

Who is an Insect?

Essential Question:

What is an insect?

Background:

When you go outside (except in very cold or icy environments) and sometimes even inside, the animals you are most likely to encounter are insects. The insects are a class (Insecta) in a group (phylum) of invertebrate animals called ARTHROPODA. The Arthropods, also, include spiders, ticks, scorpions, centipedes, millipedes, and daddy longlegs and shrimp. How can we tell animals are Arthropods? Arthropods have their skeletons outside (external) and have JOINTED (segmented) bodies and appendages. How are adult insects different from other arthropods? Insects have:

- THREE BODY PARTS: A HEAD, THORAX, AND ABDOMEN.
- TWO ANTENNAE on the head.
- SIX LEGS that are jointed. The legs are attached to the thorax, 3 on each side.
- Often, but not always, WINGS. Wings are also attached to the thorax. Insects are the only invertebrates with wings.

Several arthropod groups may be confused with adult insects, spiders, daddy long-legs, scorpions, mites and ticks. These arthropods have two body parts, eight legs, and lack wings or antennae.

Insects may also be confused with roly-polies (pill bugs) which have 14 legs and three body parts. Some immature insects look like their

parents. Others, like caterpillars, don't. With their long bodies they may be confused with millipedes, centipedes, and earthworms. Identifying insects is also complicated because they do not all look alike. They vary in looks from a dragonfly to an ant, from a butterfly to a flea.

There are about 30 orders (groups) of insects many of which have thousands of species. Estimates of the total number of species range from 900,000 to 30,000,000. How many? No one knows exactly. Their numbers, their economic value (pollination particularly), their economic damage, and their crucial roles in ecosystems are reasons why insects are so important. *(For information on insect orders, consult Other Resources)*

Location: Indoors/outdoors

Objectives: *Learners will:*

- 1) identify the parts of an insect
- 2) differentiate between insects and some common invertebrates.

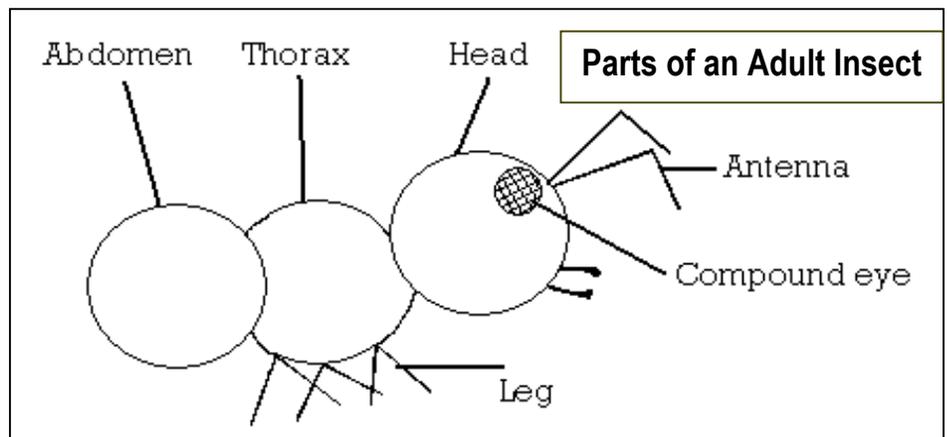
Skills: communication, observation, listening, analysis

Supplies:

- **Activity 1**
- pencils and paper
- **Activity 2**
- 20 insect and other invertebrate eco-service ID cards
- pencils and paper

Subjects: science

Time: 1 – 2 hr



Getting Ready:

There are two introductory insect activities:

- **Activity 1 – What do you know about insects?**

A pre-test on insect basics that can be done by individual learners or as a team.

- **Activity 2 – Are you an insect?**

Student knowledge is tested by using ID cards

Procedures:

Activity 1: What do you know about Insects?

Students should be grouped into teams. Ask, ‘do you think insects are very important animals?’ Ask learners to give reasons for their response. They should consider how many they see and the number of places they find them. One reason insects are important is because there are so many. Explain. Have students consider the trouble they cause people. Lead them to think about how insects help us – and the different eco-service jobs that they provide. Now, ask them to think about how they know, when they see a very tiny animal, whether it is an insect. Then, ask: ‘Which of the following statements correctly describes insects?’ Discuss each answer.

- (1) **Insects are small animals, often no bigger than 3/8 of an inch.** (Yes. Having an outside skeleton limits how big they can get.)
- (2) **Insects have outside skeletons so their outsides are usually hard.** (Yes)
- (3) **Insects have eight legs.** (No, six.)
- (4) **All young insects look like the adults they become.** (No. Many look different.)
- (5) **All insects have wings.** (No. Worker termites and ants, for example, never have wings. Nor do some primitive insects like springtails. Nor do young insects like caterpillars.)
- (6) **Insects, like people, have two body parts.** (No, they have three – head, thorax and abdomen.)
- (7) **Most adult insects have antennae. They use them for hearing.** (Yes, they have antennae. No, antennae are used mostly for touching, smelling, and sensing air currents, etc.)
- (8) **All insects have stingers and sting.** (No, only some do.)
- (9) **All insects must breathe air so you won’t find any in water.** (No. Some insects, particularly the young of some species live in water. Some can take oxygen from water like fish; others have various ways of getting air including taking bubbles of air with them.)
- (10) **Insects have eyes.** (Yes, most do. Some have large complex eyes like dragonflies. But others have only very simple eyes that just distinguish dark and light.

After answering questions, use a basic insect diagram or handout to check answers to questions and to talk about what adult insects look like.

Activity 2: Are you an Insect?

Stress the differences between insects and other arthropods such as numbers of legs, hard bodies, etc. Divide the class into two teams. One by one hold up at least 20 illustration cards, 12 to 15 should be insects, and the rest should be other arthropods. Ask teams in turn whether the pictured animal is an insect. Ask them why they think so, encouraging them to use the diagram of parts of

an adult insect if needed. Give points for correct answers. If the team cannot decide, they lose a point.

Discussion/Assessment:

What are some characteristics of an insect?

How does an insect differ from a tick or spider?

On a discovery walk, the class can try to determine whether the invertebrates are insects.

Learners could create adult insects or familiar arthropods of clay or with paper and crayons