LEGO Layers of the Earth

Materials Needed:

- Assorted LEGO bricks in at least four different colors (e.g., blue/green, orange/red, yellow, white/gray)
- LEGO baseplate (optional, but helpful)
- Paper or whiteboard
- Markers or crayons
- Diagram or picture showing a cross-section of Earth's layers

Lesson Steps:

1. Introduction (Engage - 5 minutes):

- Ask the student: "What do you think is inside the Earth, deep under our feet? Is it just dirt and rock all the way down?"
- Show the diagram/picture of Earth's layers. Explain that the Earth isn't the same all the way through; it has different layers, kind of like an onion or a multi-layered candy.
- Say: "Today, we're going to build our own model of the Earth using LEGOs to see what those layers are!"

2. Activity: Building the LEGO Earth (Explore & Explain - 20-25 minutes):

- **Assign Colors:** Decide together which LEGO color will represent each layer. For example:
  - White/Gray = Inner Core
  - Yellow = Outer Core
  - Orange/Red = Mantle
  - Blue/Green = Crust
- **Step 1: Inner Core:** "Let's start at the very center. This is the Inner Core. It's a solid ball made mostly of iron and nickel. It's incredibly hot, but the intense pressure keeps it solid." Build a small, solid block with the inner core color (e.g., a 2x2 white/gray block).
- **Step 2: Outer Core:** "Around the inner core is the Outer Core. This layer is also made of iron and nickel, but it's so hot it's liquid metal! The movement of this liquid metal creates Earth's magnetic field." Build a layer of the outer core color (e.g., yellow) around the inner core block. Make it noticeably thicker than the inner core.
- **Step 3: Mantle:** "Next is the Mantle, which is the thickest layer of the Earth! It's made of hot, dense rock that's mostly solid but can flow very slowly like super thick toothpaste or honey. This slow movement causes the continents to drift over long periods." Build a much thicker layer using the mantle color (e.g., several rows/layers of orange/red bricks) surrounding the outer core. Emphasize that this is the biggest layer.
- **Step 4: Crust:** "Finally, we reach the outer layer, the Crust. This is the thin, rocky layer we live on! Compared to the other layers, it's very thin, like the skin of an apple. It's broken into large pieces called tectonic plates." Build a very thin layer (e.g., one layer of flat blue/green plates or thin bricks) on the outside of the mantle.

3. Review and Discuss (Elaborate - 10 minutes):

- Look at the finished LEGO Earth model together.
- Point to each layer, starting from the inside, and have the student name it.
- Ask questions to check understanding:

    - "Which layer is solid metal at the very center?" (Inner Core)
    - "Which layer is liquid metal?" (Outer Core)
    - "Which layer is the thickest?" (Mantle)
    - "Which layer is the thinnest one we live on?" (Crust)
    - "Point to the Mantle. Is it super thin or very thick?" (Very thick)

4. Wrap-up & Assessment (Evaluate - 5 minutes):

- Praise the student's excellent LEGO Earth model!
- Have the student quickly explain the layers one more time using their model.
- Optional Extension: Have the student draw a cross-section of their LEGO Earth on paper or a whiteboard, labeling each layer with its name and one fact (e.g., "Crust - Thin, rocky, we live here").