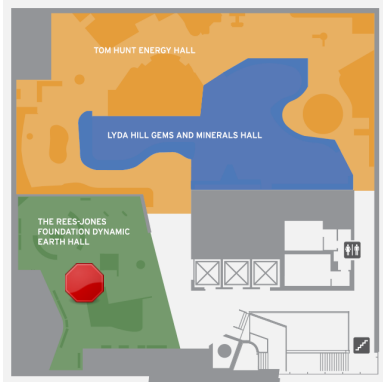


Level 3: Topographic Map

Enter The Rees-Jones Dynamic Earth Hall, to the right of the Earthquake Shake machine and continue walking around the rounded wall. You'll find the Augmented Topographic Map and Watershed Model in the middle of the hall.



Q1: Model a variety of landforms in the sandbox such as tall, peaked mountains, low, rolling hills, and valleys. What landforms did you create?

AMAZING FACT: Earth's beaches have enough sand to fill roughly 150 trillion pails.

Q2: What happens when you "make it rain" over your landforms? How does the water flow?

To "make it rain," hold your hand as if you were going to give someone a "high five." Make sure your fingers are spread apart. Now, hold your hand parallel over the sand table to "make it rain."

Q3: Imagine water flowing over real landforms. What would the water be carrying with it? How would this change the landscape?

When water flows over a landform, maybe due to a flowing river or a heavy rainfall event, that water often carries sediment or bits and pieces of rock along with it. Eventually, that water deposits that sediment somewhere else. This process is constantly shaping the surface of the Earth. (TEKS 3.7B, 4.7B)

AMAZING FACT: Flash floods, rivers and streams can slowly erode rock, carving caves and crevices. The minerals in the water act like sandpaper on the rock, slowly scouring it away.

Level 3: Shale Voyager

As you exit the elevator, turn right and enter the Tom Hunt Energy Hall by walking past the row of TV screens. Continue through the Energy Hall until you see the giant drill bit. Shale Voyager is just across from the giant drill bit.



Q1: What rock type is most oil and natural gas stored in and extracted from?

Sedimentary rocks which are composed of sediments, minerals, and organic matter that are cemented together. Organic matter means the remains of plants and animals.

Q2: How do fossil fuels such as oil and natural gas form?

Fossil fuels are formed from the organic matter buried deep inside the crust for millions of years. Over that long period, heat and pressure turn those remains into coal, oil and natural gas. (TEKS 4.7C, 5.7A)

AMAZING FACT: Around 90% of our energy comes from fossil fuels.

Q3: What have you used or seen today that uses energy from burning fossil fuels such as oil and natural gas?

Fossil fuels are a source of energy that is used to turn on the lights, heat homes or drive a vehicle.

AMAZING FACT: Methane, which is a part of natural gas, is also found in cow farts!

Level 2: Blackland Prairie Diorama

Walk to the back of the Discovering Life Hall where there are three habitats, and find the Blackland Prairie habitat.



We sometimes think of soil as dirt, but soil isn't just "dirty." Soil allows plants to live by giving them a place to grow and a place to get water. Soil is formed from different materials including: minerals, water, and organic matter. Do you remember what organic matter is, from what you learned on the third floor? It's plants, animals, and their remains.

Q1: How do you think the Blackland Prairie got its name?

The Blackland Prairie area is named after the color of the soil, which you can see is a dark brown to black.

AMAZING FACT: Some of our soil has in it the dusty remains of stars that have been pulled to Earth by gravity or another force.

Q2: What does the Blackland Prairie soil look like? Describe the color(s), textures, and types of plants that grow in it.

AMAZING FACT: The number of micro-organisms found in a cup of soil is greater than the number of people on Earth.

Q3: What makes soil so important to your everyday life?

This soil is also softer and smaller than rocks so roots are able to grow in it. These roots allow water to get from the soil into the plants, which can be as big as tall grasses. Without soil like this, there wouldn't be as many types of plants in the world, including ones we and other animals eat. (TEKS 3.7A, 4.7A)

3rd-5th Grades Earth & Space Science

Perot Museum Chaperone Guide



Exploration Question

How and why is Earth constantly changing?

Per[]t
Museum of Nature and Science

Navigation & Background

Earth is constantly undergoing changes. These changes are driven by forces from within and above Earth. This exploration will look at how Earth's climate has changed over millions of years. The changes in climate directly impact the environment and the living organisms in that area. Scientists look at the soils, rocks, and fossils to decipher all the climatic changes.

Changes in climate also impacts the shape of Earth's surface, or its landforms. Factors such as rain, wind, and temperature provide the force needed to reshape Earth. The processes of weathering and erosion are constantly breaking rocks into sediment and moving those sediments to reshape landforms.

There are also forces at work beneath Earth's crust causing changes. Convection currents in the mantle drive the movement of huge crustal plates. The movement of the plates also cause changes to the surface of Earth. For example, as two plates slide by each other creating built up stress that when released creates earthquakes. The moving plates can also change Earth by creating mountains and deep ocean trenches.

Welcome to the Perot Museum of Nature and Science!

Use this guide to facilitate your students' educational journey through the Museum exhibits.

Each stop on your journey has probing questions, indicated in blue, that you can ask your students in order to spark their thinking.

Background information, indicated in black, is provided to help you understand the science behind each exhibit.

Connections to other Museum exhibits and Amazing Facts are indicated in green.

Navigation information, indicated in red, is designed to help you locate each exhibit.

Level 4: Age of Giants

Walk into the T. Boone Pickens Life Then & Now Hall, past the screen hanging in the entrance, and continue straight ahead to find the Age of Giants exhibit.



Q1: What do you think Dallas would have looked like when these animals were alive?

Dallas would have been dry land with plants and animals inhabiting the area. (TEKS 4.7B)

Q2: What do you think the climate was like during this time compared to today?

During this time, Earth was much cooler and drier.

AMAZING FACT: Glaciers once covered as much as one third of the entire Earth.

Q3: What type of weather do you think Dallas experienced during this time?

The rainfall or snowfall would be very low due to the oceans being colder and the amount of water that is tied up in the ice sheets.

AMAZING FACT: The remains of glaciers of the Ice Age can still be seen in parts of the world, including Greenland and Antarctica.

Level 4: Ocean Life in Dallas

As you enter the T. Boone Pickens Life Then and Now Hall, Ocean Life in Dallas will be on your left. Look for the giant turtle fossil hanging from the ceiling.



Q1: What do you think Dallas would have looked like when these animals were alive?

During the Cretaceous, Dallas would have been under approximately 250 meters of water.

AMAZING FACT: The Cretaceous Period was the last time dinosaurs were alive on earth.

Q2: What do you think the climate was like during this time compared to today?

Evidence of aquatic and marine fossils that you can see on display, in addition to the types of rocks these fossils are found in, suggest a time when climate was warmer, ice caps were melted, and sea level was higher. This time is known as the Cretaceous period.

Q3: Where do you think this water came from?

This water was a part of the Western Interior Seaway, which divided the entire length of North America during this time. Clues found in rocks help us paint a picture of what the world was like millions of years in the past. (TEKS 4.7B)

AMAZING FACT: The very first flowers appeared during the Cretaceous Period 145.5 million years ago. Visit Unearthing Fossil Diversity in this Hall to learn more about organisms' first appearances on Earth.

Level 3: Earthquake Shake

As you enter The Rees-Jones Foundation Dynamic Earth Hall, enter the ramp on the left side of the Hall. Wait for your turn to enter the Earthquake Shake. When it is your group's turn, be sure to experience all 3 earthquakes.



Q1: What is an earthquake?

Although the process of plate tectonics is a relatively slow geologic change, an earthquake is a rapid event in the geologic and human time scale.

Q2: Where do earthquakes happen?

Earthquakes occur where movement occurs along faults in the Earth's crust. Most earthquakes occur along or near current and past tectonic plate boundaries. (TEKS 3.7B)

Q3: Do all earthquakes feel the same?

Earthquakes can range in severity, and are measured on the Richter Scale, a logarithmic scale of earthquake magnitude. Higher magnitude earthquakes typically result in more intense shaking and increased damage to the surrounding area.

AMAZING FACT: The largest earthquake ever recorded in the world was in Chile in 1960. It measured a 9.6 on the Richter Scale. The largest in the US was a 9.2 magnitude in Alaska in 1964.