

GALLERY RESOURCE GUIDE

BIRTH OF THE EARTH

Grades: 3, 4, 5, 6, 7, World Geography, Earth and Space Science

Academic Standards:

Social Studies: 4.3.5, WG.3.4, WG.3.5

Science: 3.2.2, 3.2.4, 4.2.2, 4.2.3, 5.2.1, 6.2.3, 7.2.1, 7.2.3, 7.2.4, 7.2.5, ES.1.1, ES.5.1, ES.5.3, ES.5.4, ES.6.3, ES.6.4

Overview:

The Indiana Story begins long before there was an Indiana—about 12 to 20 billion years ago. This first chapter of the Indiana Story traces the history of the state from a geological perspective. It shows us how constant, slow change—interrupted by sudden, bold transformations, created the setting, the characters, and the context for Indiana’s Story.

See how the continents developed and where Indiana was located over millions of years through descriptive graphics and a multimedia globe. Work with our interactive multimedia globe to explore diverse topics, ranging from population density to maps of the solar system and planets. Use the 3-D map to study rock composition in Indiana, and then feel differences in rock types. Interactive exhibits allow students to explore geological time, continental drift, rocks and minerals, earthquakes, and fossils.

Gallery Highlights:

- > **It’s about Time:** Students understand the extensive length of one billion years by repeatedly turning a wheel to travel through time and discover geological changes that occurred along the way.
- > **How Much is One Million?:** Students examine the accumulation of sand, from one grain, representing one year, all the way to one million grains, to illustrate long periods of time.
- > **Omni-Globe:** Explore a variety of topics on this computer animated, 360° projection of Earth’s surface. With this interactive globe, students track Indiana’s position and movement over 600 million years. Investigate natural disasters like earthquakes, volcano eruptions, and tsunamis, and then examine the stars and planets in the solar system. The globe enables students to survey biomes, desertification, population density, wind erosion, and even languages and education around the world
- > **Looking at Layers:** Explore the layers of the earth with this hands-on cross section.
- > **Shake and Quake:** Students learn that underground movement triggers earthquakes and then create earthquakes of their own and watch as it is recorded on a seismometer.
- > **Comparing Cores:** Pull out samples of bedrock throughout Indiana and compare amount and thickness of layers around the state.

GALLERY RESOURCE GUIDE continued

- > **Ready to Rock:** Discover how metamorphic, sedimentary and igneous rocks are formed, then see and feel the differences in rock types.
- > **Fossilization:** Students learn the definition of a fossil and the four ways that scientists classify the creation of fossils.

Key People, Events or Terms:

- > Big Bang Theory
- > Geology
- > Geologic time
- > Plate tectonics
- > Continental drift
- > New Madrid fault system
- > Earthquake
- > Crust and core
- > Rocks and minerals
- > Fossilization

Workshops, Lesson Plans, and Special Events:

- > Fossils workshop
- > Shake It Up workshop
- > Rocks and Minerals workshop
- > Fossils of Indiana lesson plan
- > Fossil family backpack
- > Geofest Festival

Discussion Questions:

- > Ask students to find Indiana in the pictures illustrating continental drift. What was the large landmass for that time period named? What happened to the supercontinents after they divided? Discuss the reasons why Indiana and the continents shifted and changes occurred.
- > What is an earthquake? Students can participate in the interactive *Make a Quake* after reviewing the *Looking at Layers* exhibit. Discuss what fault lines are and how they are linked to earthquakes. What can earthquakes tell us about the continents?
- > Discuss the three types of rock and how they are formed. Which type of rock is abundant in Indiana? Ask the students to identify the different types of sedimentary rocks in the gallery and have them compare and contrast two of the rocks.
- > Use the interactive Omni-Globe's feature of Geology > Earthquake Location to see how close actual earthquakes have been recorded to Indiana. Do you think earthquakes effect Indiana? Why or why not?

