

ABC PEST CONTROL

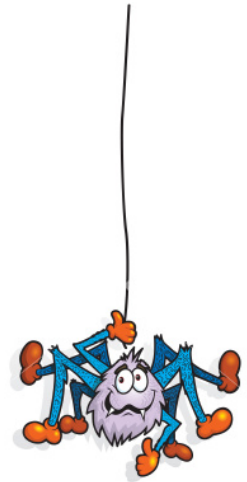
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Spiders

There are about 40,000 species of spiders in the world and about 20,000 species are found in Australia. They come in all different colours, shapes and sizes. They have special abilities that make them unique. These abilities include process of eating and producing silk. Spiders have been around for a very long time and are now considered as pets or a delicacy.

Spiders are not insects. Spiders are members of arachnids, which are in the same class of animals as scorpions, mites, and ticks. These do not have a backbone. Arachnids belong to a larger group of animals known as arthropods.



There are clear differences to distinguish spiders and insects apart.

Feature	Spiders	Insects
Body parts	2	3
Legs	8	6
Eyes	8	2
Antennae	No	2
Wings	No	4

The Body of Spider



All spiders have 8 legs. Their legs are covered with tiny hairs that pick up vibrations and smells. Each leg has 7 segments (the coxa, trochanter, femur, patella, tibia, metatarsus, and tarsus) and therefore 6 joints or knees. This makes the spider have 48 knees.

Their body is divided into 2 parts:

- 1) the head or *cephalothorax* (which contains the eyes, jaws, stomach, pedipalps, brain; and the
- 2) abdomen or *opisthosoma* contain the intestines, heart, reproductive organs and silk glands or spinnerets.

The waist or the pedicel, connects the head and the abdomen.

The pedipalps are two sensory feelers that are used for grooming and obtaining food.

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Most spiders have 8 very tiny eyes located on top of the cephalothorax. Few species of spiders may have up to 12 eyes or less.

As spiders do not have a backbone inside their body, when they grow, they molt or shed their outer shell by coming out through the cephalothorax. Spiders stop growing when they reach adulthood and do not shed their outer shell.

Spiders can be divided into 2 types: ground and web spiders. Ground spiders hunt their prey (eg. wolf spider or huntsman) and web spiders (eg. red-back spider) which produce a web to trap food.

The ground spiders catch their prey by hiding under trapdoors, while others may chase or use their appearance as camouflage, blending in to appear like parts of leaves or bark.

Web spiders rely on production of silk and web building to obtain their food. The spider does not stick to the web as the web is only sticky in the middle. The spider only treads on the web with its feet. The web function is affected by the weather and prey. Usually dust, exposure to air, bad weather; cause the web to lose its stickiness. The spider then eats the web to save energy. The spider then uses the recycled protein and spins a new web.

Food

Spiders are carnivores. They feed on live prey, generally insects and other spiders. The spider catches its prey with its legs and then uses its chelicerae to inject the venom. All spiders have venom, although most species of spider's venom may not be strong enough to harm people. The venom injected into the spider's prey is used to paralyse or kill it. The spider then vomits juices that contain digestive enzymes which causes the inside of the insect to turn into liquid consistency. The spider then uses its strong stomach to suck up the liquid matter. Once the liquid bolus reaches the stomach, it is then transferred in the intestine to the midgut, located in the abdomen, where further digestion takes place through enzymes released by secretory cells. Food may be stored for a long time in the spider's abdomen which assists spiders to live without for weeks or even months. On average the spider consumes about 2,000 insects per year.



Spiders and silk

Spiders have the most amazing ability and that is the ability to produce silk. Silk is produced by the spinning glands or *spinnerets* located at the end of the abdomen. The thickness of the silk range is between 0.001 - 0.004 mm. The silk is made as liquid and as soon as it comes in contact with the air, it turns into the solid silk fiber.

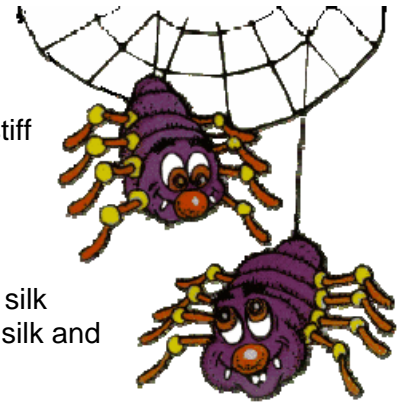
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There are 7 different types of spinning glands and each produce silk for different use.

Their use may include:

- safety line or dragline silk
- flying: this occurs when young spiders are born and long strands of silk are used as parachutes to move with the wind. This is known as ballooning
- make durable cocoons: tubiliform silk is used as it is the most stiff form of silk produced by the cylindrical gland. It is able to control temperature and repel moisture.
- Catch their food through building of webs. This type of silk, capture spiral silk, is very tough, elastic and sticky
- Immobilise prey: once the spider captures its food, it wraps the silk around it. This type of silk is much stronger than other types of silk and is known as swathing produced by the achniform gland.
- Line their burrows or shelter with silk, and
- Mating; in which the male spiders make webs and produce sperm. The sperm then gets transferred to their pedipalps and then it is ready for placement onto the female spider's reproductive organs.



Not all spiders can produce all types of silk as not all spiders have all 7 glands.

Spiders have been around for millions of years. They are everywhere! These are the animals which cause fear and fascination in different people. We know that spiders are beneficial in the control of insect population, through their ability to hunt and build webs. We recognise their presence by the appearance of webs and the sights of the spider itself.

Spiders will bite when threatened or in self defence, hence it is best not to touch it or provoke it. Only the funnel web and red back have been known to cause death in 30 people. The last death was recorded in the 1980s from funnel web spider. Since then anti venom has been developed and no deaths have occurred since.

The Birds, lizards, wasps, ants, praying mantis, centipedes and people are the predators to the spider population.

People have been also known to keep spiders as pets. In Australia, the huntsman, wolf spider or the St. Andrew's Cross spider are the most popular. Tarantulas have been kept as pets in South America and considered a delicacy in Asia.



In Skuon, Cambodia, fried tarantulas are very popular. These are gathered in the fields and fried in deep oil with salt, garlic or chilli; until they are stiff. The locals believe eating these assists in relief of asthma and back pain.

Around the world, the venom is currently researched and the possibility of it to be used in medicine for the following conditions: cardiac arrhythmia, Alzheimer's disease, stroke and erectile dysfunction.