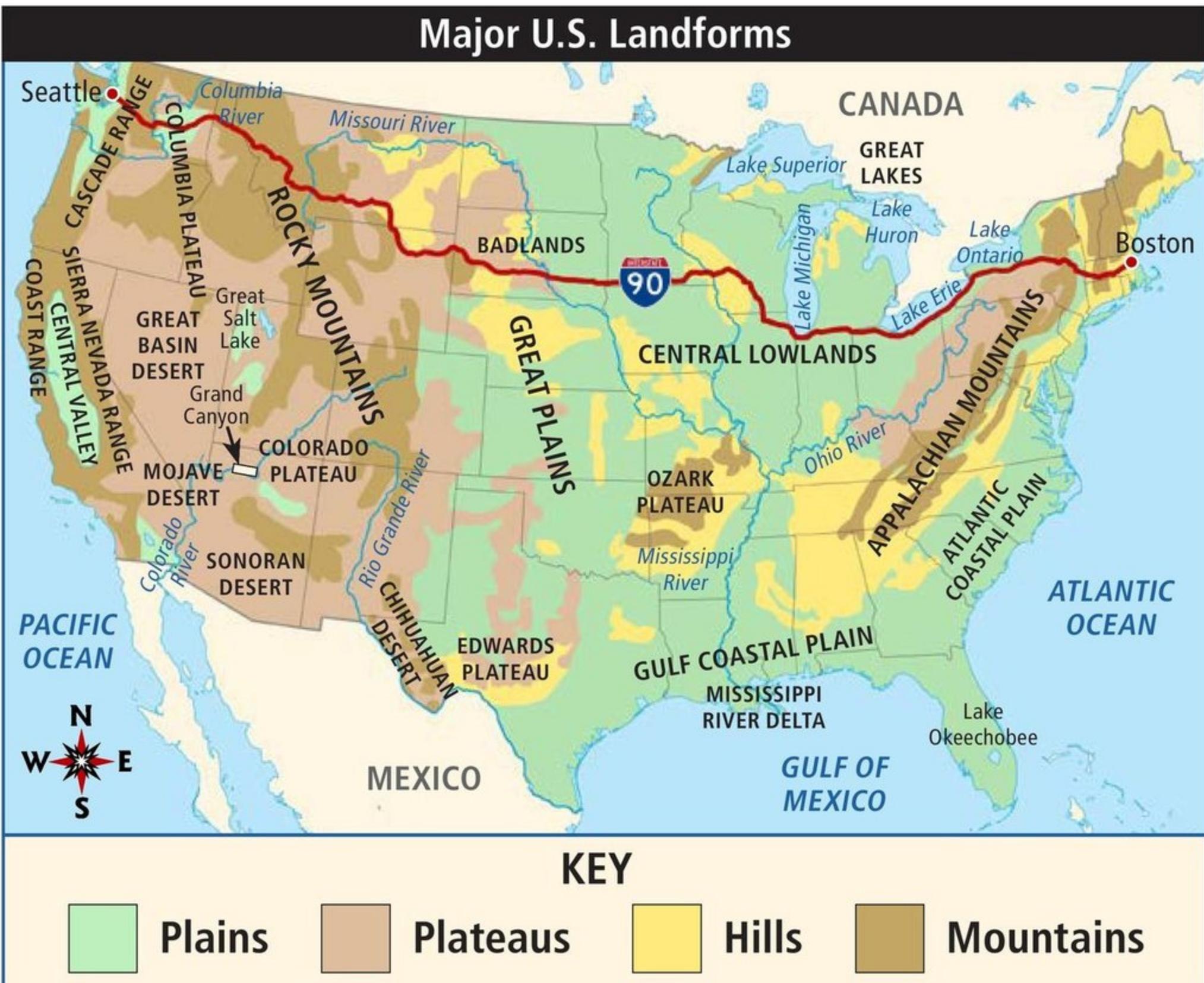


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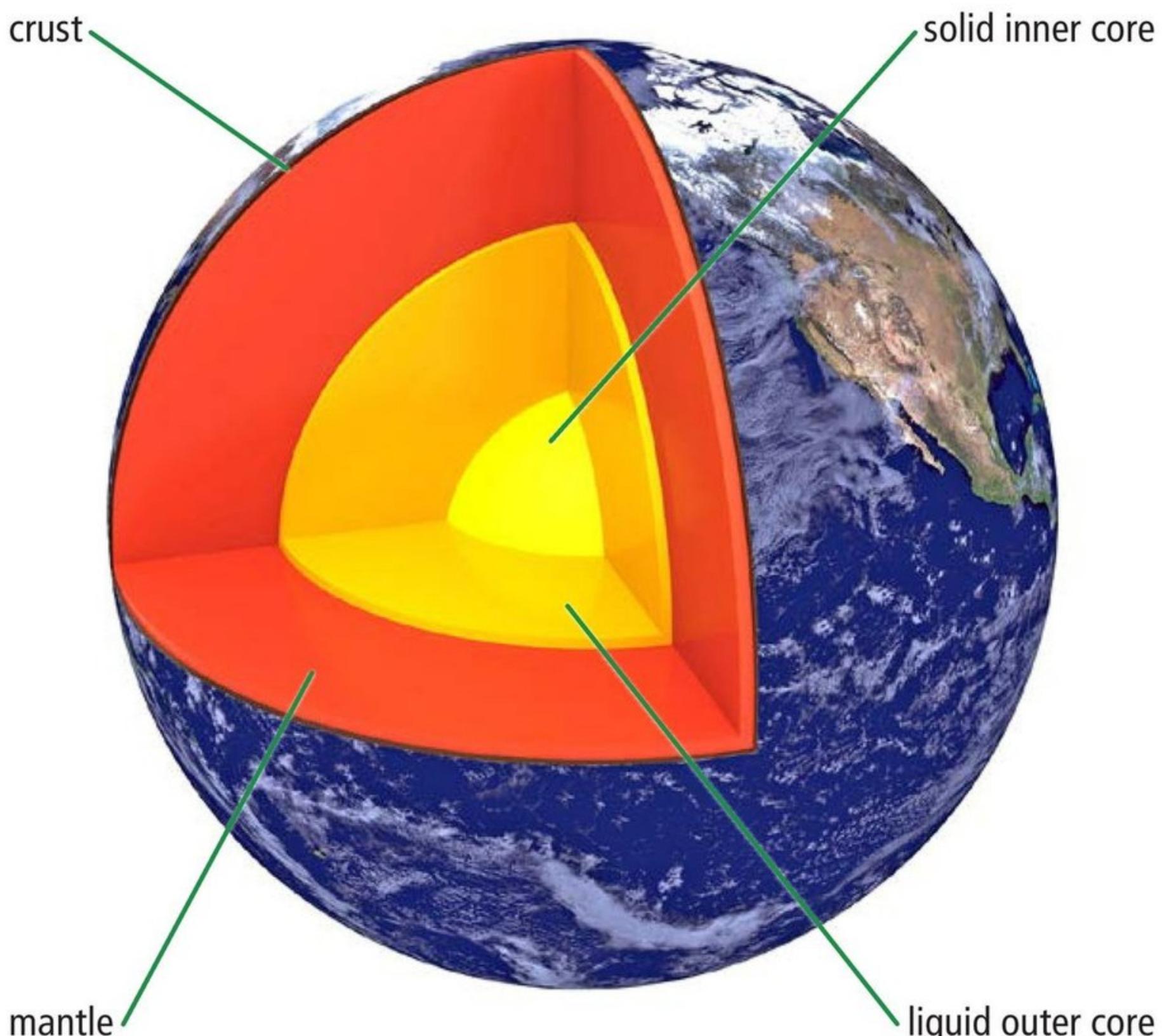
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Road Trip!

I live in Boston, and I just found out that I'm going on a road trip! My parents and I will spend part of the summer driving on **Interstate 90** all the way to Seattle. My mom told me that we're going to see some amazing **landforms** along the way—mountains, plains, rivers, lakes, and lots more. My class is learning about our planet and the forces that create different landforms. It'll be so great to see some landforms in real life. One more week of school, and we'll be off!



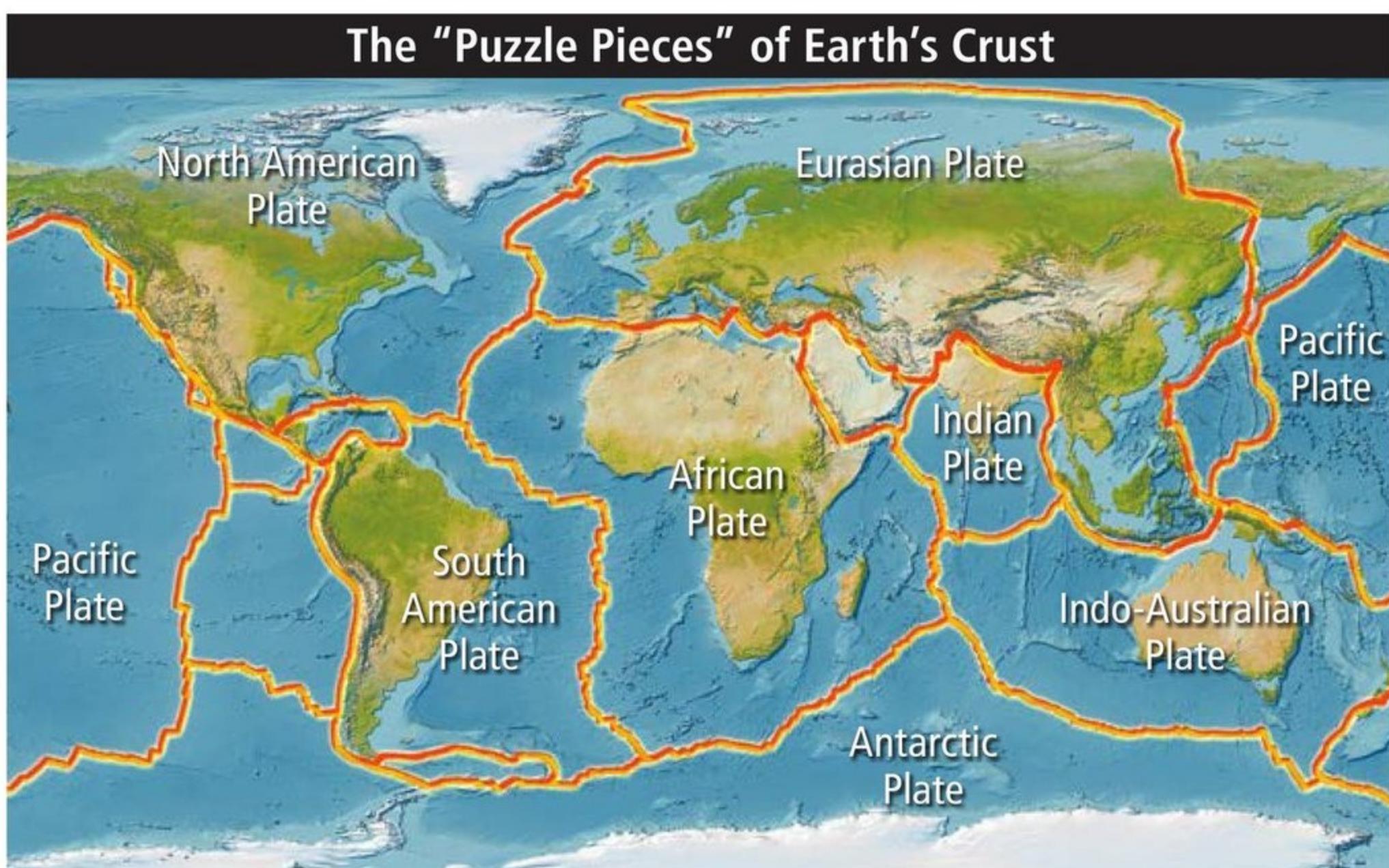
In Class

My teacher, Mr. Lopez, explained that Earth is like a hard-boiled egg. Earth's core, like the yolk, is in the middle. The outer core is liquid, and the inner core is solid metal. Both parts are incredibly hot.

Earth's mantle, which is like the white of the egg, is made up of weak rock. It moves very slowly because it is very hot—almost hot enough to melt, but not quite.

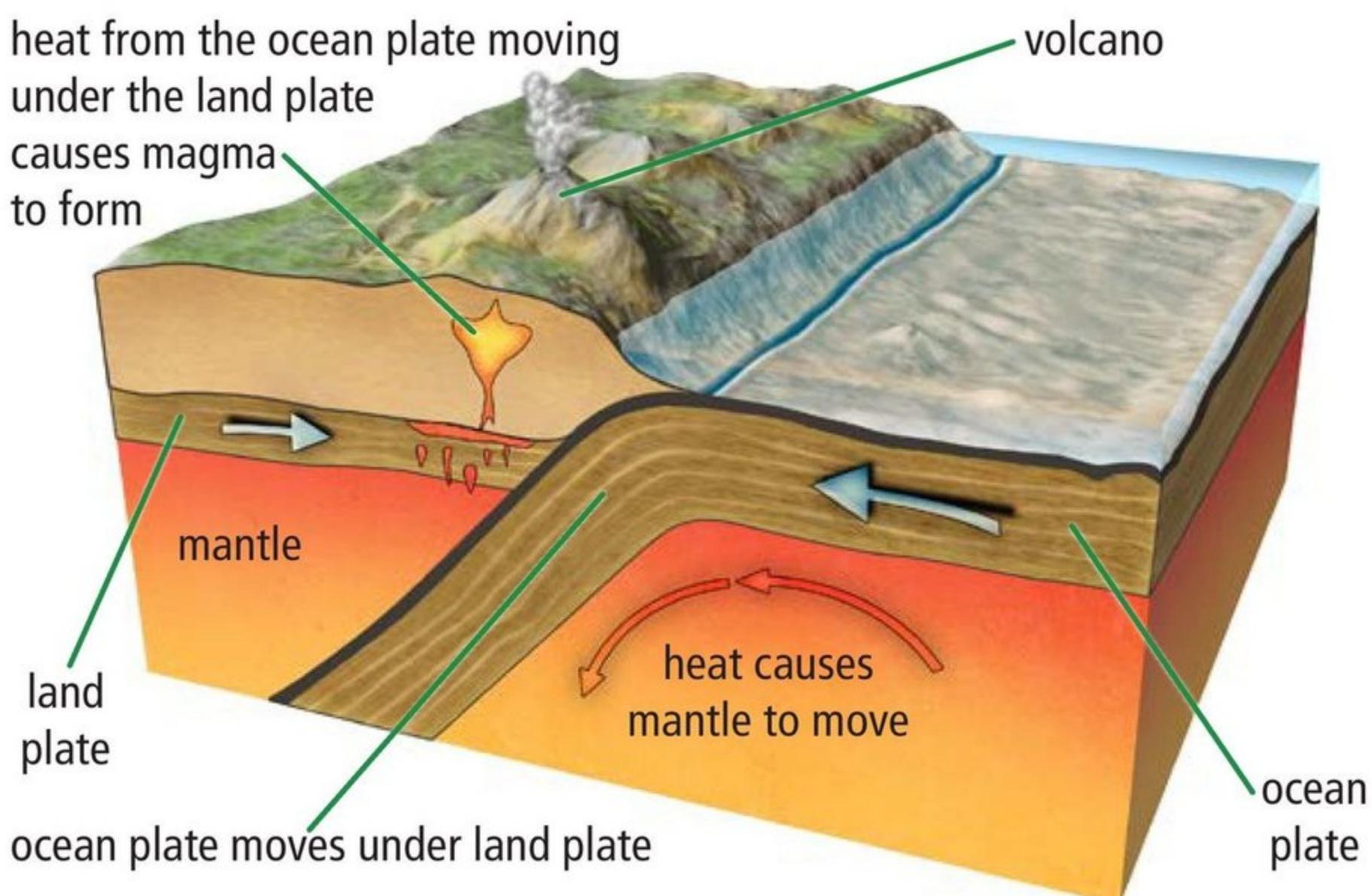
Earth's crust is like the cracked shell of the hard-boiled egg. Thicker parts of the crust are usually huge landmasses called *continents*. Most of the thinner parts make up the seafloor under oceans and seas. Both parts of the crust contain different landforms.

Mr. Lopez also explained that Earth's surface is always changing. He said that some changes take place so slowly and peacefully that we might not even notice them, while others happen really fast, often with violent force. Both types can change existing landforms and create new ones.



The movement of the many separate pieces of Earth's crust is one of the forces that create landforms.

How Coastal Volcanoes Form

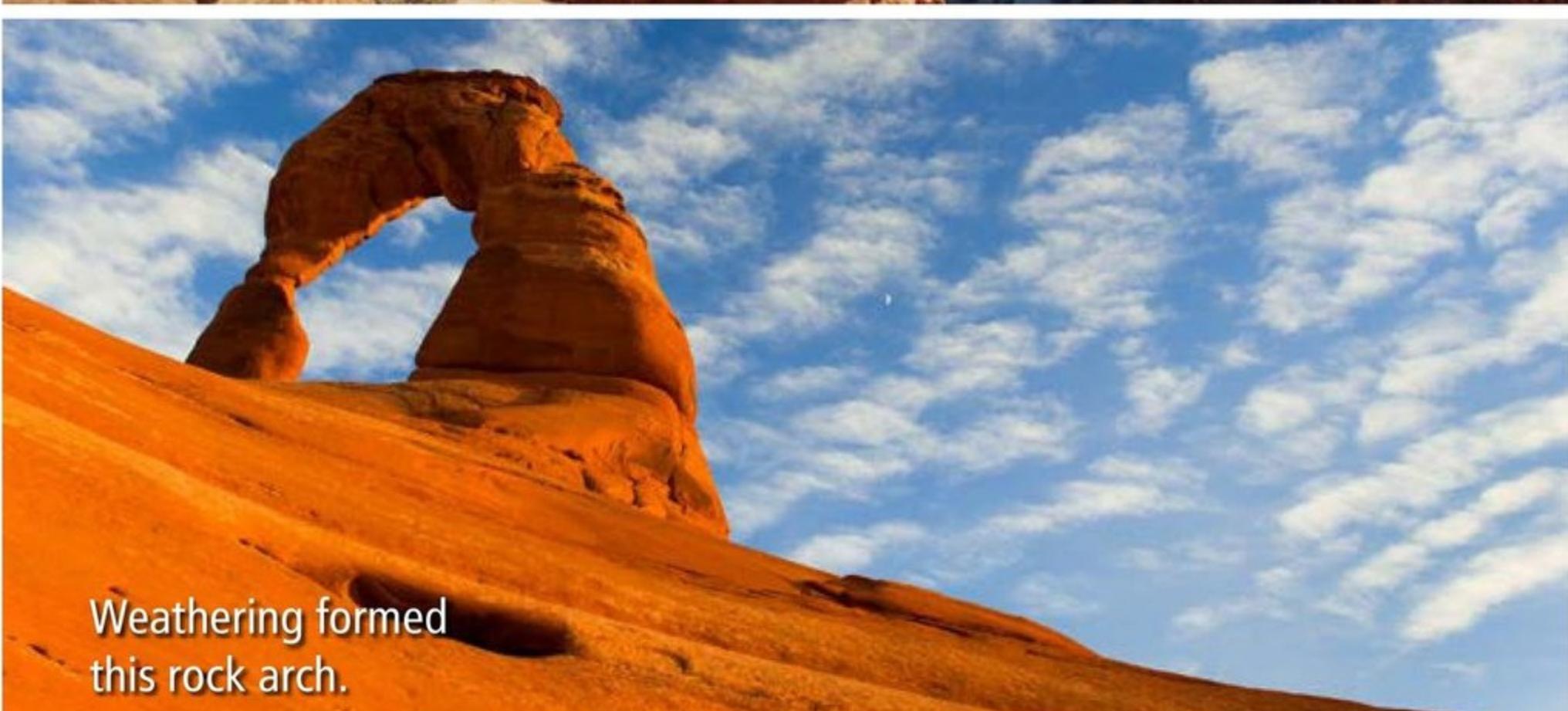


We also learned that Earth's crust is made up of huge pieces of rock called **tectonic plates**. The plates float like rafts on top of the mantle, and when the mantle moves, it carries the plates with it. Two plates can bump up against each other, slide past each other, or move away from each other. These different movements are the most important underground forces that create landforms.

Sometimes small areas high in the mantle get hot enough to melt and become magma. This melted rock can push up and erupt at the surface as lava. As lava cools and hardens, it can build up and form a volcano, which is a type of mountain.



Erosion from water and wind
carved the Grand Canyon.



Weathering formed
this rock arch.

As tectonic plates and magma change Earth under the ground, other things are happening on the surface. Weathering breaks down rock and shapes it. **Erosion** carries away the pieces that have broken off, called *sediments*, and later **deposits** them. Wind, water, and ice are the main tools of weathering and erosion.

Mr. Lopez handed out a list of different landforms. I'm going to take the list on my trip and try to see them all!



My mom and I saw these islands in Boston Harbor.

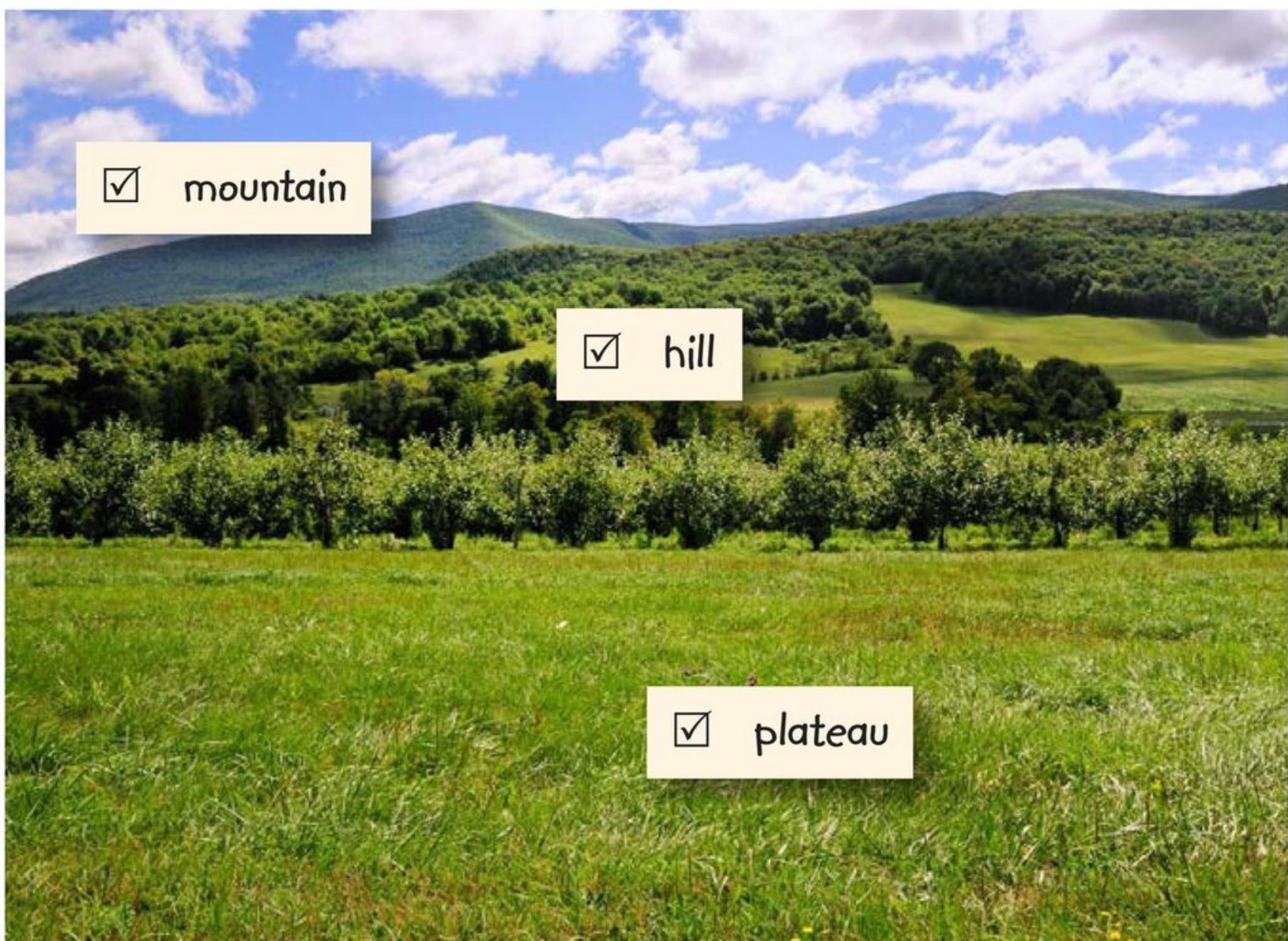
Getting Ready to Leave

Mr. Lopez's list includes some landforms here in Boston, so I started with those. Mom and I went to Castle Island, which is in Boston Harbor. It's not really an island since it's not surrounded by water on all sides. It's connected to the mainland on one side, which makes it a **peninsula**. But you can see a bunch of islands from there.

Boston Harbor is part of Massachusetts Bay, an area of water connected to the Atlantic Ocean. Boston is on the east coast of the North American continent, an incredibly huge piece of land.

On the Road

Boston's **terrain** is rolling—going gently up and down. The hills and valleys grow larger as we head west on Interstate 90, and we seem to be climbing higher. Dad says we'll soon be in a part of the Appalachian Mountains called the Berkshires. I've read about the Appalachian Mountains, but as we keep driving, I don't see any tall mountains. Dad explains that because the Appalachian Mountains are very old, erosion has worn them down to big hills.



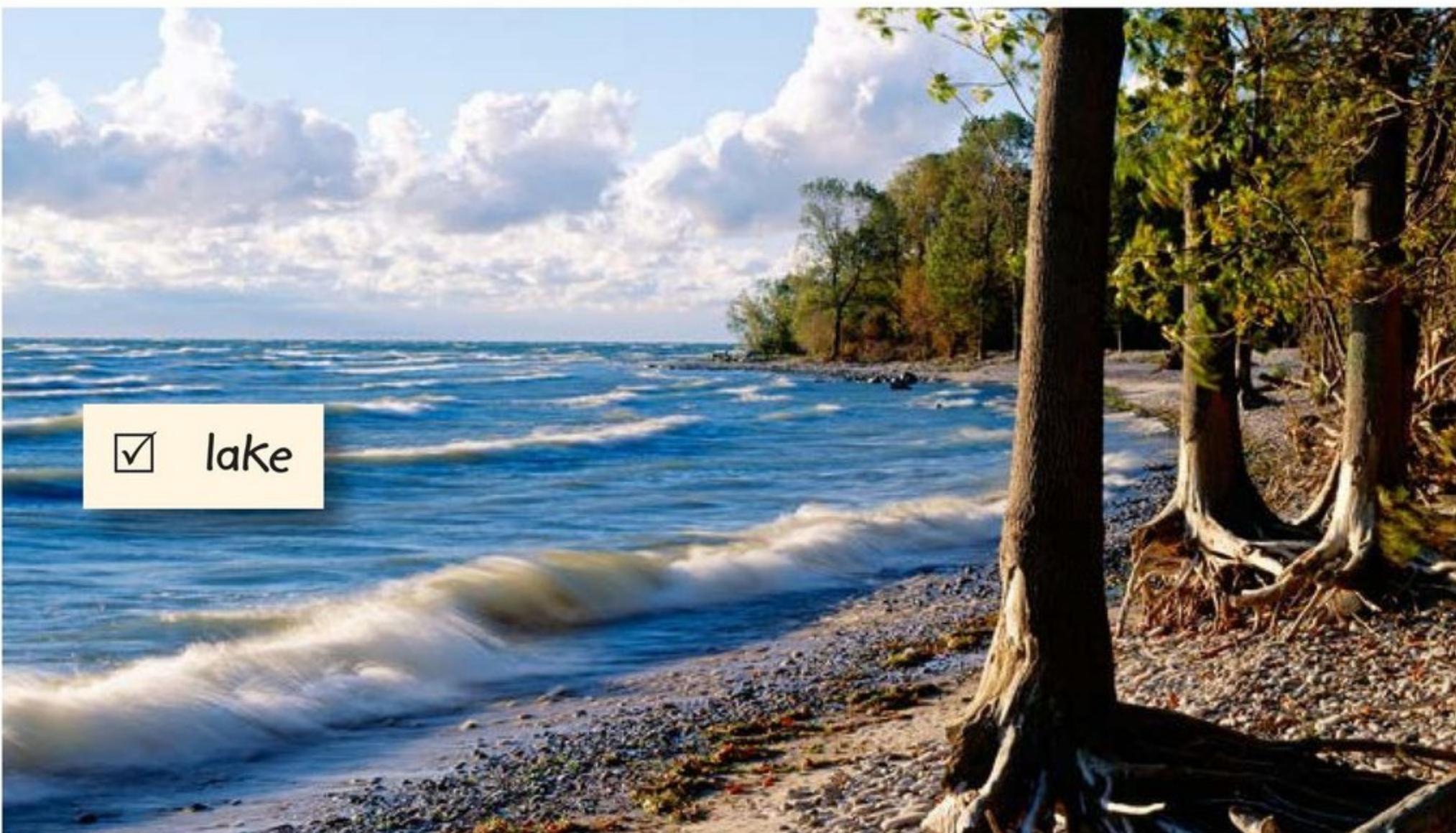
The Berkshires look more like big hills than what I think of as mountains.



Across New York State, the land is low and hilly in some places and higher in other places. Dad says the higher places are part of a huge, high area of land called the Allegheny (al-uh-GAY-nee) Plateau (pla-TOH). The high land built up over time from sediments deposited as a result of erosion.

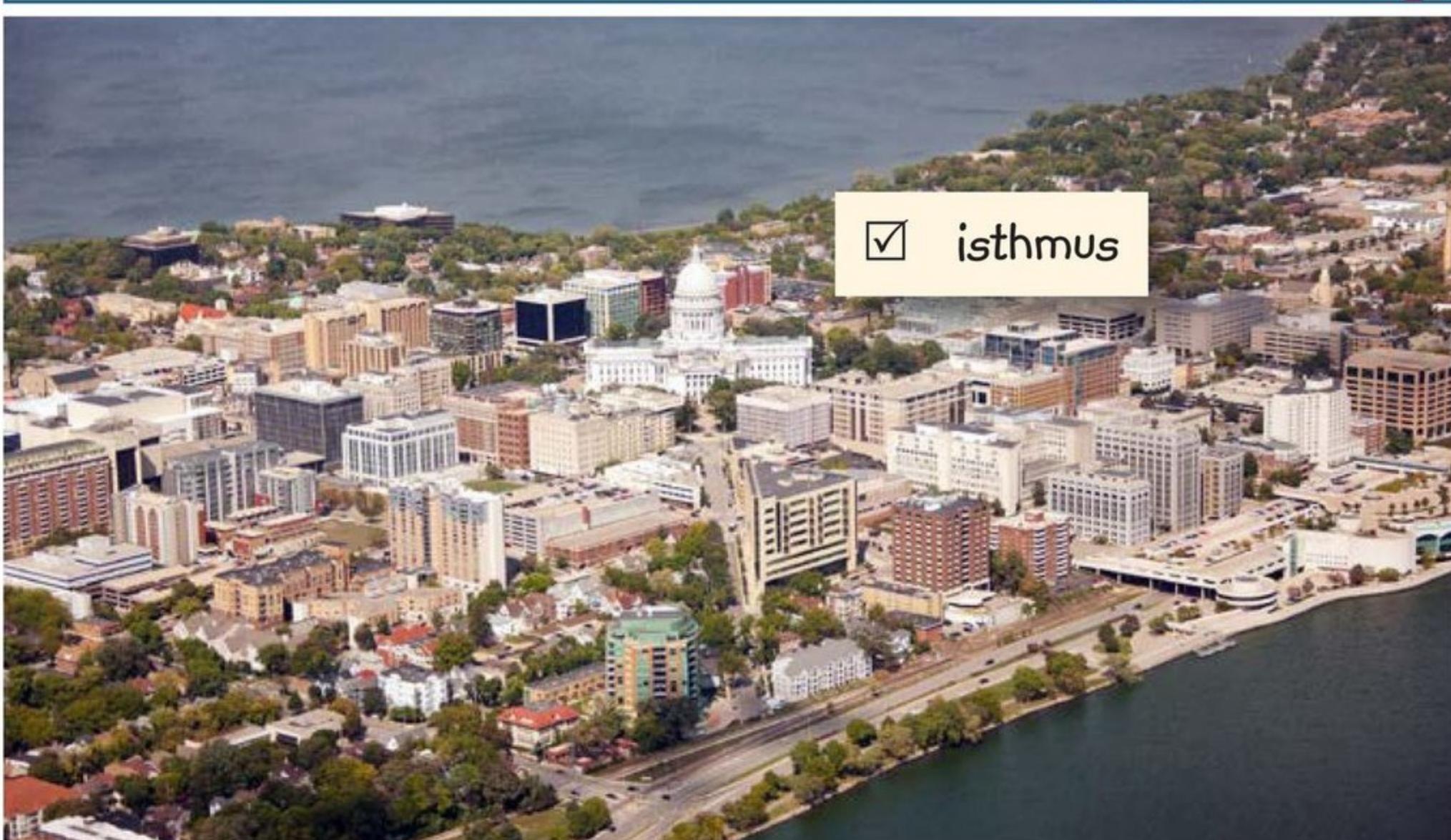
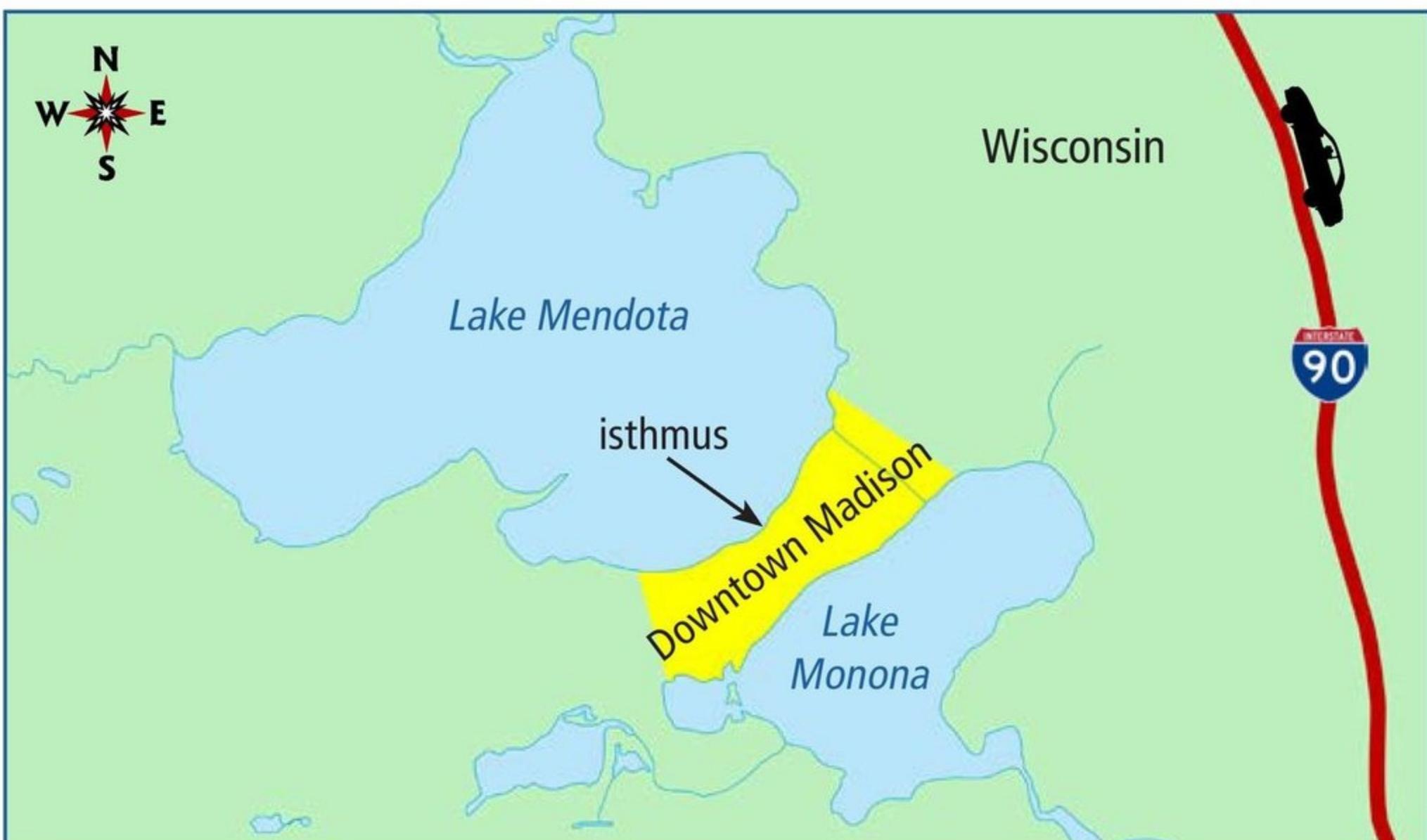
Do You Know?

The largest plateau in North America is the Colorado Plateau, which is in parts of Colorado, Utah, Arizona, and New Mexico.



Lake Erie is much too wide to see across to the other side.

After stopping overnight in Buffalo, New York, we continue west. The land is much lower and flatter as we drive along the south shore of Lake Erie, which is one of the Great Lakes. A glacier carved the **basins** for the Great Lakes about fourteen thousand years ago. They're Earth's largest group of freshwater lakes. Mom says we'll see another one of the Great Lakes—Lake Michigan—when we get near Chicago.



Wisconsin's state capitol building is on Madison's isthmus.

We stay overnight in Chicago and then get back on the road. After entering Wisconsin, we drive past the capital city of Madison. Downtown Madison sits on an **isthmus** (IS-muhs), a narrow strip of land between two bodies of water. I grin and check it off my list.



After driving for a while, we stop to see the Wisconsin Dells. The Dells is a **gorge**—a steep, narrow valley—that was carved by the Wisconsin River. Along its sides are canyons, which are similar to gorges but not as steep or narrow.

Now it won't be long until we see the Mississippi River, which is one of the longest rivers in the world. This part of the Mississippi was mainly carved by glaciers.

After we cross the Mississippi, we're in Minnesota. Soon we'll officially be in the Great Plains. I learned in school that a plain is a large, flat area without many trees. The Great Plains formed when two tectonic plates smashed into each other and joined together. Some parts of the Great Plains are flat, and others are hillier.



The sweeping grasslands of the Great Plains were once home to huge herds of bison and horses.



Badlands National Park's rock formations were created by deposited sediments along with wind and water erosion. The park has many fossils such as this skull (inset) of a mammal that lived 38 to 16 million years ago.

We stop overnight in western Minnesota and drive into South Dakota the next morning. It's pretty flat until we get near Badlands National Park. We hike in the park and see some amazing rock formations.

After an overnight stay, we drive through a corner of Wyoming and pass the Bighorn Mountains on our left. Some of the mountains have snow, but Mom says even bigger mountains are still to come.

After we cross into Montana and pass Billings, Dad says, “Get ready to be impressed!” Not too long after, I let out a whoop as I see a row of high, snowy peaks—the Rocky Mountains. The Rockies are one of the main mountain ranges in the West. They formed when two small tectonic plates beneath the Pacific Ocean slid under the North American Plate.



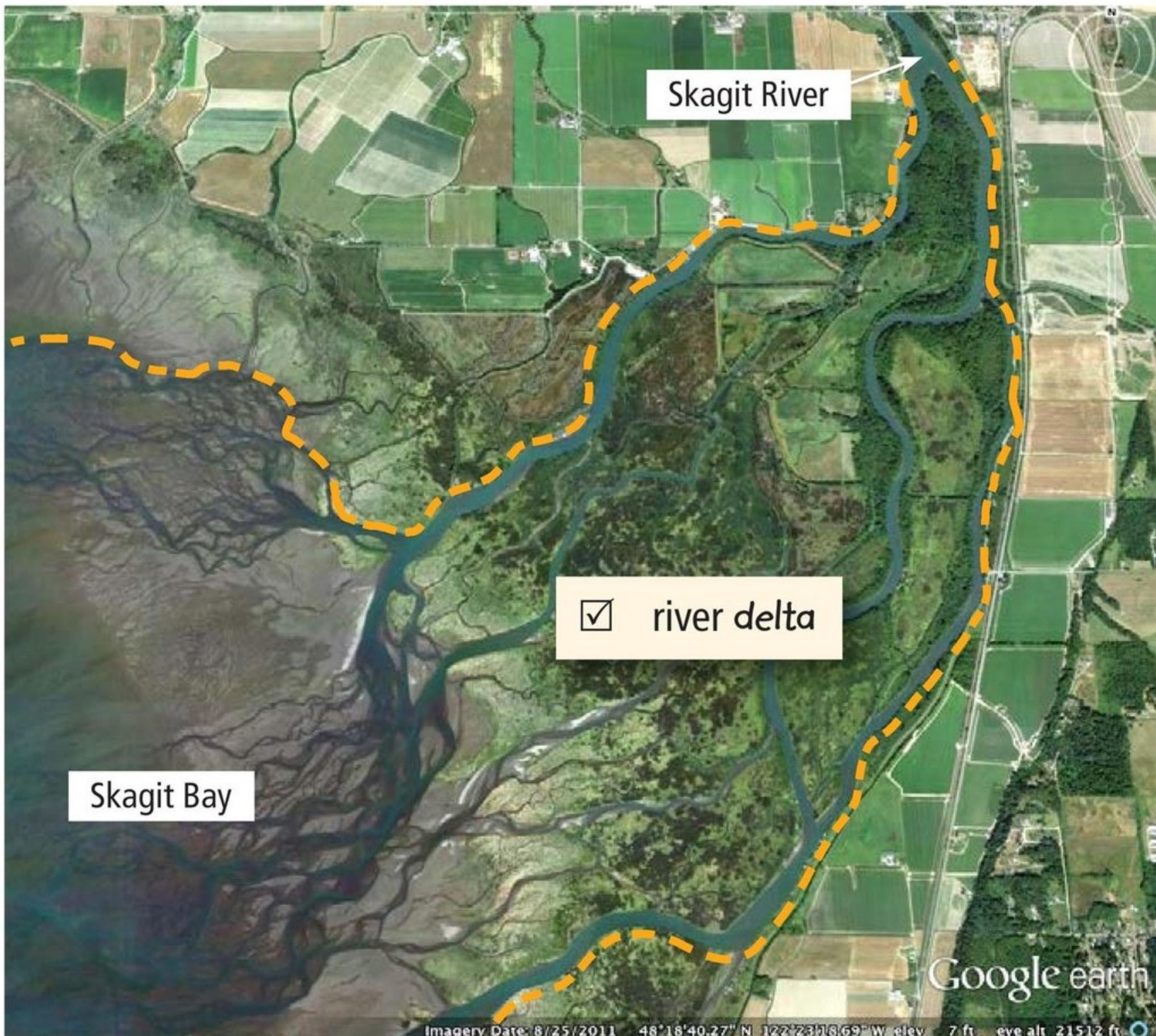
Snow caps the peaks of a Rocky Mountain range in Montana.

After driving across Montana, Idaho, and Washington, I'm excited to see water again. But I'm more excited to see Mount Rainier (ray-NEER), a huge volcano. Dad says that Mount Rainier grew so tall because hardened lava and ash piled up in layers over a long period of time.

We drive into Seattle, which is next to Puget Sound, an "arm," or inlet of the Pacific Ocean. We've reached the end of Interstate 90, and our search for landforms is nearly over.



Mount Rainier is topped with glaciers, large fields of ice and packed snow that remain all year long.



Over time, sediments built up and caused the river to split into many smaller branches in the area between the dotted lines.

One Landform to Go!

For our final stop, we travel one hour north to the Skagit (SKA-jit) River **delta**. This landform was created when sediments built up where the river flows into Skagit Bay.

I've seen some amazing landforms on this trip, and I've learned so much about how Earth's surface changes. I can't wait to tell Mr. Lopez about my summer vacation!

Glossary

basins (n.)	depressions, or low areas, in Earth's surface (p. 12)
delta (n.)	an area of land shaped like a triangle formed by sediment at the mouth of a river (p. 19)
deposits (v.)	sets down an amount of a substance, such as sediment, on a surface or area (p. 8)
erosion (n.)	the natural removal of rock or soil by water, wind, or ice (p. 8)
gorge (n.)	a long, deep valley surrounded by higher land (p. 14)
interstate (n.)	a main highway that runs through two or more states (p. 4)
isthmus (n.)	a narrow strip of land connecting two larger landmasses (p. 13)
landforms (n.)	natural formations on Earth's surface, such as valleys, plateaus, mountains, plains, or hills (p. 4)
peninsula (n.)	a long piece of land almost completely surrounded by water (p. 9)
plateau (n.)	a large raised area of flat land (p. 11)
tectonic plates (n.)	the large sheets of rock that make up Earth's crust (p. 7)
terrain (n.)	the natural features of a piece of land; ground (p. 10)

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Front cover: Hikers rest beneath Skyline Arch in Arches National Park, Utah.

Title page: Hikers walk across the Wave, a rolling area of banded sandstone rock in Vermilion Cliffs National Monument, Arizona.

Page 3: (left) A sandstone formation rises above the river in the Wisconsin Dells. (top right) The Chocolate Hills in the Philippines are thousands of hills worn down by erosion. (bottom right) Wind and sand erosion bored a hole in red sandstone rock.

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