**Marietta City Schools**

**2025-2026 District Unit Planner**

Science Grade 6 Honors

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| **Unit title** | *Earth's Changing Landscapes Part 1 Plate Tectonics* | **MYP year** | 1 | **Unit duration (hrs)** | 20 Hours |

## GSE Standards

**Standards**

**S6E3. Obtain, evaluate, and communicate information to recognize the significant role of water in Earth's processes.**

c. Ask questions to identify and communicate, using graphs and maps, the composition, location, and subsurface topography of the world's oceans.

**S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.**

a. Ask questions to compare and contrast the Earth's crust, mantle, and inner and outer core, including temperature, density, thickness, and composition.

f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions. (Clarification statement: Include convergent, divergent, and transform boundaries.)

g. Construct an argument using maps and data collected to support a claim of how fossils show evidence of the changing surface and climate of the Earth.

**Gifted Standards**

Strand 2: Creative Thinking Skills: Students will develop and utilize creative thinking through a variety of products and problem-solving.
Strand 3: Higher Order Thinking and Problem- Solving Skills: Students will develop and utilize critical thinking, higher order thinking, logical thinking and problem solving skills in various situations.
Strand 4: Advanced Communication and Collaboration Skills: Students will develop advanced communication and collaboration skills in working toward a common goal with shared accountability for the final outcome.
Strand 5: Emotional Development of Self: Students will develop understanding of self and how one's own unique abilities influence interactions with others.

**Prior Student Knowledge: (REFLECTION – PRIOR TO TEACHING THE UNIT)**

**S5E1. Obtain, evaluate, and communicate information to identify surface features on the Earth caused by constructive and/or destructive processes.**

a. Construct an argument supported by scientific evidence to identify surface features (examples could include deltas, sand dunes, mountains, and volcanoes) as being caused by constructive and/or destructive processes (examples could include deposition, weathering, erosion, and impact of organisms).

b. Develop simple interactive models to collect data that illustrate how changes in surface features are/were caused by constructive and/or destructive processes.

c. Ask questions to obtain information on how technology is used to limit and/or predict the impact of constructive and destructive processes.

**Concepts/Skills to be Mastered by Students**

- Plate Tectonics
- Land Features
- Catastrophic Events
- Geologic Time Scale

**Key Vocabulary: (KNOWLEDGE & SKILLS)**

| Earth's Layers | Tectonic Plates | Ocean Floor Features | Volcanoes | Earthquakes |
|---|---|---|---|---|
| Geosphere<br>Crust<br>Mantle<br>Convection Current<br>Inner Core<br>Outer Core<br>Asthenosphere<br>Lithosphere | Lithospheric Plates or Tectonic plates<br>-Oceanic plates<br>-Continental plates<br>Divergent boundary<br>-Seafloor spreading<br>Convergent boundary<br>-Subduction<br>Transform boundary<br><br>**History of Tectonic Plates:**<br>Pangaea<br>Continental Drift | Subsurface Topography<br>Continental shelf<br>Continental slope<br>Trench<br>Abyssal plain<br>Guyot<br>Seamount<br>Mid-ocean Ridge<br>Rift Valley<br>Volcano | Magma<br>Lava<br>Ring of Fire<br>Hot Spot<br>Geothermal Energy<br>Igneous Rock | Richter scale<br>Seismic waves<br>Focus<br>Epicenter<br>Frequency<br>Landslide<br>Mass wasting<br>Gravity<br>Tsunami |

**Year-Long Anchoring Phenomena: (LEARNING PROCESS)**
Earth is the only planet in our solar system that can support life.

**Unit Phenomena (LEARNING PROCESS)**
**Impossible Trailer -** Trailer about the 2004 Indian Ocean earthquake and tsunami, and a family's struggle to survive. Follow up with I notice/wonder or observations/inquiries.
Why do we see major geologic events in the Ring of Fire?

**Possible Preconceptions/Misconceptions: (REFLECTION – PRIOR TO TEACHING THE UNIT)**
You can travel to the center of the earth.
Mountains, valleys, and all landforms have always been there and don't change.
Everywhere on earth experiences earthquakes.
The continents were never joined together.

The ocean floor is flat.
The floor of the ocean is only cold.

| Key concept | Related concept(s) | Global context |
|---|---|---|
| **Change (MYP/CCC)**<br>Change is a conversion, transformation or movement from one form, state, or value to another. Inquiry into the concept of change involves understanding and evaluating causes, processes and consequences. | **Transformation (MYP)**<br>**Energy (MYP/CCC)** | **Scientific and Technical Innovation**<br>Students will explore the natural world and its laws; the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs. |

**Statement of Inquiry**

Scientific and technical innovations allow us to visualize, model, and explain changes to the Earth's surface. Why do we see major geologic events in the Ring of Fire?

**Inquiry questions**

**Factual—**

What do fossils show scientists?
What landforms are on the ocean floor?
Why does the Earth have layers?

**Conceptual—**

How do the layers of the earth compare?
How do plate movements change the shape of Earth's surface?

**Debatable-**

Would you prefer to live near a volcano or a fault line?

| MYP Objectives | Assessment Tasks |
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| *What specific MYP **objectives** will be addressed during this unit?* | ***Relationship** between summative assessment task(s) and statement of inquiry:* | *List of common formative and summative assessments.* |
|---|---|---|
| **MYP A: Knowing and Understanding**<br><br>**MYP B: Inquiring and Designing** | MYP A: Unit 2 Exam- Paper 1<br><br>MYP B- Plate Tectonics Edible Lab | **Mid- Unit Assessment(s):**<br><br>-Earth's Layers and Plate Tectonics<br><br>**Summative Assessment(s):**<br><br>Paper 1 (Common Multiple Choice Assessment)<br><br>Paper 2 (Student-Choice Short Answer Assessment) |

| **Approaches to Learning (ATL)** |
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| **Category(s):** Thinking, Research, and Collaboration<br>**Skill Indicator:** Use models and simulations to explore complex systems and issues. Gather and organize relevant information to formulate an argument. Working effectively with others. |

**Learning Experiences**

Add additional rows below as needed.

| **Objective or Content** | **Learning Experiences** | **Personalized Learning and Differentiation** |
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| a. Ask questions to compare and contrast the Earth's crust, mantle, inner and outer core, including temperature, density, thickness, and composition. | Students will practice serving as a member of the Junior Environmental Scientist team working at the Global Geoscience Institute (GGI). A major international science conference is coming up, and their team has been invited to speak on a youth-led panel discussion about Earth's internal structure. Students will complete the task of representing one of the four main layers of the Earth (crust, mantle, outer core, and inner core) to answer tough questions from a panel moderator. Teams will also prepare a 2 minute presentation, visual aid (poster, model, or slides) to share information about their layer of Earth. In conclusion, students will complete a Claim-Evidence-Reasoning (CER) prompt to differentiate between the layers of Earth. | • Capstone Connections<br>• Discovery Education High School Environmental Science Techbook<br>• Extensions – Enrichment Tasks/Projects<br>• NGSS Case Study 7: Gifted and Talented Students<br>• Next Generation Science Standards: "All Standards, All Students" |

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| g. Construct an argument using maps and data collected to support a claim of how fossils show evidence of the changing surface and climate of the Earth. | Students will explore a map of Pangea by piecing continents together, analyzing patterns of fossil locations then use the “Analyzing Evidence: Continental Drift” page to construct an argument (using the CER framework) about how fossils show evidence of the changing surface of the Earth. | |
| f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions. (Clarification statement: Include convergent, divergent, and transform boundaries.) | Students will complete a Case Study to explore how the Indian Plate split from the Gondwanaland and Madagascar about 90 million years ago. Due to continental drift, it moved toward Eurasia and collided with that continent about 35 to 55 million years ago. This collision resulted in the formation of the Himalayas. | |

**Content Resources**

GaDOE Earth’s Changing Landscape Instructional Segment, Discovery Education Grade 6 Science Techbook, Discovery Education High School Environmental Science Techbook, Edpuzzle, Data Nuggets

**Capstone Connections**

Students are working through the Capstone Project. They should have a topic selected and working through parts A-D.