Tectonic Plates- Introduction

Lesson Overview

Title: Tectonic Plates- Introduction
Author: Greg Garner
Subject: Science
Grade Level(s): 6–8
Duration: 90 Minutes

Unit Description

This lesson begins a unit on the geologic systems that shape our earth. Students will engage in self-discovery to build an understanding of both "how" and "why" the Earth has tectonic plates. By observing and creating real-world examples where similar structures are utilized, students will be able to tie in to existing knowledge and build a new understanding of the world around them. Engagement of recent and current events will also be implemented as students are encouraged to relate classroom learning to what is being reported in the mass media, giving students experience in building media literacy as well.

Lesson Description for Day

Students will use various hands-on models, computer simulations, video, and class discussion to construct learning about plate tectonics.

State Standards

TEA TEKS

112.18(b)(10)(A) build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere

112.18(b)(10)(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American

112.18(b)(10)(D) describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building

Goals

Unit Goals:
1. Students will understand and recognize the Earth's tectonic plates.

2. Students will be able to explain continental drift and the role plate tectonics plays in it.

3. Students will be able to describe the role tectonic plates play in major geologic events.

4. Students will be able to identify the cause of major geologic events worldwide.

Lesson Goals:
1. Students will be able to explain tectonic plates (concept).

2. Students will describe continental drift and the role of plate tectonics.

3. Students will be able to name at least 2 examples of geologic events caused by plate tectonics.

Methods

Anticipatory Set: [Edit](#)
Students will be given puzzle pieces and must work cooperatively/collaboratively to construct the finished product (a sphere). Each team will record notes regarding the exercise and any observations the group makes about the pieces and the finished product.

 Then students will observe the cross-section of various spheres including bowling balls, golf balls, and billiards balls.

 These activities call on their recognition networks of understanding and knowledge (the "what" of learning).

Introduce and Model New Knowledge: [Edit](#)
As a class, we will discuss the observations students made about their activity. We will begin answering questions such as:

1- What would happen if you removed a piece of the puzzle?

2- What did you notice about the puzzle as you were building it?

3- What did you notice about the cross-sections of the spheres provided? How were they they same/different?

4- Which of the spheres provided is most like the Earth? How is it the same/different?

These question and answer sessions provide the strategic networks of understanding and knowledge, or the "how" of learning. It helps students to categorize and organize their learning.

Provide Guided Practice:
We will watch a video montage of various natural disasters and discuss the role tectonic plates plays in these disasters. Then, students will move to a hands-on model that allows them to see and feel the impact of tectonic plates on our ecosystem. After that, students will go to a guided computer simulation that allows them to manipulate items they have been working with and experiment with how different changes/actions affect the overall global environment.

Provide Independent Practice: [Edit](#)
Students will then be given an exploratory set of questions that engage their learning so far with recent or current events. They will be encouraged to draw from all of their prior experiences to solve

scenario-based problems involving major world geologic events such as earthquakes, volcanoes, and tsunamis.

Both the Independent and Guided Practices implement affective networking, also known as the "why" of learning. These are the real-life lessons and implications of learning this topic and provides the highest level of engagement for all learners.

Wrap-Up

Students will share their findings with the class and discuss their results. Hypotheses will be developed and recorded for on-going research in the area of plate tectonics.

This will go back to the strategic network for understanding and knowledge as it takes everything collectively and forces students to systematize their learning from the day's activities.

Assessment

Formative/Ongoing Assessment:
Observations will be made regarding students and their facility in manipulating the puzzle pieces (spatial learning) versus their facility with video and computer modeling (visual learning).

The teacher will monitor students as they manipulate data and make observations about students who struggle with the exploratory questions.

Summative/End Of Lesson Assessment:
Wrap-up discussion will be graded based on findings and development of hypotheses (etc).

Materials