Spiders

There are more than 38,000 species of spiders in the world! All spiders are carnivorous! Spiders have been sent into Space!

INVERTEBRATES

Invertebrates are animals that do not have a backbone, and they account for almost 97 percent of all known animal species worldwide. Within the invertebrate group are sponges, cnidarians (jellyfish), worms, mollusks (snails), echinoderms (starfish), chordates, other minor phyla; arthropods (the largest phylum of living organisms at about 1.3 million species: insects, centipedes and millipedes, crustaceans (shrimp and crabs), and finally arachnids (spiders and scorpions). Arachnids are in the superfamily Arachnidae and are generally considered separate from the "true spiders," which are in the superfamily Araneae.

Spiders are a large, distinct, and widespread group, and they come in a wide variety of shapes, sizes, and sizes. Certain very small spiders from elongate as small as a pinhead, while the largest brown tree spiders can have a leg span of more than ten inches. Today there are more than 38,000 described species in the world. The earliest evidence of spiders comes from a 380 million-year-old Devonian fossil. Spiders occur in many types of habitats and are often very abundant. Typical temperate habitats may support up to 800 individual spiders per square meter. Point estimates of spider diversity suggest that more than 800 species may be found in a single hectare of tropical forest.

FEEDING

All spiders are carnivorous. Most eat small insects, but many will eat other spiders, sometimes even ones of their own species. Some larger species of tarantula will eat vertebrates on occasion. Instead of chewing, spiders use another technique to secrete prey. Their mouthparts are designed to ingest only liquid food, so they use venom to liquefy the tissue of their prey, which they can then swallow. The majority of spiders are web-builders, which is how they catch their prey. They wait for insects to get stuck in their webs and then pounce on them to kill them. Small spiders are considered wandering spiders because instead of building a web and waiting, they actively hunt prey. There are others—certain crab spiders and some species of the genus Misumena—that ambush prey by hiding in flowers and killing the insects that come to pollinate them. Commercial spiders (a species of the genus Agelenidae) live in the webs of larger species and feed on the smaller insects with which the web’s owner doesn’t bother.

HABITAT

Spiders can be found everywhere from coastal areas to mountainous regions, even in harsh deserts. The only places spiders do not live are in the polar regions, at the peaks of the world’s tallest mountains, and in open waters of the ocean. They can be found in thick shrubbery, high up in trees, in pastures, beneath stones and fallen trees, in huts beneath the soil, and even in rock and coral crevices on coastlines. Because of their increasing contact with humans, many spiders now live in the corners of buildings and other man-made structures.

BODY

The body, covered with a protective shell called the exoskeleton, is divided into three sections: the cephalothorax (a fusion of the head and thorax) and the abdomen. Spiders have eight eyes. Although many species have just six. On the head region of the cephalothorax is the spider’s chelicerae, which are a pair of appendages used to seize and kill prey. At the end of these limbs are fangs, which contain poison glands used by spiders to inject venom. Also attached to the head region is a pair of pedipalps, which are short, leg-like appendages, which are used to manipulate prey. The thorax region of the cephalothorax is host to the spider’s four pairs of legs. After the cephalothorax is the spider’s abdomen, which is covered in spiracles—tiny openings used for respiration. The abdomen also is where spiders have their web-producing spinning organs.

HOW SPIDERS WALK

When you watch a spider walk, it is hard to figure out what the legs are doing; they seem to move in different directions at different speeds. But, that is not the case. It is quite simple. Spiders have four pairs of legs. The first and third pair (“first set”) move in unison together, while the second and fourth pair (“second set”) move in opposition. When the first set is moving forward, the second set is moving backward and then vice versa.

SPIDERS IN ART

African artists create striking works of art using images based on an array of domestic and untamed animals. Animals are used as symbols of leadership, to tell the history and moral values of their makers. Animals may be picked because they are beautiful, strong, fierce, well-armored or have special skills. Sometimes the sound the animal makes or the way it moves is important.

In the African culture, spider representations are universal and are often associated with communication and the spirit world, and as such, its image is also linked with leadership and rulers. Because the ground-dwelling tarantula (or earth spider) lives underground, it is believed to be closer to the realm of the dead who have returned to the earth. The spider’s ability to produce spider silk also places it in a special group of animals and insects that are used in healing. A spider’s web can be a symbol of human life in this case, the talent to spin or weave. Among the spider is a tree spider whose stone was brought from Sierra Leone where the spider was transformed into the clever Birr Habbit.

FUN FACT

Arachnida is a subphylum of animals that includes spiders, scorpions, and mites. It is considered one of the most diverse groups of animals, with more than 380,000 species described. Insects are also considered a subphylum, and they are the largest group of animals, with more than 1.5 million species described. Spiders are a distinct group within the Arachnida subphylum, and they are considered to be the most diverse group of land animals, with more than 380,000 species described.

On August 5, 1973, Arachna and Araleft blasted off into space on Skylab II. On her first day in orbit, Araleft didn’t do well. She spun stoppy webs and obviously felt the effects of weightlessness. However, by her third day in space, she was spinning just as though she was back at home. Her webs were finer in space, which was expected, but the pattern remained the same. She proved that spiders can spin nearly Earth-like webs in space. Their bodies are very well suited for their work, vital part in increasing our knowledge of space and are part of the Smithsonian’s collections.
ASSEMBLING YOUR ROBO-SPIDER

1. Gear Box
2. Black Wire
3. A3
4. Red Wire

5. Remove part A2, A1, and gear assembly.
6. Assemble the second set of gears.

7. B1
8. B5
9. B1
10. B1

11. Insert 3 x AA batteries (not included).
12. Screw and unscrew to insert and remove battery (not included).

Change the stride length for the spider robot as shown.

Insert the rubber tube

Rubber tube can climb gentle slopes if rubber tubes are attached to legs.