**Lesson Cycle (5E Model)**

**Lesson Title/Topic: “Making a Model”**

**Concept:** Identifying and Describing Layers of Earth

**Standards/Rationale:** 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

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| **Learning Target:**  | **Assessment (Evaluate):**  |
| Student will identify and describe characteristics of the Earth’s layers by building a model with 80% accuracy. | Completed model with written descriptions. |

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| **Materials:** PowerPoint presentation, projector, clear cylinder containers, materials to represent natural layers (ex. coffee, brown sugar, crumbled graham crackers, colored rice), labels and markers. |
| **Lesson Cycle:** **(Direct instruction)**  |

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| **The teacher will:** | **The student will:** |
| **Focus/ (Engage):*** Present a globe to the class and ask “If I were to slice this replica of Earth in half, what would I see?”
* Call on students and write their responses on projector.
* Allow a few minutes, quickly writing what students already know.
* Turn projector off and play video:

<https://www.youtube.com/watch?v=NAHY6965o08>* While video plays, ask students to write name of each layer and 1 fact about each on a piece of paper (based on video.)
 | * Think about layers of Earth and prior knowledge on the subject.
* Respond and participate.
* Write facts while quietly watching video.
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| **Teacher Input(Explain & Elaborate):** * Turn off video. Display projector image again showing original written comments from students.
* Ask students to quietly think and review: “How accurate are your original comments on the projector?”

“How does your prior knowledge compare to the facts you wrote on your paper?” * Begin PowerPoint presentation with images of Earth’s layers.
* Elaborate on each, discussing, texture, thickness, temperature.

(Inner Core, Outer Core, Lower Mantel, Upper Mantel, Asthenosphere, Lithosphere, Continental Crust, Oceanic Crust)* Number-off students for cooperative learning “Numbered Heads Together”.
* Ask questions such as:

“What does the inner core consist of and what is its temperature?”“Which layer creates a magnetic field?”“What is the largest layer of the earth and where is it located?” | * Review and compare prior knowledge to new facts.

 * Ask questions as needed.
* Take additional notes, adding to facts written from video.
* Participate in “Numbered Heads Together” activity.
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| **Guided Practice (Explore):*** Pair up students (considering data analysis profile).
* Provide each pair with 1 clear cylinder container.
* Display multiple supplies to represent natural elements of the Earth’s layers.
* Place PowerPoint image only of sliced Earth on board with NO labels.
* Starting with the inner core layer: Ask “What is this called?”
* Click PowerPoint to reveal name of layer. No characteristics will be provided, name only.
* Direct them to discuss with partner and determine best supply to represent this layer and why. They will place chosen material into bottom of clear container.
* Monitor student interaction and observe their reasoning. Guide and direct as needed.
* As they complete each layer, continue same guided practice with each layer.

1st- Pointing to layer on PowerPoint. 2nd- Asking what this layer called? 3rd – Revealing correct answer on PowerPoint without characteristics shown. 4th – Have partners work together to determine best supply to represent that layer and write why they chose it. 5th – Guide and direct as needed on each layer.  | * Put away all notes (Try not to use notes if possible. Notes are allowed if they struggle.), get with partner, review supplies, and wait for instruction.
* See image.
* Respond “Inner Core”.
* Discuss details of this layer with partner. Select material to use (Thinking about temperature of layer, what it’s made of, how many miles deep it is, etc.)
* Continue to build layers with partner.
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| **Independent Practice (Evaluate):*** Remove PowerPoint image of labeled layers shown during model project.
* Ask students to identify each layer using labels and markers.
 | * Label each layer on model.
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| **Closure:*** Have students write their favorite part of today’s lesson on a notecard and turn in as Exit Ticket.
 | * Exit ticket.
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| **Options:** |   |
| **Enrichment (Extend):*** Write an acrostic poem with the words **EARTH SCIENCE** that apply to this lesson.
 | **Reteach:*** Place large images of sliced Earth in different areas of the room. Group students together and let them work in groups writing as many fact as they can on the image. Students will rotate adding more descriptions to each image. Afterwards, review images w/ written facts as class. Review in depth remaining areas of confusion and uncertainty.
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**Modifications/Correctives:**

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| * Gifted/Talented – Students will share lesson information on classroom blog. Include pictures of class project and explain. Parents can view and enjoy what students are learning.
* Learning Disability - Allow students to use their written notes and textbooks while working on projects.
* ESL Students – Provide worksheet with labeled pictures and definitions of Earth’s layers.
* Bilingual – These students will be partnered to work together.
* Speech – Allow extra time for partner discussions.
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**References:**