

## Tree of Life and Tree Thinking

Group members (contact info optional):

Bunnie Bradley, Michaela Creech, Jessalyn Pearson, Carolyn Primeaux

Target Audience: Grade level and classes

Grades 9 through 12

Biology and Earth Science

Objectives:

Earth Science: State Objective 3.01 and 3.02

Biology: State Objective 3.05

To introduce to the students the concept of evolution and the continuity of life using the tree diagrams of evolutionary relationships.

Description of project:

Videos will be used to introduce and stimulate conversation about the development of different organisms.

Class discussion will be used to discuss and question what is being presented. Guided class inquiry will be used to move from introductory video to actual concepts and use of the activities. Specific information and concepts will be provided as needed.

Class activities will be used to illustrate concepts and confirm understanding of the information.

Specific activities:

- Engage: Introductory video will be the Video on Infectious disease highlighting the mosquito found at HHMI Bio-interactive (<http://www.hhmi.org/biointeractive/disease/animations.html>). No sound will be used as a student inquiry prompt.
- Explore: Discussion of the video and what was being presented. Lead the students into the area of organism relationships and development. Discuss the relationship between the three organisms and how each is dependent on the other and each is developing at the same evolutionary rate. Each is the top level of advancement for their group. Also discuss genetic advantage of sickle cell trait in the development of different survival advantages.
- Explain: Provide the needed vocabulary as it is needed to inform the students of the process of evolution and the species that are all developed at the same level.
- Resources: Discovering the Tree of Life an interactive video ([http://www.peabody.yale.edu/exhibits/treeoflife/film\\_discovering.html](http://www.peabody.yale.edu/exhibits/treeoflife/film_discovering.html)), pipe cleaner model of tree of life, and Evolution 101 Power point. For earth science the tree will be correlated with geologic time line to stress the rate and pattern of development.
- Evaluation: Use the great clade race with the students to determine the degree of understanding and the manipulation of the information and concepts.

- Extend: Student learning will be extended using selected techniques to further investigate areas of choice which will include 1. The pace of evolution; 2. Diversity of Clades; 3. Looking for complexity; 4. Trends of evolution; and 5. Other areas of personal interest.

References;

See above website resources listed.

[www.nescent.org/eog](http://www.nescent.org/eog) Evolution 2009: A Workshop for Educators, go to reference sections listed.