BOONE, DEKALB, & OGLE 4-H

UNIVERSITY OF ILLINOIS EXTENSION

4-H Club GO TO Resources

October 2017

Lesson Objectives:

Club members and parents will:

- **Learn basic characteristics of insects versus arachnids**

Time: 60 min.

Equipment and supplies:

- **Pictures of common insects and arachnids**
- **Insect Identification book**
- **Arachnid Identification book**
- **Craft materials: construction paper, tape, glue, pipe cleaners**
- **Markers and newsprint**

Preparations:

- **Review Lesson**
- **Gather equipment and supplies**

Spiderrific Discovery

Scientist have developed a system to categorize all living things. This system makes it possible to identify living things and include them in similar groups based upon structures they have in common.

Spiders are invertebrate animals found throughout the world. Many people think spiders and insects are the same. Insects and spiders belong to the same phylum Arthropoda. However, insects belong to the class Insecta and spiders belong to the class Arachnida.

There are approximately 37,000 species of spiders around the world. There are 3 groups of spiders: Primitive spiders, tarantulas, and trues spiders. True spiders are the most commonly encountered and include orb weavers, wolf spiders, jumping spiders, funnel web spiders, and crab spiders.

All spiders have the same basic characteristics:

- 2 body parts called the cephalothorax (head and thorax combined), and the abdomen
- 4 pairs of legs
- Spinnerets located on abdomen

Spiders are well known for weaving webs. The abdomen contains silk glands that produce silk for weaving webs and other purposes. The silk is used to catch prey, wrap prey for storage, wrap and protect eggs, make a shelter, use as a safety rope when climbing, and for ballooning (floating on the wind). Silk is as strong as a steel thread of the same thickness.

Spinnerets located at the end of the abdomen contain spinning tubes from which silk is expelled. A spider's silk starts as a liquid that changes into silk when it is pushed through the spigots of the spinnerets. The change from liquid to the strands of silk is the result of a change at the molecular level because of the "shearing" force applied as the silk is pushed through the spigots. Many people mistakenly believe the liquid silk changes to silk strands because it dries in the air. If this were true, why is the water spider able to produce silk underwater?

However, not all spiders weave webs. Some spiders (wolf spiders, jumping spiders, and fishing spiders) stalk or ambush their prey. Crab spiders wait in ambush to capture unsuspecting insects.

Insects can be found all over the world. Over 1 million different species of insects have been identified. There are more species of insects in the world then all other animals combined. Insects belong to the class Insecta. All insects have the same basic characteristics: six legs, two antennae and 3 major body sections called the head, thorax, and abdomen. Insects can have wings or be wingless.

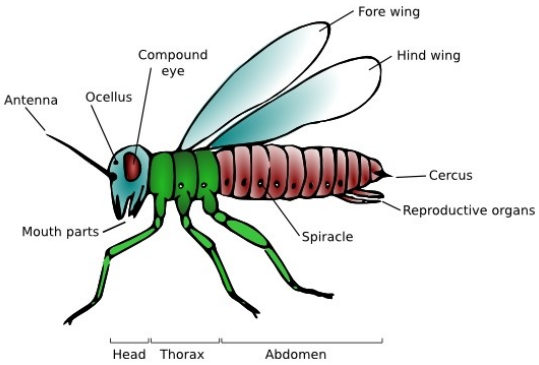

Diagram of a "Typical Insect"

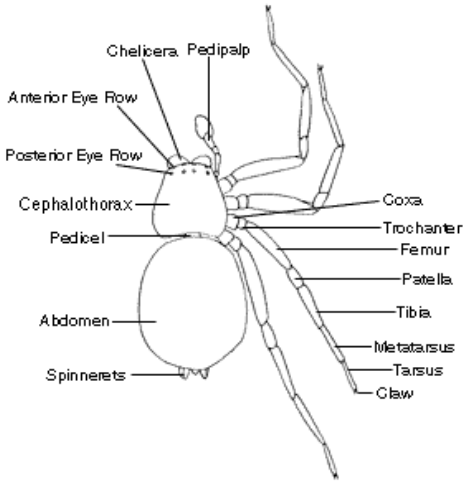

Diagram of a "Typical Spider"

What to do:

Review background material with youth. Divide the group into teams and give each team pictures of insects and of arachnids. Have them brainstorm the similarities / differences of the pictures. Have each team record on newsprint their findings. Have each of the teams locate on the pictures the major parts of an insect and arachnids. Teams can share their observations with the larger group.

Assign each team with the task of making either an insect or an arachnid. They can be imaginary but must have the correct parts listed in the background information. Supply teams with construction materials.

What to do:

Share: Have teams share their creations. They can even give them creatures names.

Process: Ask youth to tell you what made their creation a insect or an arachnid?

Generalize: Ask youth why people may think that spiders are the same as insects?

Apply: Ask youth what other plants or animals could be mistaken for being the same, but are very different when observed closely.

Take it further: Take a outside adventure hunting for arachnids!

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Sources & Additional Lesson info:

4-H Club GO TO Resources is being offered to 4-H clubs in Boone, DeKalb and Ogle Counties as a way to enrich and enhance 4-H experiences and programming at the club level. It is the goal of the Extension staff to assist 4-H leaders and officers in providing simple hands-on activities on a monthly basis that can broaden the 4-H club experience and as a result heighten positive youth development.

The "Insect or Arachnid" activity was adopted from the Rutgers Cooperative Extension, Science Discovery Series Volume 2 by Kevin J. Mitchell, pages 73—76.

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