Lesson 29 Insects

Key Words

insects: arthropods with three pairs of jointed legs
compound eyes: eyes made up of many tiny lenses that can sense movement
simple eyes: eyes that can sense only light and dark and cannot form images

KEY IDEAS

Insects are the most successful class of arthropods. They are a large and diverse group. Most insects can fly, have compound eyes, and produce large numbers of offspring.

Mosquitoes bite. Wasps sting. Moths eat wool. Some insects are harmful to humans. Others are helpful. For example, most flowering plants are pollinated by bees. If bees did not pollinate flowers, they would not produce seeds and fruit. As a result, we would have little fruit to eat.

The arthropods are made up of several classes of animals. The largest class is the insects. **Insects** (IHN-sehkts) are arthropods with three pairs of jointed legs. Insects vary in size and structure, in the type of food they eat, and in the places they live. Because there is so much variety, many different kinds of insects can live in a small area without competing for food or space.

In general, most insects are small. Because they are small they need little space and little food. Because both space and food can be limited, the small size of insects helps them survive and thrive.

1. **What is an insect?** _____

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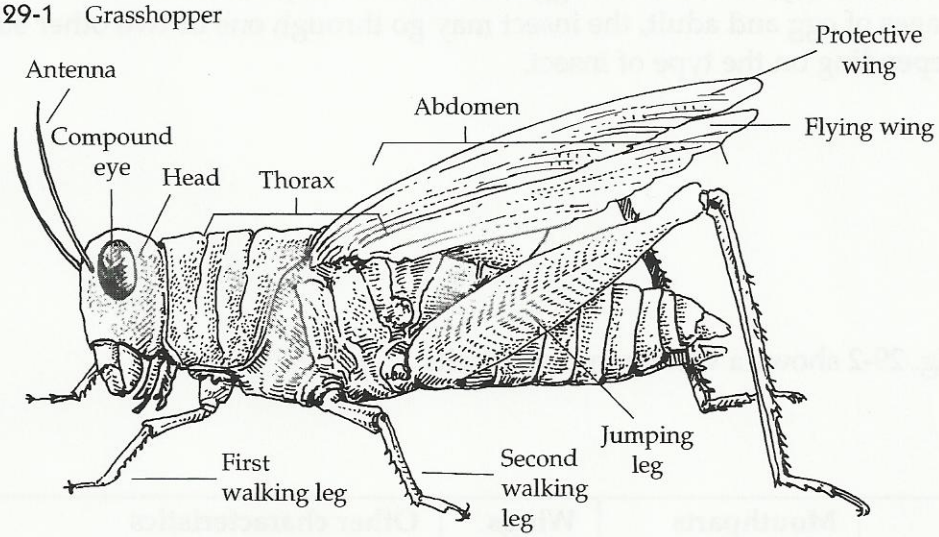
Body Form. All insects have the same basic body form and parts. An insect has three body parts: the head, the thorax, and the abdomen. All insects have three pairs of jointed legs. In some insects, the legs may have special adaptations. In a grasshopper, for example, the third pair of legs is large and strong. These legs are well adapted for jumping. See Fig. 29-1.

Insects also have antennae (sing. *antenna*) on their heads. In most insects, the antennae can sense touch and smell. In others insects, the antennae may also sense taste and aid in hearing.

Fig. 29-1 Grasshopper



Most insects have large **compound eyes** (KAHM-pound eyez) that are made up of many tiny lenses. Each lens sees only part of the world around the insect. Together, the lenses make up the whole picture. A compound eye is very good at sensing movement. This eye helps insects catch prey and keeps the insects safe. Most insects also have **simple eyes** (SIHM-puhl eyez) that do not form images, but sense only light and dark.

Most adult insects have wings. However, some insects, such as certain types of ants, do not have wings. Mosquitoes and flies have only one pair of wings. Other insects, such as butterflies, bees, and dragonflies, have two pairs. In some insects, such as beetles, the first pair of wings covers and protects a more fragile second pair of wings that is used for flight.

Insects are the only arthropods, and the only invertebrates, that can fly. This adaptation helps insects survive. By being able to fly, insects can travel long distances in search of food and can quickly escape danger.

2. **What are three traits of insects?** _____

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Feeding. Insects feed on a wide variety of plants, animals, and other materials. They have special mouth parts adapted for the kinds of food they eat. Butterflies, for example, have long tubes in their mouths that enable them to suck nectar from flowers. A mosquito has piercing mouth parts that allow it to puncture the skin of an animal and suck its blood.

Reproduction. Another reason insects thrive is their ability to reproduce. Although the life span of an individual insect may be very short, the insect makes up for it by the large number of offspring it produces. In most cases, the female lays hundreds of eggs that later develop into adults. Between the stages of egg and adult, the insect may go through one or two other stages, depending on the type of insect.

TAKE ANOTHER LOOK

Fig. 29-2 shows a variety in insect traits.

Fig. 29-2

Insect	Mouthparts	Wings	Other characteristics
Flies (houseflies, black flies, mosquitoes midges, gnats, horseflies)	Sucking	1 pair	Some feed on plants, others are parasites, and still others feed on insects. Some damage plants, some transmit animal diseases.
Mayflies	No real mouthparts	2 pairs	Found in and around ponds and streams. Adults live only a day or so, and do not eat.
Bugs (water bugs, water striders, bedbugs, assassin bugs, stinkbugs)	Sucking	None or 2 pairs	Very large group. Most live on land; some live in water; few parasitic. Some feed on plants, others prey on insects.
Bees, wasps, ants, sawflies	Bees: sucking Wasps, ants, and sawflies: chewing	None or 2 pairs	Live mainly on flowers, and on the ground. Some are parasites of other insects. Ants and some wasps and bees live in colonies.
Butterflies and moths	Sucking, with coiled sucking tube	Usually 2 pairs	Found on vegetation. The young are caterpillars, which feed on plants. Silk is produced by silkworm moths.