

# Invertebrate Diversity

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Today you will observe several common invertebrates that can be purchased in pet stores. Invertebrates are animals without a backbone. Most of these animals are purchased as food for vertebrate pets such as snakes, lizards, fish, and birds. Vertebrates are animals with a backbone. What are some other examples of vertebrates?

You will circulate among several stations around your classroom observing earthworms, mealworms, snails, crayfish and crickets. First, record the phylum of each invertebrate in the tables below (using your book). At each station, observe the external appearance and the undisturbed posture and behavior of each animal, and record your observations in the appropriate table.

Name	Symmetry	How do they move?	Other aspects of body form			Other Observations
			Legs?	Eyes/ antennae?	Hard Surface?	
<b>Earthworm</b> Phylum: _____						
<b>Mealworm</b> (larva of a Darkling beetle) Phylum: _____						

You are encouraged to handle the earthworms and mealworms, but please **be careful and don't handle them too roughly**. Be sure to turn them over and check out what's underneath.

Measure the length of the same earthworm several times. \_\_\_\_\_  
 Is the length of an earthworm always the same or does it change?

Can you relate these observations to how the earthworm moves?  
 Describe how the earthworm moves.

What differences do you notice between the earthworm and the mealworm?

What does it mean to say that a mealworm is a larva of a Darkling beetle? Do you know how a mealworm turns into an adult beetle?

<sup>1</sup> Teachers are encouraged to copy this student handout for classroom use. A Word file (which can be used to prepare a modified version if desired), Teacher Preparation Notes, comments, and the complete list of our hands-on activities are available at [http://serendip.brynmawr.edu/sci\\_edu/waldron/](http://serendip.brynmawr.edu/sci_edu/waldron/).

Name	Symmetry	How do they move?	Other aspects of body form			Other Observations
			Legs?	Eyes/ antennae?	Hard Surface?	
<b>Cricket</b> Phylum: _____						

Describe the differences between the back pair of legs and the front two pairs of legs. How does each pair of legs contribute to the cricket's movements?

Most insects (including crickets) have two pairs of wings. Where do you think these wings are located on the cricket?

The different types of legs and the wings provide the basis for three types of cricket movement: walking, jumping and flying.

Name	Symmetry	How do they move?	Other aspects of body form			Other Observations
			Legs?	Eyes/ antennae?	Hard Surface?	
<b>Crayfish</b> Phylum: _____						
<b>Snail</b> Phylum: _____						

You can gently prod the crayfish or turn them over (in the water), but **do not disturb the snails** or they are likely to close their shells and stop moving around.

Do there appear to be more sensory organs at the front end or back end of the crayfish?  
Do there appear to be more sensory organs at the front and or back end of the snail?  
Why is this distribution of sensory organs useful?

Does the crayfish move faster forwards or backwards?

When would that fast motion be useful?

What differences do you see between the hard outer surface of the snail and the hard outer surface of the crayfish?

**Follow up questions:**

1. What do you think are the functions of the hard outer surfaces of mollusks and arthropods?

What parts of a human's body have the same function as the hard outer surface in arthropods? Where are these parts located in humans?

2. What kind of symmetry did you observe in most of the animals today?

What do you think might be an advantage of being bilaterally symmetric?

What would be an example of an animal with a different type of symmetry?  
What type of symmetry does this animal have?

3. The two worms we looked at today are in different phyla. The term worm is simply a description of an animal's body shape: a long, skinny tube. All animals that are long and tube shaped are not necessarily evolutionarily closely related. For example, what phylum is a snake in?