



WILD Kids



4-6

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Bugs and Insects: Is There a Difference?

Emma and Philip are walking to the library. On the way they notice a strange looking creature walking on the sidewalk. It is almost circular in shape, small (less than 20 mm long), colorful (orange-yellow with black stripes down its back) and has six legs and two antenna. Philip tells Emma that it is only a bug. Emma insists that it is an insect. Who is correct?

Emma and Philip carefully collect the creature in a small clear plastic box she happened to have in her backpack. They proceed to the library. After going through the card catalog at the library, Philip and Emma head towards the books. On the shelves they find many books on insects and bugs. They sit down and begin reading. This is what they find:

Insects and bugs belong to a larger group of creatures called *arthropods*. Arthro- is Latin for jointed and -pod is Latin for foot or leg, so arthropod means jointed foot or jointed leg. All Arthropods have jointed legs and bodies divided into segments. Arthropods include trilobites (ancient extinct marine creatures), shrimp, lobsters, spiders, centipedes, millipedes, ticks, mites, butterflies, moths, beetles, etc.

Insects are a smaller group of arthropods. There are approximately 88,600 species of insects in America north of Mexico! The largest group of insects are the beetles. There are about 28,600 species of beetles in America north of Mexico. All insects have a few characteristics in common. These common characteristics include:

 **Small size:** Insects range in size from 0.025 centimeters to just over 32.5 centimeters. More than half of all insects are less than 0.65 centimeter. This is small when you compare them to other wildlife such as fishes, reptiles, birds and mammals. The only place you do not find them in large numbers is in the ocean.

 **Segments:** All insects are made up of segments. They have three main body parts - head, thorax and abdomen. You can distinguish the head because the eyes, antenna and mouth are attached to it. The thorax is the part the legs are attached to (and wings if present) and the abdomen is what is left over. Each of these body parts may be further divided into smaller segments.

 **Legs:** Almost all insects have six legs. A few types have no legs at all.

 **Wings:** Wings are used for flying, which insects do well. Some have two pairs of wings, others one pair and still others have no wings. But only the adult has wings.

 **Antennae:** The antennae of insects are segmented. The number of segments in an antenna is often used by *entomologists* (people who study insects) to distinguish one species of insect from another. Antennae are used to feel, smell and sometimes hear.

Some of the more common insects are: butterflies, moths, damselflies, grasshoppers, katydids, crickets, mantids, cockroaches, termites, earwigs, lice, cicadas, whiteflies, aphids, lacewings, beetles, caddisflies, fleas, flies, ants wasps and bees.

After reading about insects for awhile, Emma says that she was right. But Philip tells her friend not to judge too quickly. Reading further they discover that just as insects are a smaller grouping of arthropods, bugs are a smaller grouping of insects. Bugs include creatures such as water boatmen, backswimmers, waterscorpions, giant water bugs, toad bugs, water striders, bed bugs, minute pirate bugs, ambush bugs, assassin bugs, seed bugs, red bugs, and leaf-footed bugs.

All of these creatures are grouped as bugs because they have a few thing in common with each other, but not with other insects. The common characteristics are:

-  antennae consist of five or fewer segments;
-  the last major segment of the leg (called the *tarsus*) is further divided into three or fewer segments;
-  mouth parts are made for sucking (generally for sucking on plants, but some are predators of other insects and some even suck bird or mammal blood, including human);
-  the beak (the part of the mouth that does the sucking) has four segments.

Emma and Philip look again at the creature in the container. Fortunately Philip has a magnifying glass in his backpack so they take a close look. The creature has 11 segments in each antennae, five tarsi, and no beak for sucking. From this information they decide that the creature is an insect but not a bug.

Emma and Philip leave the library and give the insect its freedom. Discovering interesting facts about insects and bugs got the two of them thinking. A few feet away from where they let the insect go, Philip discovers another one. But before Philip calls it a bug, he takes a very close look. This time it is a bug! Emma and Philip now have a saying - 'All bugs are insects, but all insects are not bugs'!

Activity I: Go Fly A Kite! (adapted from the Project WILD activity by the same name)

Insects are one of the few animals that can truly fly. Many insects can fly, but not all do. Wildlife can be an inspiration for many forms of art from music, mime, dance, theater, poetry, gymnastics and more. Kite designing, and then flying, is an art form enjoyed by many people.

For your kite you need to first get into small groups of no more than three people. What insect will inspire your kite? Materials will be simple: tissue paper, tape, kite string, rubber cement, bamboo strips (or a similar sturdy but flexible material), and paint, crayons or markers.

Try to make your design simple - the more complicated it gets or the more pieces, the more likely it will fall apart and not fly.

After you have decided on a design, make a small model out of plain paper. How does it look?

Next, make a full size kite (about 14" x 14") from the materials provided by your teacher.

Finally, wait for a breezy day and then Go Fly A Kite!

Activity II: Using a Field Guide

Using the *Peterson Field Guide to Insects - America North of Mexico* (#19 in the Peterson Field Guide series), answer the following questions about bugs. Place those answers on the crossword below. (Teacher note: Answers can be found in your *Focus WILD* newsletter.)

ACROSS

- 1 Toad Bugs are so called because they look like toads in their appearance and their _____ habits.
- 2 The Giant Water Bug or as some people call them 'toe bitters' belong to the Family _____.
- 4 Look closely at all the Family names for bugs. All Family names end in the same four letters which are _____.
- 5 Long-horned Bugs of the Suborder Gymnocerata are so called because their _____ are longer than their head.
- 7 Another common name for the Minute Pirate Bug is the _____ Bug.
- 9 Bugs have _____ mouth parts.
- 11 The Chinch Bug of the Family Lygaeidae is a serious pest of _____.
- 12 Bed Bugs feed by sucking _____ from animals and man.

DOWN

- 1 All Bugs belong to the Order _____.
- 3 Ambush Bugs _____ (3 words) for their prey.
- 6 Look at color plate 3. The Bloodsucking Conenose Bug, present in Arizona, belongs to the _____ Bugs.
- 8 The mouth parts of Bugs is in the shape of a tube with _____ segments.
- 9 The Family Pentatomidae are also called _____ Bugs.
- 10 The Squash Bug of the Family Coreidae is a serious pest of cucurbits. A cucurbit is a _____.