Sequencing Rationale

8th grade Science

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The majority of the content covered in 8th grade science in found as part of the Earth and Space Science Unit. This unit focuses on multiple topics within the category of “Physical Earth.” Furthermore, this topic is easily engaging providing multiple inquiry-based activities and opportunities for group interactions which connect to a large amount of previously learned material. That being so one could consider starting with the largest most familiar unit. However, since all Earth based studies relate to the forces that drive the changes on Earth’s surface, it seems logical to begin with the Physical science concepts and build into the Earth unit.

Aspects of the Physical Science Unit can be used to explain the topics covered in Earth Science Unit. These aspects such as forces and motion and energy are requirements in the Physical Science Unit. With this it is logical to reinforce the Physical Science concepts prior to beginning instruction on the Earth Science Unit. With the Earth Science Unit connected to the Concepts of Life Science such as evolution and fossil record, which in turn relate to heredity, it is logical to place the Life Science Unit at the end of the sequencing. With this unit being the final unit covered ample opportunity is provided to review other material and build on previous knowledge. This will help develop schema.

 Schema theory suggests that schema are shared by and created by groups as they interact around a common topic (McVee, Dunsmore,& Gavelek, 2005). The connections that can be formed between existing knowledge of forces and motion to the principles surrounding plate tectonics and mountain building will allow for new material to link with old material and create new schema. Such connection will allow the learners new channels to both build on and access the new information as part of the old information or as an individual packet. Marzano suggest linking as many schemas as you can and using the new knowledge to “challenge existing perceptions” (Marzano, 2007). These challenges provide a basis for assimilation and ultimately accommodation.

Ultimately, creating schema and logically connecting one unit to the next will improve student achievement as they retain more information and create more pathways to access this information. It is with this theory that the most logical sequence for the three major units is Physical Science followed by Earth and Space Science then finally Life Science.

**Reference**

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