

But I want you to remember now that they have six legs; that their body is divided into three parts; that you can see the rings in their hind body or abdomen; that their legs and wings grow on the front body or thorax; and that they never breathe through their mouths. Also that while bees, butterflies, and beetles have four wings, flies have two wings and two stumps.

Find as many insects as you can, and notice their different parts.

INSECTS AND OTHER ANIMALS

Arthropods

Let's take a trip to the zoo. At the entrance, we are welcomed by jabbering monkeys. They swing from tree to tree with their limber arms, grabbing vines with their five-fingered hands. The monkey is able to hold the vine like a man because of his fingers and thumb. Other animals cannot. Take the next animal, for instance.

Perched on a different tree, taller than that of the monkeys, is a great eagle. He has no hands to swing with, but with two feet he is able to perch securely. The eagle is not made to swing in trees, but to perch and to fly. He is given wings to soar in the clouds. His body is made just right for it. Animals are made to fit the place where they live. While the monkey's place is the forest jungle, the eagle's is the sky.

It's getting hot on our stroll, so let's cool off in the reptile reserve. Here we see snakes, frogs, and all sorts of creeping creatures. The word reptile means 'to creep.' Lizards, turtles, and crocodiles move about not by swinging or soaring, but by slithering, sneaking, and sliding from place to place. They like to live in places where they can keep their temperatures steady.

They need to do this because their temperature is changed by the temperature of their surroundings.

Animals are made to fit the places they live. This is true for all animals, including those called Arthropods. What are Arthropods? The word means “jointed legs.” Their legs have joints, and so they get this name. Of course, humans have jointed legs, too, but we are not Arthropods. So, why should these animals get the name to themselves? Arthropods are lower animals. They are not as advanced as reptiles, birds, or mammals like monkeys, and they are certainly much lower than humans. Nevertheless, Arthropods are more advanced than some animals. They are higher than these others because of their jointed legs.

Some Arthropods

You already know several kinds of Arthropods, even if you do not know that you know them. If you start thinking about all the lower animals with jointed legs, you will probably name some Arthropods. If you add the fact that all Arthropods have a hard outer skin, or exoskeleton, you are sure to think of some. For example, among creatures that live in the sea what are some Arthropods? Did you guess crabs or lobsters? These have jointed legs and a hard shell. You may have had to crack the shell if you have ever eaten them at a restaurant. Crabs and lobsters are a set of Arthropods called Crustaceans.

Another kind of Arthropod is usually smaller than Crustaceans. They live in house corners, attics, and near the window sill. Their jointed legs are used for wrapping up food in cases of web, and their outer skin is not as tough as a crab’s, but more flexible. Did you guess the spider? Spiders are a set of Arthropods called Arachnids.

Spiders are a favorite food of the next Arthropod: the cen-

tipede. Scratch around under some large rocks or loose mulch near your house and you might find one. Centipedes have a creepy way of crawling and may scare you if you find them accidentally. They have many jointed legs going down their long body, and they have fangs filled with venom. But do not worry, because centipedes have too small a bite to hurt you. A close relative of the centipede is the millipede. This Arthropod has even more legs, but they are tucked under its long tube-shaped body. If you touch one, it might curl up into a little ball. This posture helps them defend against predators, and their tough skin also helps.

You can see why Arthropods are lower animals. They are usually smaller than more advanced animals, and their bodies are designed for living on a small scale. Yet, this fact does not mean Arthropods are unimportant. Think of the Arthropod you are studying: insects. There are more insects than any other animal on earth. Even though they are small, they have a big effect on the world. Think of all the honey jars on the shelves at the grocery store. If it were not for honeybees, you would never get to enjoy biscuits and honey, just biscuits. Think of all the beauty you would miss if there were no butterflies in spring, or no fireflies lighting up summer nights.

Telling Them Apart

How do we tell Arthropods apart? In other words, what makes all these low creatures with jointed legs and hard bodies different from each other? (By the way, the different groups of Arthropods are called classes.)

The main difference between these classes have to do with how many legs each one has. Some people have confused spiders for insects, but they are not insects because they have a different number of legs. Do you know how many? If you said

that spiders, which are Arachnids, have eight legs, then you are correct! What other Arachnids have eight legs?

The other Arthropods have these many legs: ten for Crustaceans, a lot for centipedes, and a whole lot for millipedes. Insects have six legs.

DIFFERENT ORDERS OF INSECTS

Classifying Insects

There are so many kinds of living things that we must put them in groups. Just like we separate spoons, knives, and forks in our kitchen drawer, we separate living things into groups. We call this classification. When we classify living things (e.g. animals), we use seven main groupings: Kingdom, Phylum, Class, Order, Family, Genus, and Species. Insects are classified in the first three groups like this:

Kingdom:	Animal
Phylum:	Arthropod
Class:	Insect

This lesson will talk about the next group we use to classify insects, called Orders.

Insect Orders

There are many different kinds of insects. Scientists do not even know how many there are, although they guess about 30 million total. With so many different kinds of insects, it would be impossible to learn every insect individually. It is helpful and necessary, therefore, to classify insects into groups.