Topic : Chapter 2 Earth as a System (Section 1- Earth: A Unique Planet)

Objectives:

1. Describe the size and shape of Earth.

2. Describe the compositional and structural layers of Earth's interior.

3. Identify the possible source of Earth's magnetic field.

4. Summarize Newton's law of gravitation.

National Science Education Standards:

PS 4b: Gravitation is a universal force that each mass exerts on any other mass. The strength of the gravitational attractive force between two masses is proportional to the masses and inversely proportional to the square of the distance between them.

UCP 1: The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems." A system is an organized group of related objects or components that form a whole. Systems can consist, for example, of organisms, machines, fundamental particles, galaxies, ideas, numbers, transportation, and education. Systems have boundaries, components, resources flow (input and output), and feedback.

Materials:

- Whiteboard
- Dry erase markers
- Observing water Changes Lab sheet (online access is available for students absent from class).

- Hand out to students in class.
- Online access to teacher resources (transparencies 4 Earth's interior)
- jar with lid
- room temperature water
- ice cubes

Flow of Lesson:

1. Place the following bellringer question on the board: Write down four features of Earth. These may include features not easily observed, such as the structural features of Earth's interior. Give students 5 minutes to complete this task. Advise them that this is related to the topic we will be exploring in class.
2. Review the homework from last chapter. Be sure to go over the assignment labs and get students responses and observations from the labs. Allow student to discuss their specific results with the peers in class. Ask students if they have any questions about Chapter 1 or any of the questions from Chapter 1 that were assigned. Be sure that students understand and can identify the important topics of Chapter 1.
3. Discuss with students their answer to the bellring questions in #1. Write some student responses on the whiteboard and discuss with the class.
4. Using transparency 4 Earth's interior on computer. Discuss the interior make up of Earth. Make sure that students not only notice the name of each section and layer but also the unique characteristics of each layer.

5. Do demonstration of lab on pg. “Observing water’s changes” Handout lab sheet for students to complete during and after the demonstration. It is available in student resources online for students that are not in class.
6. Set up Demonstration lab materials; distribute the lab sheet to students. Have the students observe the demonstration for 10 minutes and record what they observe on the lab sheet.
7. Give students a few minutes- 5 min or so (after the 10 minutes of observing) to complete the lab sheet. Then, discuss students’ observation and responses on their lab sheets.