



Classifying a Milkweed Insect Community

You can use monarchs to teach about many things! Stone Mountain Memorial Association (SMMA) uses the monarch butterfly to help students apply their knowledge in other contexts and to different disciplines. The activities relate a grade-level specific GPS to monarch life, habitat or migration. Use this lesson as a post-trip activity following your 5th Grade Animal Classification field trip.

GPS correlation: S5L1. Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.

Preparation:

Read the background information. Print the worksheet, or make an overhead or display on your Interactive white board. Make copies for each student or for pairs of students.

Background Information:

Some students may not realize that insects are animals. The milkweed insect community provides an opportunity to focus on insect characteristics and classify some of the insects in our world.

Female monarchs lay their eggs only on milkweed leaves because it is the only food source for their caterpillars. The plant's leaves and stem contain a toxin called a cardiac glycoside that monarchs and other invertebrates can tolerate. As the caterpillar eats the plant, the toxin is stored in its exoskeleton and is retained throughout its development into an adult. In fact, this toxin is one of the monarch's defenses against vertebrate predators, such as birds.

The monarch caterpillar develops among a whole community of insects that live on or around the milkweed plant. The Milkweed Tussock Moth caterpillar and some beetles, such as the Milkweed Beetle, either eat the leaves or suck the plant juices storing the plant toxins in their exoskeletons. Aphids suck juices from the plant and ants are usually gathering the sugary liquid the aphids excrete. Some insects may consider the monarch caterpillar food, piercing the caterpillar body with a sharp mouthpart and sucking out the liquids inside. Parasitic insects, such as the tachinid fly, lay their eggs inside the monarch caterpillar. The resulting larva hatch inside of and eat the caterpillar.

Activity:

Students should read the characteristics beside each insect and under each Order. They will write the name of the insect under the correct Order. Read them the essential question so they understand the focus of the lesson. When they have finished, you may ask them the following questions.

What characteristics did you use to identify the Rapid Plant Bug?

What is the meaning of the ending -ptera? (wing) Most adult insects have wings. The presence and structure of wings are critical to keying out insect Orders.

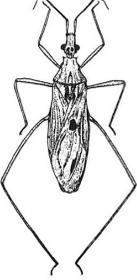
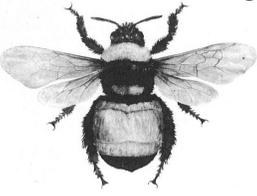
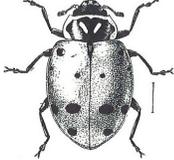
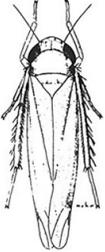
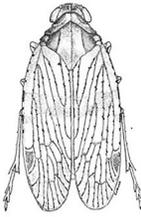
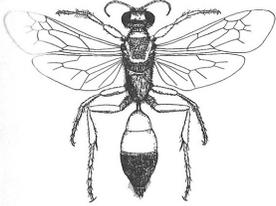
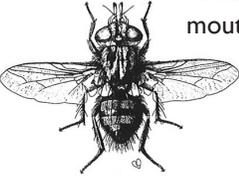
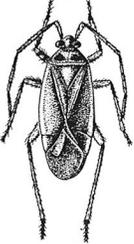
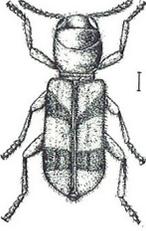
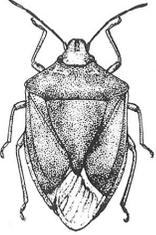


Essential question:

How would we classify the insects found around a milkweed plant?

The monarch butterfly, like all insects, is in the Kingdom Animalia, Phylum Arthropoda, and Class Insecta.

The insects below should be classified into their correct Orders.

 <p>Assassin Bug</p>	 <p>Bumble Bee</p>	 <p>Milkweed Bug</p>	 <p>Lady Bug</p>
 <p>Leaf Hopper</p>	 <p>Monarch Butterfly</p>	 <p>plant Hopper</p>	 <p>Thread-waisted Wasp</p>
 <p>Tachinid Fly</p>	 <p>Rapid Plant Bug</p>	 <p>Checkered Beetle</p>	 <p>Stink Bug</p>

Read the characteristics for each Order.

Write the correct insect names under the correct Order.

Hymenoptera (membrane wing)

2 pairs of wings - Front pair larger than hind pair

Biting jaw

Has a waist

1.

2.

Lepidoptera (scale wing)

2 pairs of wings

Sucking mouthpart

1.

Coleoptera (sheath wing)

Hard shell covering wings

Biting jaw

1.

2.

Diptera (2 wing)

1 pair of wings

Sucking mouthpart

1.

Hemiptera (half wing)

2 pairs of wings

Piercing mouthpart

1.

2.

3.

4.

5.

6.



Hymenoptera (membrane wing)

2 pairs of wings - front pair
larger than hind pair

Biting jaw

Has a waist

1. Bumble Bee

2. Thread-waisted Wasp

Lepidoptera (scale wing)

2 pairs of wings

Sucking mouthpart

1. Monarch Butterfly

Coleoptera (sheath wing)

Hard shell covering wings

Biting jaw

1. Ladybird Beetle

2. Checkered Beetle

Diptera (2 wing)

1 pair of wings

Sucking mouthpart

1. Tachinid Fly

Hemiptera (half wing)

2 pairs of wings

Piercing mouthpart

1. Assassin Bug

2. Milkweed Bug

3. Leaf Hopper

4. Plant Hopper

5. Rapid Plant Bug

6. Stink Bug