

Animal Kingdom: Phylum Chordata

3/27 – 3/31

Purpose / Rationale:

This lesson serves to expose students to the chordate phylum, with a concentration on the vertebrate subphylum. Students will explore the characteristics of all chordates, characteristics of all vertebrates, and then specific characteristics of each of the vertebrate classes. Students will then examine various vertebrate skeletons in order to identify characteristics discussed throughout the week. The final assessment will cover material given on all major animal phyla.

VA SOLs:

- BIO. 4.** The student will investigate and understand relationships between cell structure and function. Key concepts include the following:
- b. Exploring the diversity and variation of eukaryotes.
- BIO. 5.** The student will investigate and understand life functions of archaebacteria, monerans (eubacteria), protists, fungi, plants, and animals (including humans). Key concepts include the following:
- a. How their structures and functions vary between and within the kingdoms;
 - b. Comparison of their metabolic activities;
 - c. Analyses of their responses to the environment;
 - d. Maintenance of homeostasis.
- BIO. 7.** The student will investigate and understand bases for modern classification systems. Key concepts include the following:
- a. Structural similarities in organisms
 - c. Comparison of developmental stages in different organisms

Materials and Resources:

PowerPoint
Notes sheet
Colored paper
Scissors
Origami direction sheets
Life of Mammals DVD, “Return to the Sea”
Animal skeletons
Lab sheet
Internet / Laptops

Class Management and Safety Issues:

Students should follow the Acceptable Use Policy for using school computers and Internet. Students should also use caution when handling scissors as well as the skeleton specimens.

Procedures:

Engage (45 minutes)

1. Students will use a dichotomous key to classify various vertebrate jar specimens into classes (Agnatha, Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves, and Mammalia). Students will examine the specimens for general characteristics of each class (feathers, hair, scales, etc.) and fill in a corresponding chart. Students will then complete a few final assessment questions to demonstrate understanding.

Explore (45 minutes)

2. Students will examine skeletons from the following vertebrate classes: Osteichthyes (ray-finned fish), Aves (chicken), Amphibia (frog), Reptilia (snake), and Mammalia (dog, cat, human). Students will complete a corresponding lab sheet which asks students to observe general vertebrate characteristics, as well as similarities and differences between classes. This activity will emphasize topics covered in the notes portion of the unit.

Explain (90 minutes)

3. A PowerPoint presentation will cover the basic characteristics of chordates and vertebrates as well as specific characteristics of vertebrate classes. Students will be provided with a “skeleton” of the PowerPoint on which to take notes. Students will then watch “Return to the Sea,” a *Life of Mammals* DVD.

Elaborate (45 minutes)

4. Students will create one or more Origami vertebrates of choice from various templates. Students will then record Phylum, Subphylum, and Class classifications as well as a few basic characteristics. This will create a class “zoo” where specimens can be displayed around the room, along with their information.

Evaluate

5. Students will be assessed on their Origami animals (participation only), Skeleton lab sheets, and Animal kingdom quiz.