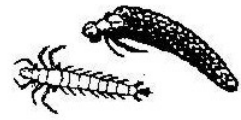


## **ACTIVITY ONE: THERE'S A CREEPY CRAWLY IN THIS STREAM!!**

Learners look for different water creatures during an explorative water investigation. This NATURAL SCIENCES activity should take place at a river, stream, dam, nearby wetland or pond. If this is not possible, the teacher will need to photocopy and cut out some of the creatures on the identification sheet on page 4 and set up an imaginary stream or pond in the classroom!!

### **What is a Water Creepy Crawly?**

A Water Creepy Crawly is an animal that is able to breathe and live in or on water. Some of them are beautiful, some are rather ugly, some of them are tiny, others are quite big and all of them have special things about them which make it possible for them to live, breathe, feed, grow and reproduce in or on water.



**It's time to see what creepy crawlies we have in our stream!**



### **What you will need:**

- Containers (ice-cream containers or 2 litre plastic bottles cut in half)
- Small plastic cups
- Pencils (to record findings)
- Plasticine
- Photocopies of the '*Water Creatures Identification Sheet*' and the '*More information on each of the water creatures*' sheets
- Coloured pencils or crayons

### **What to do with the learners:**

1. Divide the class into groups of four.
2. Give each group one container, a small plastic cup, a pencil, coloured crayons and a photocopy of the '*Water Creatures Identification Sheet*'.
3. Each group needs to decide on a name for themselves. They can use the '*Water Creatures Identification Sheet*' (and call themselves, for example, 'the mayflies' or 'the water shrimps') or the groups can make up their own names.
4. Each group must collect a full container of river or stream water and then carefully lift up rocks and rotting branches that are in the water and inspect them. Any animal that is found should be gently removed with the end of a pencil or stick and carefully placed into the water container.



- Learners can explore the stream and collect as many creepy crawlies as they can for 20 to 30 minutes (they may see larger creatures, such as fish, which they are not able to catch – they must make a note of this on their 'Water Creatures Identification Sheet').



**Make sure that the children do not harm ANY of the creatures that they find in the stream. They must be VERY VERY careful when handling these small delicate animals.**

### You, the teacher, need to:

- Hand out a photocopy of the characteristics of each animal (pages 5 and 6) and some plasticine to each group.
- The groups need to colour in, on their identification sheet, the creatures they are able to identify. They must also keep a 'tally' on their identification sheet of how many of each creature they find (see example below).



#### WORM-LIKE CREATURES:



leeches



planaria



sludgeworm

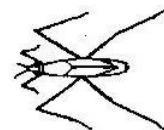


tadpole

- The groups then need to read the information about the creatures they have caught and discuss within their group what makes each creature unique and successful in living in water and not on land.
- Lastly, using the plasticine, the groups each have to make a water creepy crawly that can live in water (it can be an imaginary, non-existent animal, never before seen by humans BUT it must be able to breathe in water, be strong enough not to be swept away by strong water currents and it must be able to eat in water).

**Bring all the groups together, with their containers full of creepy crawlies, and ask the class the following questions:**

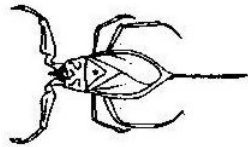
- What animals did each group find?
- Why do you think these animals are better able to live in the water than on land?
- How do the animals make sure that they are not swept away in the strong water currents?



4. If you were to sort these water creepy crawlies into different groups, using only one physical thing that you can see on the animals, what would you choose? *(some of the learners may use legs to sort the insects, ie. those with none, two, four, or more than four, others may use the presence or absence of wings).*
5. If you lived in water, what would you need to make sure you lived safely and happily?
6. Each group can now share their plasticine creepy crawly with the rest of the class. They need to explain what makes their creature so special and why it is able to survive in water.

*Teacher, make sure that all the groups have coloured in all the creatures they found during the water study and have a 'tally' next to each coloured-in animal.*

**Immediately after this activity, return ALL the creatures back to the stream. This needs to be done gently and carefully. Make sure that none of the animals are left in the plastic containers.**



**Criteria to assess learners during this natural sciences lesson:**

Criteria	Exceeded requirements of the Learning Outcome	Satisfied requirements of the Learning Outcome	Partially satisfied requirements of the Learning Outcome	Not satisfied requirements of the Learning Outcome
The learner took an active part in the water investigation and collected water creatures to add to the group's collection				
The learner was able to identify the water creatures that were found by the group				
The learner contributed to the discussions of describing his/her group's plasticine animal				

# Water Creatures Identification Sheet

## WORM-LIKE CREATURES:



leeches



planaria

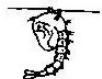


sludgeworm

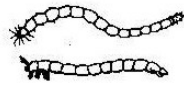


tadpole

## LARVAE:



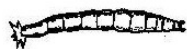
mosquito larva and pupa



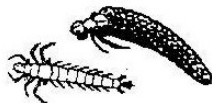
midge larvae



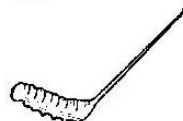
whirligig larva



crane fly larva



caddisfly larvae



rat-tailed maggot

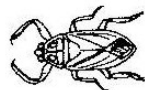
## BEETLE-LIKE ORGANISMS:



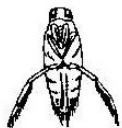
whirligig beetle



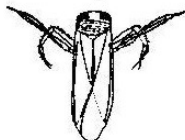
scavenger bug



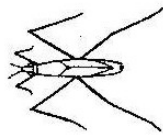
predaceous beetle



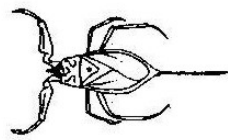
backswimmer



water boatman



water strider



water scorpion

## NYMPHS:



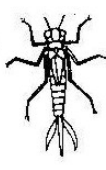
dragonflies



damselflies



stonefly



mayfly



## SHRIMPS



shrimp

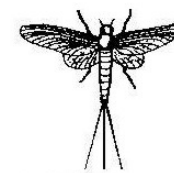
## FLYING INSECTS:



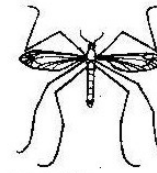
caddisfly



stonefly



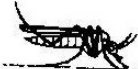
mayfly



crane fly



midge



mosquito



dragonfly



damselfly

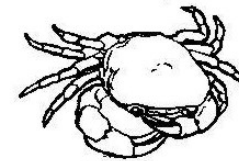
## CREATURES WITH SHELLS:



snail



limpet



crab

## OTHER WATER ANIMALS:



frogs and toads



water terrapin



water leguana



fish



birds



otter



water mongoose

## More information on each of the water creatures on your identification sheet

**Leech:** Leeches are small worm-like creatures that have suckers to suck the blood or body fluids from other animals. They like nutrient-rich water that is low in oxygen. They are mostly parasitic, which means they prey on other living animals, including people. If leeches stay on your body for too long they can cause your blood pressure to drop and make you feel ill. The suckers of a leech release a chemical, which stops blood from clotting so that they can feed properly.

**Planaria:** They are dark brown with flat bodies. Planarias live in clean, unpolluted water. They can regenerate themselves if cut in pieces, with each piece growing into a new individual.

**Sludge Worm:** Their tails are used as gills to absorb oxygen. They are dark red due to the high oxygen levels in their bodies. Sludge worms like to eat mud, and they are able to live in polluted waters.

**Water snail and limpet:** Water snails have a soft body protected by a coiled shell. They have a muscular foot that sticks out of the shell and is used to move. Limpets have a flattish shell covering their body. This shell has a foot that sucks on to the smooth surface of rocks and plants. Snails eat water plants. Limpets eat algae on rocks and on water plants. Snails can live in slightly polluted water. Snails can carry very small (microscopic) animals, like bilharzia, inside their bodies, that can make people sick. Snails that carry bilharzia like slow moving waters and stay near reeds to keep from being washed away. People who have bilharzia often feel very tired and may have kidney damage.

**Damselfly:** Adult damselflies are smaller and thinner than dragonflies. Nymphs are usually brown or green and have three large, flat gills at the end of the abdomen. They swim and run among stones at the bottom of streams.

**Back swimmer:** They swim and rest on their backs. The hind legs are used for movement. They breathe at the surface and an extra supply of air is trapped amongst the hairs on the upper side of the body.

**Water scorpion:** This insect does not have a poisonous sting. It is usually brown and often looks like a dead leaf! It creeps around amongst water reeds or in the mud at the bottom of shallow pools. The water scorpion breathes through its tail – this is used like a snorkel.

**Water strider:** The water strider has long middle and back legs for resting and skating on the surface of the water. Water striders eat insects which have fallen into the water. To find their prey, water striders have sensory areas in their feet. With these they can feel the vibrations of the insects that have fallen into the water.

**Midge:** Adult midges or gnats are tiny insects that are usually seen flying in swarms above the water. Midge larva are often called 'bloodworms' because many have red or brown body fluids. The larvae are often found in mud in slow-flowing or still water. The red midge larvae are usually found in polluted water. The adult midge never eats anything! Its stomach remains an empty air sac. Generally midges are found in water that is slightly polluted.

**Cranefly:** Cranefly larvae are found in water, in moist ground or in mud or under leaves. The larvae eat roots, dead plants and some small water animals like worms. The cranefly is often called a daddy-long-legs!

**Rat-tailed maggot:** Rat-tailed maggots are usually grey with a fat wrinkled body and a long breathing tube. They can live in mud and polluted water.

**Caddisfly:** The larvae have 6 long legs close to the head. Caddisflies like clean, unpolluted water.

**Mosquito larvae:** Mosquito larvae live in stagnant (still) pools of water just below the surface. They feed on tiny plants and animals. Male mosquitos suck plant juices when they are adults but adult female mosquitos suck blood from humans and other animals. If they are infected, the female mosquito will then pass on malaria to people, which can be deadly! Mosquito larvae are often found in poorly oxygenated ponds of water.

**Whirlygig beetle:** The larvae look like small centipedes. Adult whirligig beetles are smooth and streamlined and are usually a shiny grey colour. Adults and larvae both feed on dead or dying insects that have fallen into the water.

**Water beetles and bugs:** All the water beetles and bugs have flat, smooth bodies. They are usually found in clean streams and rivers.

**Dragonfly:** The adults fly very fast. The nymphs of dragonflies are aggressive feeders who eat other insects. They can live in fairly polluted water. When it is ready to become a dragonfly it sheds its skin emerging as an adult dragonfly.

**Water boatman:** They swim mostly on the surface of the water and dive down deeper to feed on algae. They catch bubbles of air in their body hairs that they use to breathe from when they dive down deeper – similar to a scuba diver! This air bubble is what gives the Boatman a silvery colour in the water.

**Mayfly:** The nymphs (baby mayfly) have three long thin tails and have gills on the sides of their bodies. Mayflies need unpolluted water with plenty of oxygen to live in. They eat vegetable matter. The adult mayflies only live for one day once they hatch, and in this time they must find a mate and reproduce before they die. This is why mayflies often all hatch at the same time. This gives them the greatest chance of success.

**Stonefly:** The nymphs have two thin 'tails'. They live under stones in running streams. They can only live in clean, unpolluted water. Nymphs eat small water insects and algae. If one finds stoneflies in a stream, it usually indicates good water quality as they are affected by small amounts of pollution.

**Crab:** Crabs have a hard exoskeleton. They have flat bodies and 5 pairs of legs. Crabs eat mostly dead or dying animals but also catch some live prey, such as tadpoles.

**Freshwater fish:** Fish have streamlined bodies that are covered with slimy scales. Fins are used to move. Breathing is through their gills.

**Frogs and toads:** Tadpoles have gills and live under water. Adult frogs and toads have lungs. Frogs spend their whole lives in very moist areas or near water. Toads are stout, have short limbs and live in open country. Platanna (clawed toads) are neither true frogs or toads. They spend their whole lives in water.

**Terrapin and leguaan:** Water terrapin are usually a muddy brown colour. They have a scaly skin and scales modified to form a leathery shell. Water leguaan are very large lizards with a patterned scaly skin.

**Water birds:** A wide variety of water birds are found in and around water systems. They have beak and feet adaptations for feeding in streams, rivers, ponds and wetlands.

**Otter and water mongoose:** Otters and water mongoose are shy animals and are seldom seen. You may see their droppings, which contain large quantities of crab shells.

**Freshwater shrimp:** They feed on small animals and plants and are usually transparent, green or brown.