The Nature of Science

How are mollusks, worms, arthropods, and echinoderms classified?

To classify an animal, a scientist must identify the characteristics it has in common with other animals. For example, all animals that do not have a backbone are classified as invertebrates. They are further classified by examining the complexity of their body plans. Invertebrates with complex body plans have evolved body tissues, organs, and organ systems. Invertebrates with simple body plans lack developed body structures. Mollusks, worms, arthropods, and echinoderms are all invertebrates with complex body plans.

A phylum is the second-highest classification category in the animal kingdom. Most phylum names are Latin in origin. Invertebrates with complex body plans are classified into four different phyla: mollusks belong to the phylum Mollusca; segmented worms belong to the phylum Annelida; arthropods belong to the phylum Arthropoda; echinoderms belong to the phylum Echinodermata.

In this Virtual Lab you will examine and classify species of mollusks, worms, arthropods, and echinoderms into the appropriate phyla.

Objectives:

* Identify features of mollusks, worms, arthropods, and echinoderms.
* Classify species of invertebrates into the appropriate phyla.

Procedure: FIRST – Prepare a Data Table (See below)

1. Drag an animal from the bottom of the screen to the animal fact display area on the right part of the screen where the picture of several invertebrates is displayed. The animals’ common name, a larger image of the animal, and information about the animal appears in the display area. Use this information to classify the animal into its phylum.
2. Click a phylum name above one of the four sorting areas to access information about the phylum. Use this information to classify the animal you selected into its phylum.
   1. Click the phylum name again to remove the information from the phylum’s sorting area.
3. Drag the animal to the sorting area of the phylum to which you think it belongs.
4. Repeat the first three steps with other animals. When classifying more animals, remember that some phylum sorting areas may be blank. Other sorting areas may contain two, three, or even four animals.
5. Click the Check button to check your work after you have dragged at least one animal into a sorting area.
   1. If the animals are sorted incorrectly, they are highlighted yellow.
   2. Reexamine the animal and the phylum characteristics and classify the animal into another phylum.

Data Table: Prepare a Data Table like the one shown below.

|  |  |  |
| --- | --- | --- |
| Animal | Common Name | Phylum |
| Animal # 1 |  |  |
| Animal # 2 |  |  |
| Animal # 3 |  |  |
| Animal # 4 |  |  |
| Animal # 5 |  |  |

Journal Questions

1. Compare and contrast the features of the invertebrates in this Virtual Lab.
2. To which phylum do you think an animal with two body segments and jointed

appendages would belong?

* 1. Why?

1. To which phylum do you think an animal with a soft body, a large head, and tentacles would belong?
   1. Why?
2. To which phylum do you think an invertebrate with five or more arms arranged around a central point would belong?
   1. Why?
3. To which phylum do you think an invertebrate with suckers on either end of its tubeshaped body would belong?
   1. Why?
4. Of the four invertebrate phyla in this Virtual Lab, which do you think are more closely related?
   1. Why?