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Insects are invertebrates in the class Insecta from the phylum arthropoda. Arthropods include more than 850, 000 species and form by far the largest phylum in the animal kingdom, exceeding in number all the other Phyla combined. The characteristic tough exoskeleton and jointed limbs are superimposed in a segmental body plan that reflects the evolution of arthropods from ancestors of the annelid worm. Insects, arachnids, myriapods and crustaceans are the major groups in this phylum (Nichols). Insects are the largest of this phylum and make up the largest class of all organisms and are recognized by taxonomist to have nearly one million recognized species. It is estimated that there are over ten million species still undiscovered. Because of this the insect orders are thought to be the least well known. Most of which are beetles and insects in tropical areas. Insects are part of 28 living orders which all have three body sections, head, thorax, abdomen and six legs and a pair of antennas. They are split into two groups, Apteriygota and Pterygota, Pterygota can fly while the more primitive Apteriygota cannot (Gale Group). Insects are all over the world, from the Tropics to the Tundras. They are extremely diverse. While the order Grylloblattodea order of the Orthopteroid Orders thrives in cold icy places, the Mecoptera Order of the Hemipteroid Orders does best in the tropical areas of the world. Every Class is different and includes many kinds of insects. So here are the major 23 Orders. Order Microcoryphia, which include, Bristletails are part of the subclass Apteriygota. Bristletails are jumping insects with long antennae, that are wingless, with very large eyes, a biting mouth, and three very fine tails. They live among stones or in woods and grass, and feed mostly on algae. Order Zygentoma is also part of the

subclass Apterygota and include Silverfish, and fibrebrats. Silverfish are wingless, with small eyes, a chewing mouth, they have a long antennae, and three thin tails. Their flat bodies are covered in silvery scales. Silverfish like to live in warm damp places, such as under sinks, in bathrooms, and in bookshelves. Order Ephemeroptera are part of the Pytergota subclass and include Mayflies, Shadflies Adult Mayflies and Shadflies have wings, chewing mouthparts (which they don't use, because they die before they feed as adults -- usually within one day), small antennae, and two or three long tails. Larvae can live as long as four years. Order Odonata is part of the large subclass Pterygota and include Dragonflies As you should know they have long thin bodies, two pairs of long narrow wings, and very large eyes. Dragonflies are the best fliers of all insects. They are also predators, feeding on other insects which they catch during flight. The larvae live in water, and are also hunters. Order Dictyoptera is part of the advanced Pterygota subclass and include the very successful cockroach. Cockroaches (Sub-order Blattodea) have flattened oval bodies with wings (but they seldom fly -- they have well developed legs and scurry about), very long antennae that lie back along the side of the body, large eyes and chewing mouthparts. They are the most successful order due to their adaptive skills. Order Isoptera is part of the unprimative Pterygota subclass and include Termites. We all know that Termites are destructive to wood and major pest. They are social insects, living in colonies and have soft bodies, biting mouthparts, small eyes and short antennae. Order Orthoptera which are part of the also common Pterygota Subclass include grasshoppers, locusts, katydids, crickets. Orthoptera insects have long, strong legs which they use for jumping and two sets of wings. The front set of wings is hardened and used for protection

as well as for flying. Males also use their legs and the rough parts of their wings to make the characteristic cricket "chirruping" noise. They have large eyes and are very common. Order Phasmida which are part of the prevalent Pterygota Subclass include all the stick and leaf insects. Stick and leaf insects have either long, thin, brown bodies that look like sticks, or flat, green bodies that look like leaves. They are camouflaged for their own protections. Some species have wings and others do not. They are occasionally on rosebushes and other plants but, because of their body shape are often hard to see. Order Dermaptera are part of the large Pterygota Subclass and include Earwigs. Earwigs are skinny bodied with a large pincer-like tail. Some species have wings (but few fly). The young hatch from eggs and the female adults feed and protect them until they are independent, which is very unusual for insects. Earwigs feed on plants, organic waste and other insects. Order Grylloblattodea which is part of the Pterygota subclass, like so many other orders include Rock crawlers and ice insects. Rock crawlers look like a combination of a cricket and a cockroach. The Blattodea part even means cockroach. They have long bodies with widespread legs and tails, they are wingless and have small eyes. They live in remote, icy areas, feed on plants and small insects, and spend most of the year frozen. Some species are so used to the cold that it will die from the warmth of a human hand. Order Plecoptera which is a member of the Pterygota subclass include Stoneflies. Adult stoneflies have two pairs of wings (but they are not good fliers), mouthparts that they seldom use (some adults eat algae and pollen, but most don't eat at all), long antennae and large eyes. They live for two to three weeks, near lakes or streams crawling amongst stones. Larvae live for two to three years, in water, and are

predators. This order seems quite odd since it is a larva for so much longer than an adult. Order Hemiptera are part of the Pterygota Subclass and include aphids and other such insects. The different species of Hemiptera have so many different characteristics that it is almost impossible to give an adequate general description for the group in fact, the only thing members of this order have in common are their piercing and sucking mouthparts. Order Thysanoptera are part of the seemingly unending Subclass Pterygota and include insects called Thrips. Thrips are tiny insects that live on plants. Some of them have wings that are fringed with long hairs, and others are wingless. Thrips have skinny bodies, short antennae, short legs, small eyes, and chewing and sucking mouthparts (so they can chew through plant tissue and suck out the juices). Some species are pests and destroy crops, but others are predators, eating insects, moth eggs and mites on plants. So some thrips are bad but some can be quite helpful. Order Psocoptera which is part of the Pterygota subclass include barklice, booklice. Barklice and booklice have small bodies, proportionally large heads, large eyes, large chewing mouthparts and long antennae that lie back along the side of the body. Some species have wings and some do not. As their names suggest, barklice live in the bark of trees, and booklice live in houses where they feast on a diet of glue and starch from book bindings. These lice are not as bad as biting lice are to humans. Order Phthiraptera, the more destructive part of the Pterygota subclass include the dreaded Birdlice, biting lice and sucking lice. These lice are parasites that live amongst the hairs and feathers of birds and mammals. They are small, wingless, and have small eyes, and either chewing or sucking mouthparts. Their legs are equipped with claws so they can cling tightly onto their " host". (They usually spend their whole life on the

same host.) Suckers feed on the blood of their host and chewers eat hairs, feathers, and dead skin. We all know we don't want to be a part of this insects life. Order Diptera which as expected is part of the Pterygota Subclass include all flies. We all know that flies are the pest that are also common around the world, and how they differ from other insects because they have only one set of wings. What was once the hind pair of wings have evolved into small knobby balance organs, called halteres. Consequently flies are excellent fliers. Hence the name. Most flies have large eyes and mouthparts that can pierce, lap or suck. The young develop from eggs into maggots before becoming pupae and then adults. Order Siphonaptera is part of the subclass Pterygota include fleas. Fleas are small, with very hard, flat bodies, no wings, tiny eyes, and very strong legs which they use for jumping . They are parasites, using their sucking mouthparts to feed on the blood of their hosts, wether they be dogs, cats, humans, or birds. Fleas lay eggs which hatch into pale larvae. The pupae wait in silk cocoons, sometimes for months or years, before they emerge as adults and attach themselves to another host. Order Mecoptera are like nearly everything else, a part of the Subclass Pterygota and include Scorpionflies. Scorpionflies are scary looking insects that have soft, skinny bodies, long legs, very long heads with pointed " noses", biting mouthparts, long, fine antennae, and large eyes. Some species have wings that are long and oval shaped and others don't. In spite of their common name, scorpionflies don't bite or sting. Adults lay eggs in the ground, and the young turn from larvae into pupae before hatching as adults. Order Trichoptera is part of the Pterygota Subclass and include Caddisflies. Caddisflies look like moths, but aren't. Their wings are a similar shape, color and texture, but they are covered with minute

hairs, rather than scales, like moths. Caddisflies have chewing mouthparts, long antennae, and slender legs with two claws. They are not good fliers. Adults lay eggs on or near water, and the larvae and pupae live in water until they become adults. Order Lepidoptera which is part of the Subclass Pterygota includes butterflies, moths, and other pretty stuff. Butterflies and moths have bodies and wings that are covered in scales. Butterflies are usually the most brightly colored and fly during the day, while most moths have dull colors and fly at night. Their mouthparts are usually long coiled tubes which they push into flowers or trees and use as a straw to suck up nectar and sap. The young hatch from eggs, and go through a larval or caterpillar stage, before pupating and turning into adults. Order Coleoptera which is a member of the Pterygota Subclass includes Beetles. In Beetles the front pair of wings in are very hard and are used for protection, not for flying. Some beetles use their back wings for flying, but they are generally clumsy in the air. The body size and antennae vary greatly between species, but most beetles have large eyes. Their larvae are called grubs, and while they vary in size, shape and color, they all have biting mouthparts. They are an order that is said to have many unknown species. Order Neuroptera us part of the Subclass Pterygota and it includes Lacewings, mantispids, antlions. Lacewings have skinny, oval bodies, four " lacy" wings with many veins, large eyes, long antennae and chewing mouthparts. The larvae hatch from eggs, feed on other insects and plants, and spin themselves a silk cocoon where they wait as pupae to develop into adults. For an amateur they kid of look like long antennaed moths. Order Hymenoptera are in my opinion the best part of the Subclass Pterygota and includes Bees, Wasps, Ants. Bees, wasps and ants are mostly hard-bodied and often have tiny " waists"

between the segments of the abdomen. Many species have two pairs of wings and are excellent fliers, but some are wingless. Some adults have chewing mouthparts, and many also are able to suck up liquids. Some species have a stinger at the end of the abdomen for defense, and they use them on us as many of us should know from bad childhood experiences. Adults lay eggs which hatch into larvae, and then develop into pupae and adults (www. insecta. com). As you can see the amount of insect orders is huge and varied. This and the speed of their breeding makes them so very successful . Their breeding rate may also turn into a curse since we are destroying their homes in the rainforest, and they may not live long enough to see a new place for them to live. Insects are not only the giver of honey and silk, but the protector of all of our crops and they are too important for us to let die.