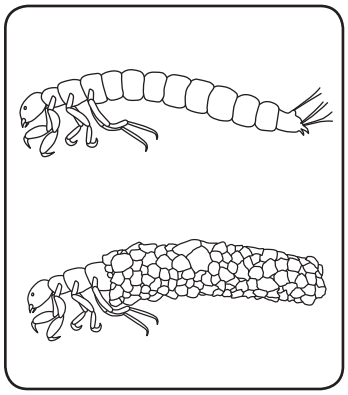
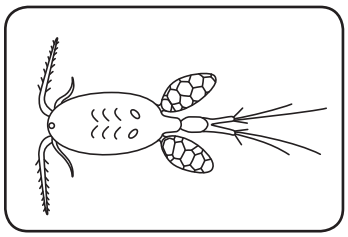
Pond dipping & Insect identification

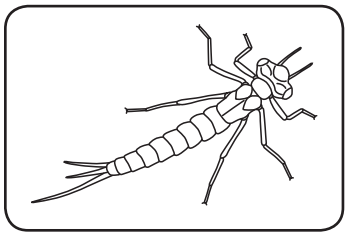


Caddisflies. Also called sedge-flies or rail-flies, are small moth-like insects. Caddisflies have aquatic larvae and are found in a wide variety of habitats such as streams, rivers, lakes, ponds. The adult stage of caddisflies, in most cases, is very short-lived, usually only 1–2 weeks. Most adults are non-feeding and are equipped only to mate. The female caddisfly lays its eggs by attaching them to plants above or below the water surface. Eggs hatch in as little as three weeks.

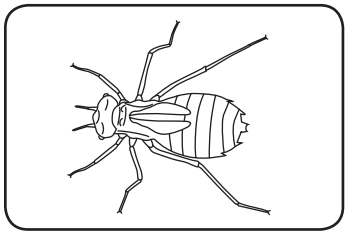
Caddisflies are considered underwater architects because they make protective cases of silk decorated with gravel, sand, twigs or other debris. They use the cases throughout their larval life, adding to, or enlarging them as they grow.



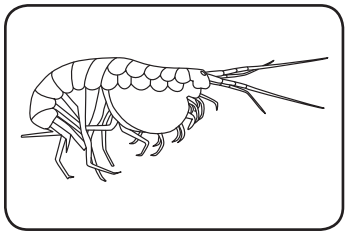
Cyclops. These are one of the most common of freshwater copepods they may range from ½–5 mm long and are clearly divided into two sections. The broadly oval front section comprises the head and the first five thoracic segments. The hind part is made up of the sixth thoracic segment and the four legless segments. The long first antennae are used by the males for gripping the females during mating. Afterwards, the female carries the eggs in two small sacs on her body.



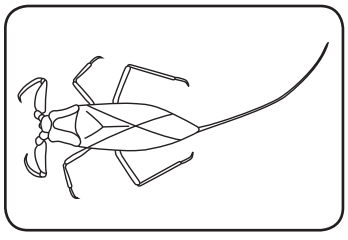
Damselfly nymph. Damselflies undergo incomplete metamorphosis, with an aquatic nymph stage. The female lays eggs in water, sometimes in underwater vegetation. Nymphs are carnivorous, feeding on daphnia, mosquito larvae, and various other small aquatic organisms, using extendable jaws similar to those of the dragonfly nymph. The gills of damselfly nymphs are large and external, resembling three fins at the end of the abdomen.



Dragonfly nymph. Most of a dragonfly's life is spent in the nymph form, beneath the water's surface, using extendable jaws to catch other invertebrates (often mosquito larvae) or even vertebrates such as tadpoles and fish. They breathe through gills in their rectum, and can rapidly propel themselves by suddenly expelling water through the anus. Some nymphs even hunt on land.



Freshwater shrimp. Approximately 20 mm in length. The body is laterally compressed and at rest it curls into a C-shape. They invariable swim on their sides. The upper antennae is longer than the lower pair and has a small branch part way along. The freshwater shrimp lives in streams, rivers and ponds. If the current is fast it will shelter in weed or under stones.



Water scorpions. Sometimes called needle bugs or water stick insects they feed primarily on invertebrates, but occasionally take small fish or tadpoles. The adult breaths by means of a tube thrust above the surface of the water. The female lays eggs above the waterline in mud, decomposing vegetation, the stems of plants or rotting wood.

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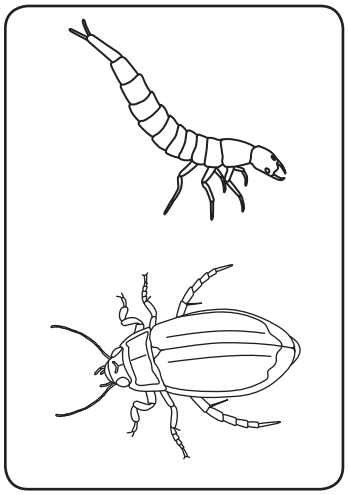
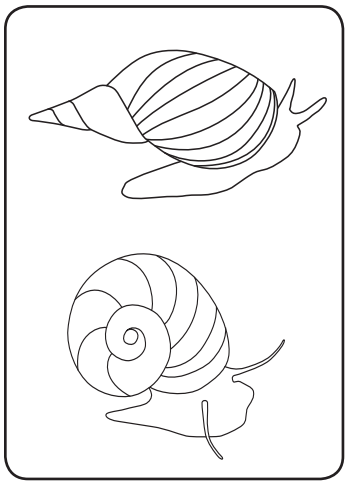


Great diving beetle. True to its name, this is a large insect. The larvae can grow up to 60 mm in length, while the adults are generally between 27-35 mm. They live in fresh water, either still or slow-running, but prefer water with vegetation.

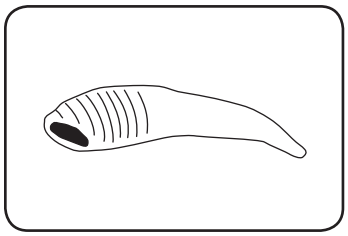
They are dark-coloured (brown to black) on their back and wing cases and yellow on their abdomen and legs. The male's wing cases are shiny, while those of the female are finely grooved. A voracious predator, this beetle hunts a wide variety of prey, including other insects, tadpoles, and small fish.

These beetles are able fliers, usually at night, when they use the reflection of moonlight to locate new water sources. Before they dive, they collect air bubbles in their wing cases so they can breathe.

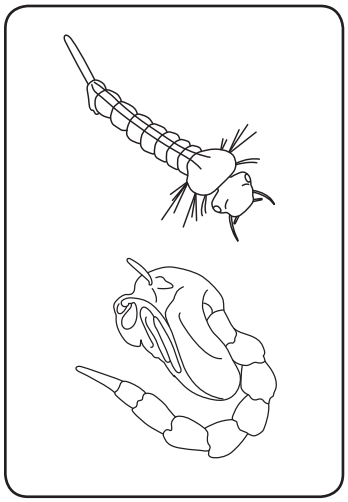


Great pond snail and Rams horn snail.

Snails are commonly found in freshwater streams, rivers, ponds, shallow lakes, and canals. They eat by grazing on the algae living on plants, as well as using its gills to filter suspended algae from the water column. Like frogs, pond snails are able to meet their oxygen requirement by breathing directly through their skin. Dispite living in the water, pond snails are lung breathers and have to surface to breathe fresh air. Unlike the land snail, pond snails only have two tentacles that are widened to an ear-like shape the snail's eyes sit at the tentacle's base. The mouth is located beneath the tentacles, it is a minutely toothed ribbon, that is used for scraping or cutting food particles.



Leech. Leeches have been used for clinical bloodletting for thousands of years, although most leeches do not feed on human blood, but instead prey on small invertebrates, which they eat whole. Leeches attach to their hosts and remain there until they become full, at which point they fall off to digest. They use a combination of mucus and suction to stay attached and secrete an anti-clotting enzyme into the host's blood stream.



Mosquito larva & Pupa. The larvae have a well-developed head with mouth brushes used for feeding, a large thorax with no legs and a segmented abdomen. Larvae breathe through spiracles located on the eighth abdominal segment, or through a siphon, and therefore must come to the surface frequently. The larvae spend most of their time feeding on algae, bacteria, and other micro-organisms in the surface microlayer.

The pupa is comma-shaped when viewed from the side, and is commonly called a "tumbler". The head and thorax are merged with the abdomen circling around underneath. As with the larvae, pupae must come to the surface frequently to breathe. The pupae do not feed during this stage and is less active than larva.

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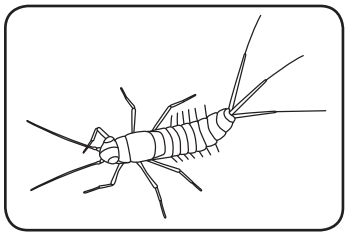
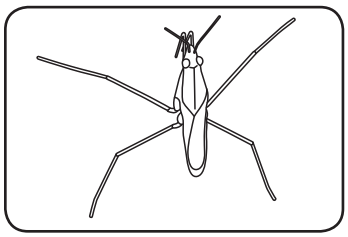
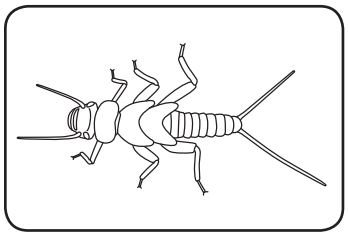


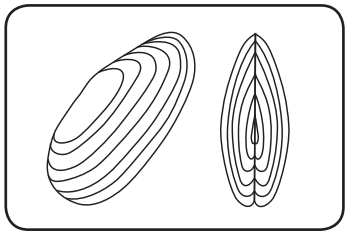
Mayfly nymph. The nymph will moult 20 to 30 times over a period of a few months up to year, depending on the species. They nymphs live primarily in streams under rocks, decaying vegetation, or in the sediment. Most species feed on algae or diatoms, but there are a few predatory species. Mayfly nymph are distinctive in that most have seven pairs of gills on the abdomen. In addition, most possess three long tails at the end of their bodies.



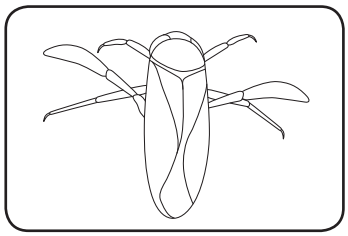
Pond skater. Water skaters can vary in length from 1.6 mm to 36 mm. One common feature is their elongated legs (only the first pair is short and stubby) which the animals use for moving over the water surface. These are predatory insects which rely on surface tension to walk on top of water. They live on the surface of ponds, slow streams, marshes, and other quiet waters. There they hunt for insects and other small invertebrates on top of or directly below surface using their strong forelegs which end with claws. They paddle forward with the middle pair of their legs, using fore- and hind legs as a rudder.



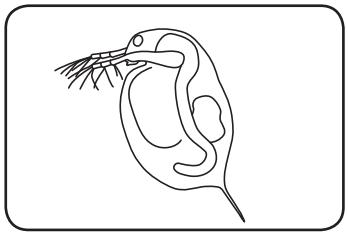
Stonefly nymph. The nymphs live in well-oxygenated lakes and streams. Physically they resemble wingless adults, but often have external gills, which may be present on almost any part of the body they can also respire through the general body surface. Most species are herbivorous as nymphs, feeding on submerged leaves and algae, but many are hunters of other aquatic arthropods.The insects remain in the nymphal form for one to four years, depending on species, and undergo anything from 12 to 33 molts before emerging as adults.



Swan mussel. The swan mussel is a large species of freshwater mussel, an aquatic bivalve mollusk. They are found in streams, rivers, ponds and lakes. The shell is thin but large 10 to 20 cm and rather flat, with a pale greenish or brownish colour.



Water boatman. Also known as Backswimmers these are predators and attack prey as large as tadpoles and small fish, and can inflict a painful “bite” on a human being. They inhabit still freshwater, e.g. lakes, pools, marshes, and are sometimes found in garden ponds. Although primarily aquatic, they can fly well and so can disperse easily to new habitats. As the name indicates, these insects swim on their backs, vigorously paddling with their long, hair-fringed hind legs.



Water flea. The Water flea or Daphnia is a generic term for a number of small aquatic crustaceans characterised by their jumping or jerky mode of swimming. The the main part of the body is enclosed by a kind of shell, most are between 0.1 mm and 3 mm in length. Commonly found in fresh water of all descriptions although some species are found in brackish waters. They mostly eat small algae and microscopic phytoplankton but some are also grazers and detritus feeders.

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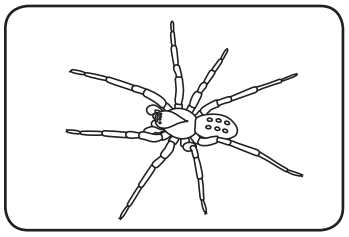
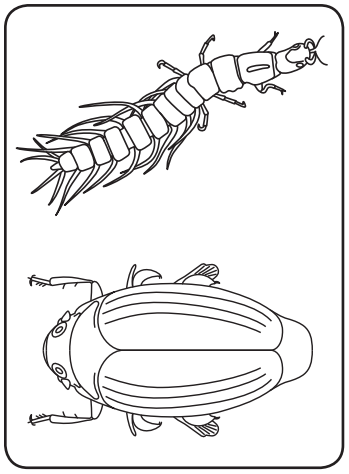
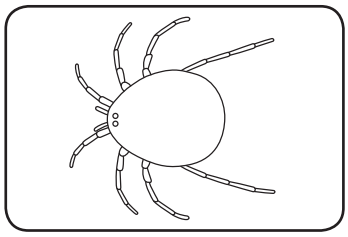


Water spider. Also known as the diving bell spider live entirely under water breathing air trapped in a bubble held by hairs on its abdomen and legs. The females build an underwater "diving bell" web which they fill with air and use for digesting prey, molting, mating and raising offspring. They live almost entirely within the bells, darting out to catch prey animals that touch the bell or the silk threads that anchor it. The males have a more active hunting style and are better swimmers than females. They eat various aquatic insects and crustaceans. Their fangs are robust enough to pierce human skin and the bite is said to be quite painful.



Whirligig beetle. The whirligig beetles normally live on the surface of the water. They get their common name from their habit of swimming rapidly in circles when alarmed, and are also notable for their divided eyes which can see both above and below water.

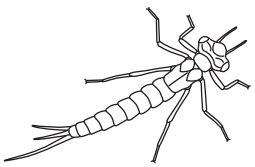
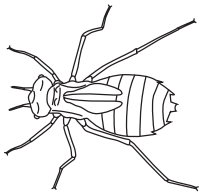
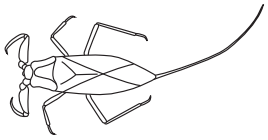
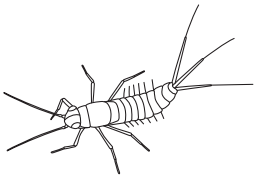
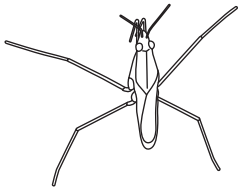
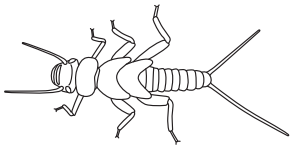
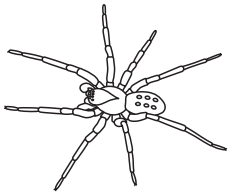
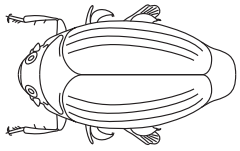
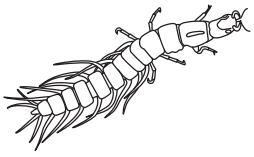
They are also known for their grouping behavior, a survival mechanism which helps them to avoid predation. Their places in the group are thought to be determined by a number of factors, including hunger, sex, species, water temperature, age, parasite level and stress level.



Water mite. These are tiny parasites that feed on the body fluids of other creatures. Their legs have hooks that allow them to hold onto their prey while feeding. Water mites have eight legs making them a member of the spider family and can be between 2mm and 5mm.

Pond dipping tally sheet

Put a ✓ in the tally box for each creature collected then add up the totals.

		Tally	Total
	Caddisfly		
Damselfly nymph 			
	Dragonfly nymph		
Freshwater shrimp 			
	Water scorpion		
Mayfly nymph 			
	Pond skater		
Stonefly nymph 			
	Water spider		
Whirligig beetle 			
	Whirligig beetle larva		

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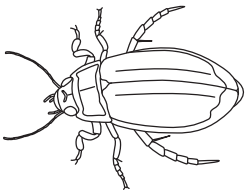
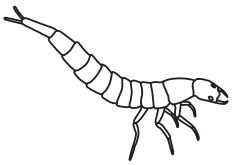
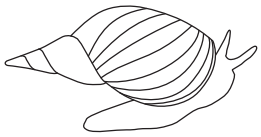
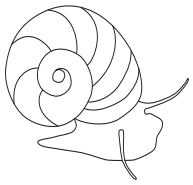
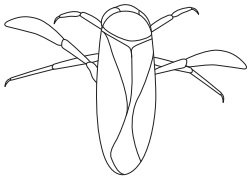
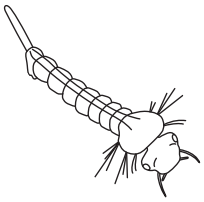
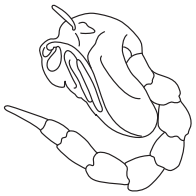
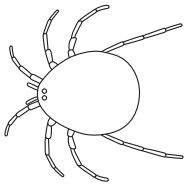
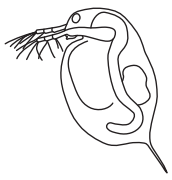
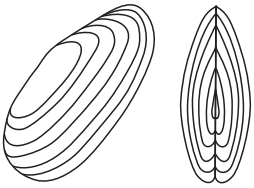
	Tally	Total
 Great diving beetle		
Great diving beetle larva 		
 Great pond snail		
Rams horn snail 		
 Water boatman		
Mosquito larva 		
 Mosquito pupa		
Leech 		
 Water mite		
Water flea 		
 Swan mussel		