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| **Lesson Title** | Layers of the Earth |
| **Length of Lesson** | One (50 minute) class period |
| **Created By** | Rob Thornton, Will McBryde |
| **Subject** | Earth Science |
| **Grade Level** | 8th grade |
| **State Standards** | 8th: 1b (Inquiry); 4a, (Earth Science) |
| **DOK Level** | DOK 3 |
| **DOK Application** | Label, Draw, Investigate, Identify, Explain Phenomena in Terms of Concepts |
| **National Standards** | 5-8: A (Inquiry); D (Earth/Space) |
| **Graduate Research Element** | Having knowledge of earth's layers is important to understanding geological concepts dealing with the earth's surface. |

**Student Learning Goal:**
MS 8th Grade:
1(b) Make inferences based on observations 4(a) Compare and contrast the lithosphere and the asthenosphere

National Science Education Standards of Content 5-8:
A: Inquiry: Understandings about scientific inquiry; Students will learn about earth's layers through a PowerPoint lecture and capture activity using an apple.
D: Earth and Space Science: Structure of the Earth's System; Students will learn about earth's layers through a PowerPoint lecture and capture activity using an apple. In addition, at the end of the PowerPoint lecture, students will draw and label the earth's layers.

**Materials Needed (supplies, hand-outs, resources):**
PowerPoint file (INSPIRE_Thornton_10.01.10_PP); laptop; projector; apples (one for each class period); knife; colored pencils or markers (for students to use during an after-lecture exercise).

**Lesson Performance Task/Assessment:**
The instructor will lecture, observe, ask, and answer questions regarding the lesson. At the conclusion of the lecture, the instructor will direct the students to take out a sheet of paper in order to draw and label the earth's layers. Slides from the PowerPoint lecture can be used as guidance for the students as they construct/draw and label the earth's layers.

**Lesson Relevance to Performance Task and Students:**
The capture activity with an apple demonstrating earth's layers will help students understand how the earth is layered. The PowerPoint lecture will give students details

about earth's layers. The drawing activity at the end of the lecture will also aid students' comprehension of the layers of the earth.

**Anticipatory Set/Capture Interest:**
At the beginning of the lesson, the instructor will take an apple and cut it in half. The instructor will then take one-half of the apple and show where each layer of the earth is located. The PowerPoint has slides showing the layers as applied to an apple. These slides could be used to enhance the capture activity. The other half of the apple could be passed around for students to examine and identify the earth's layers for themselves.

**Guided Practice:**
The class will observe the instructor perform the capture activity. After this, the students will observe a PowerPoint lecture on earth's layers. Students will be guided to draw and label the earth's layers at the end of the lecture.

**Independent Practice:**
Students will observe a PowerPoint lecture on earth's layers. At the end of the lecture, students will be directed to take out a sheet of paper. Next, they will be instructed to draw and label the earth's layers.

**Remediation and/or Enrichment:**
Remediation – Individual IEP; Make PowerPoint presentation available to resource teacher.

Enrichment- This activity can be done as a take-home assignment. Provide cut-in-half Styrofoam balls to students interested in extra credit. Make sure the balls (and halves) are large enough to clearly label. Instruct students to draw and label the earth's layers. If students wish to color each layer they may do so.

**Check(s) for Understanding:**
Observe students during lecture, ask questions and take up their drawings of earth's layers for a grade.

**Closure:**
Ask students questions.

Question 1: Which layer of the earth has a temperature of 5,000 degrees Celsius?

Question 2: Why is it important to know the earth's layers?

**Possible Alternate Subject Integrations:**
Math, Chemistry, Astronomy

**Teacher Notes**

A website with information on earth's layers…

**http://scign.jpl.nasa.gov/learn/plate1.htm**