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**Curriculum Design Project – Sequencing Rationale**

This ecology unit is organized according to the concept-related, sophistication sequencing pattern. This sequencing pattern is the best fit for the curriculum because all three subunits build upon the concepts students learned in the previous subunit, becoming more complex from the first subunit to the last. The first subunit introduces basic ecology concepts, and students will learn how they are all interrelated determining flow of energy in an ecosystem. The second subunit focuses on cycling of matter, which is more complex than the one way flow of the first subunit. Finally, the third subunit requires students to do the highest level of thinking and make connections between that subunit and all the other concepts learned in the previous subunits to explain how humans impact the environment.

The first subunit, “Flow of Energy,” is an appropriate starting point because it reviews previously learned ecology content from 7th grade science classes. This subunit consists of less complex concepts and unit objectives, many of which are easy for students to understand because they are more familiar with the vocabulary. Many students recognize food chains and have grown up learning about animals and their relationships, so this is a great first subunit to start with. In ecology it is critical to build the foundational understanding that interaction between organisms builds stability in ecosystems. It is important that students really understand what ecology is and the basic terminology that will be used throughout the rest of the unit.

The second subunit, “Cycling of Matter,” will include more complex concepts because it takes the interrelationships between living organisms and their environments, and examines how the nonliving matter from those organisms is constantly moving throughout the ecosystem. Many of the concepts that were in the first subunit are going to show up again, so it is important that students have a thorough understanding of those first. The concepts in this subunit have increased in complexity and students need to be able to understand how cycling is different from the one way direction of energy flow. During this unit students will demonstrate their ability to think at higher levels and make connections to their own lives and previously learned content.

During the third and final subunit, “Sustainability,” students will explore how humans, as the top consumers in a food chain, impact all parts of the ecosystem, including the flow of energy and the cycling of matter. This subunit ties the other two together, because they will be using all of the concepts learned in the previous two subunits and building on them. Once students have determined how human activities have a negative effect on the environment, they will design and implement a plan of action to decrease the class’s or school’s impact on the environment. Ultimately, this last subunit will have a sequencing pattern of its own as it will be organized according to the inquiry-related, methods of inquiry pattern. The plan of action for the class or school will require students to utilize the steps of the scientific method, and it will be a contextual based learning experience focusing on problem-based learning.