

Lesson One: The Domino Effect

Objectives:

1. This lesson is meant to help students begin to see the inter-connectedness between Earth's abiotic and biotic factors
2. The students will experience how environmental events impact living things & non-living things
3. Students will be able to apply the concept of interconnectedness to an environmental event and its impact.
4. Students will learn the environmental components of the lithosphere, biosphere, hydrosphere, and atmosphere.
5. Students will develop their analytical skills for use in making connections between the 4 Earth spheres in later lessons (# 4-6)

Materials:

One of the following: 20-25 foam or cardboard blocks, student binders, old text books, dominos (found at toy stores)

Procedure:

1. Divide students into 5 groups each representing the following in a typical school community: parents, teachers, students, administrators, maintenance.
2. Read out loud the following scenario: "It is 1:00 pm on a typical day at school. The principal has received a call that there is a huge snow storm fast approaching. She wants to dismiss the students before the snow storm arrives. The storm is predicted to drop 8 inches of snow by 10:00 am the next morning. Students will be dismissed at 2:00 pm today and school will be cancelled tomorrow."
3. Students must now decide how this event will impact their day today and tomorrow. For example: the "parent group" must brainstorm and list all the people with whom they need to communicate. They must then list the ways they, as the "parent group" are affected by the school closure.
4. Each group will then share with the class their results. This will emphasize how parents, teachers, students, administrators and maintenance interact. For example a group may share the following: "The principal must call maintenance to clear the parking lot and sidewalks." So the teacher points out, "This example is the principal interacting with maintenance." At this point, the teacher places a domino on a table top representing this interaction. As each group shares, have a student from the group place another domino behind the previous one representing the interaction that occurs. (The

dominos need to be placed close enough to one another as they will eventually be knocking each other down.)

When all interactions have been shared and represented with dominos aligned on the table top, have one student represent the “snow storm” by tapping the first domino. The falling dominos simulate the chain of events and interactions that occurred due to the snow storm event.

5. In the scenario just completed students explored the various sub-groups that compose the school community and considered how these sub-groups impact each other. This concept can be applied to the Earth and its sub-groups known as earth “spheres”

There are four earth spheres that exist and interact with/affect each other. They include the biosphere = living things, lithosphere = soil and land, atmosphere = air, and the hydrosphere = water.

Note to teacher: for content specifics see “Methods for Teaching Earth Systems Science” on page 1 of this packet.

6. Set the stage for lesson #2 by reiterating the concept of earth spheres and their interactions. You can do this by applying the domino demonstration to an environmental event. For example: use a recent flood, hurricane, or volcano. Have students brainstorm ways in which the event (flood, etc.) effected each of the four earth spheres. For each interaction again place a domino on the table top. Once all ideas are exhausted, have a student represent the event (flood) by tapping the first domino.

Note to teacher: you may want to show a video clip from a recent natural event to motivate/inspire student ideas. For example, show clips from the fall-out of hurricane Katrina then discuss how the four earth spheres were impacted.

Students will be applying the concepts learned today as they complete the next several lessons. They will begin to learn about each earth sphere in a tropical rain forest, then explore the interactions that occur between spheres and finally what happens to the earth spheres when they are disrupted by deforestation.

***Idea for the snow storm scenario and group sharing procedure is adapted from a class presentation, by William Slattery, Wright State University.**