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Curriculum Design: Statement of Purpose for Evolution Unit

The Problem:

Many students have negative thoughts when it comes to evolution.

Needs of the Learner:

Needs of the learner include making evolution relevant to students (Chiarelott, 2006). When evolution is defined in terms of change in frequency of alleles in a population over a period of time (Holt, 1999)), students are more willing to accept this as a definition of biological evolution because in the previous unit on genetics and heredity, the students have proven that they've grasped the concept of what alleles are and how they can change. Change is taking place around the students all the time. Students agree that technology has "evolved". It has changed to meet the needs of society. We can relate this concept to populations evolving or changing due to the needs of the environment (for survival). Populations change to have a better selection of food, shelter or escape predators, for example.

Needs of Society:

The society needs including meeting the State of Ohio Academic Content standards as set forth by the State of Ohio Department of Education (2003). The following are the State Academic Content Standards related to the unit of Evolution: 10th grade Life Science Standards #12, 13, 14, 17, 20, 21, 22, 23, 24 & 26; 10th grade Scientific Inquiry Standards #2, 4 & 5; 10th grade Scientific Ways of Knowing Standards #2 & 3. Life Science Academic Content Standards #6 & 7 are excellent connecting standards in linking the previous unit of genetics and heredity to the unit of evolution.

Value of Subject Matter:

Although the topic of evolution is sensitive to most students due to their religious upbringing, there is value in talking about how and why populations change over time. The topics of genetics and heredity have already been discussed. Students are familiar with mutations that cause change. They are also familiar with the word allele and how alleles being expressed can change depending on if the allele is dominant or negative. This is my rationale for moving into the topic of evolution next, specifically population genetics. It allows for a smooth transition from the unit of genetics to the unit on evolution.

Educational Goal:

The purpose of this unit is NOT to convince students that man came from monkeys or change any students' religious beliefs. The course will provide students with the understanding that different conditions could lead to frequency of alleles in a population to change. Within the topic of evolution comes the subtopic of origin of life. One goal is to correct any misconceptions student already have about where or how life started. It is to education student on the different historical scientists who have developed experiments to explain how it is possible to create something that could sustain life, but that is very different than creating life. This course is designed to have students accept the concept of biological evolution and relate this information to the world around them. I anticipate based on my previous teaching experience on this unit that students are much more accepting of the topic of evolution, are willing to discuss this topic as it relates to the world around them, especially other scientific areas.

References:

Center for Curriculum and Assessment (2003). *Academic Content Standards K-12 Science*, Ohio Department of Education, 143-147.

Chiarelott, Leigh (2006). *Curriculum in content*, Wadsworth Cengage Learning, 5-6.

Holt, Rinehart and Winston (2002). *Modern biology*, A Harcourt Classroom Education Company, 299-300.