

Sample Unit

Kate Sundeen

Overbrook High School

9th Grade General Physical Science

The unit that I have chosen to discuss was fairly close to a complete failure. I am quite certain that it was a failure due to an improper lack of planning that was partially, but not completely, possible to foresee. The unit was an earth science unit, in which the students were to learn about the Earth's interior and exterior, the movement of the exterior, and how the movement caused phenomena such as earthquakes and volcanoes. My idea was to assign each lab group of five to six students a piece of the material, have them "learn" the material, and then teach it to the rest of the class—sort of a multi-day "Jigsaw" activity.

"Earth's Interior, Plate Tectonics, Earthquakes and Volcanoes"

Objectives:

By the end of the unit students should be able to do the following:

- Identify Earth's different geologic layers.
- Explain how the presence of magnetic bands on the ocean floor supports the theory of plate tectonics.
- Describe the movement of Earth's lithosphere using the theory of plate tectonics.
- Identify the three types of plate boundaries and the principal structures that form at each of these boundaries.
- Identify the causes of earthquakes.
- Distinguish between primary, secondary, and surface waves in earthquakes.
- Describe how earthquakes are measured and rated.
- Explain how and where volcanoes occur.
- Describe the different types of common volcanoes.

PA Science Standards:

3.5.10A - Relate earth features and processes that change the earth.

- Illustrate and explain plate tectonics as the mechanism of continental movement and sea floor changes.
- Compare examples of change to the earth's surface over time as they related to continental movement and ocean basin formation.

Materials: photocopied chapters from the GPS textbook

Day One –

I passed out the chapter, explaining that each group would be assigned a piece of the chapter to become an expert on. I informed them they would have two days to formulate a lesson and that each group would present the lesson on the following three days, with two groups going each day. I informed them the idea was that they help the rest of the class understand what they had learned from their individual sections. I then assigned the sections and circulated through the class for the rest of the period asking questions to help focus their thoughts, answering questions to help clear up confusions, and untangling understandings of the material.

HW: Write two Level One questions, two Level Two questions and one Level Three question based on the material that you learned from your section today. (Based on Webb's Depth of Knowledge questioning process)

Day Two –

I asked them to share their questions with their fellow group members, and continue formulating the lesson. I informed them that they needed to run through what they would present before the class was over. I circulated as on Day One.

HW: Practice the lesson!

Day Three through Five –

Each group presented, with two groups presenting each day. I asked questions to help guide them through the presentations, and to help focus the students who were watching on key points.

HW: Study for potential pop quiz.

As I mentioned previously, it was close to completely unsuccessful. The lessons were confused, rambling, and at points inaccurate. The students who were watching were, in turn, confused and then frustrated, and eventually tuned out. Each of the individual groups learned a fair amount from the section they were responsible for, but learned very little of any of the other material. In addition, the harder material was left unlearned by everyone.

I believe that there are several things I could have done to make the process more successful. First, I believe having prepared guiding questions on paper, along with graphic

organizers, would have helped the groups focus and organize their thoughts and help direct the acquisition of the facts. Second, I believe allowing the presentations to be free-form was too loose. I should have required a particular format, or given a choice of formats. In addition, I should have required some sort of visual aid, and/or required each group to produce a hand-out that the students in the audience could follow and use. Finally, I believe I assigned sections that were too long. I should have given much shorter sections, and given less time for the preparation. I am not sure what else would have made this more successful. I feel that it could be, but I'm not sure if I'm seeing the whole picture, yet.