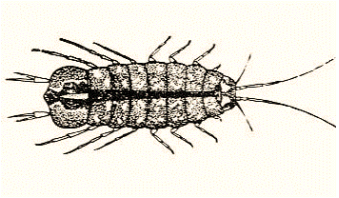
Take a Dip

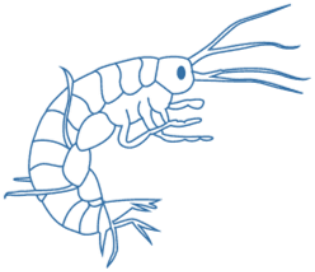
As far as we know life started in water and is still very much dependent on it. Even small freshwater ponds will attract wildlife. Here at the Sanctuary we have created numerous ponds of different sizes. A healthy pond can be home to a vast diversity of invertebrates of more than 100 species! Some live permanently in the pond and complete their life cycle in water.

e.g. CRUSTACEANS like the hoglouse



or

freshwater shrimp



Others complete only a part of their life cycle in the aquatic environment of the pond.

e.g. INSECTS like the larvae or nymphs of Dragonflies

Working in pairs, you will need the following equipment: -

2 buckets or trays labelled, surface, middle or bottom

1 large mesh net

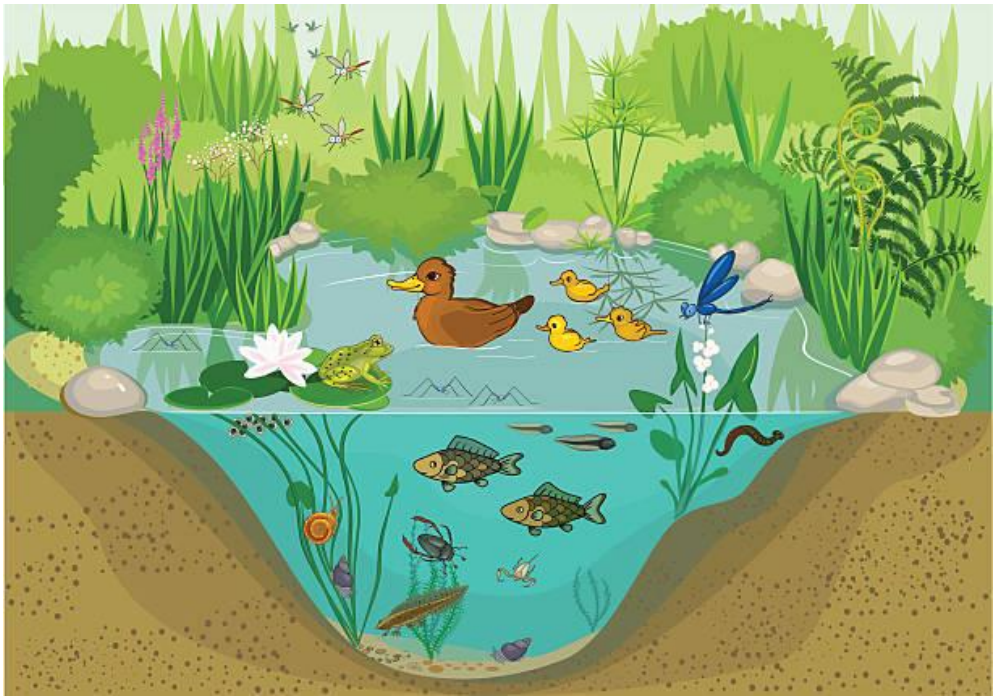
1 plankton net

1 mud sampler

Magnifying glass

Tally counters

ID Charts



Surface

Bottom

Try to disturb the pond as little as possible. Listen to and observe all of the safety instructions. You will need to make at least 10 sweeps with your net or mud sampler to collect organisms from your section of the pond. Put them into your tray or bucket with some pond water.

You may find many different creatures in and near the pond: -

- Animals with no legs – for example, hydra, worms, or leeches.
- Animals with jointed legs – crustaceans such as crayfish or shrimps, water mites, or water spiders. You may spot land spiders skating on the water's surface.
- Insects that have nymphs – these are small wingless insects that hop on the surface of the water and include springtails, mayflies, and stoneflies.
- Insects that have larvae – you may find caddis flies, flies, or beetles. (The diving beetle is a carnivorous beetle but may eat algae or detritus

<u>Kneel down next to the pond.</u>

1. Look for animals on the surface before you disturb the water or start dipping.
2. Fill your viewing tray half full with pond water.
3. Using the pond net, sweep around a figure of 8 pattern is best. For best results dip at the pond surface, midwater and among marginal vegetation. Try not to turn the net inside out while dipping as creatures could escape.
4. After each sweep, empty the contents of your net in the viewing tray. Remove any large plants from your tray, put these back in the pond – make sure you check for creatures hiding on the plants before you put them back.
5. Try to prevent clogging the net with mud by sweeping mainly in the submerged plants or the plants that are emerging from the surface. If you get too much mud in the water, try swishing the net in the water before emptying it.
6. If the tray gets too muddy it will be difficult to see any creatures and you may need to start again.
7. Have a look at the creatures you have found. Use ID sheets (see resources pack) to help you identify them. Take a copy of the sheet Pond Animals Worksheet 1 and follow the instructions.
8. Take a copy of Pond Animals 2 and complete your drawings.
9. Keep a tally of the numbers of each creature you find and record this on your ID sheet. You will need this information for your follow-up work. So make sure you record it accurately and keep it safe.
10. When you have finished, carefully put the creatures back in the pond.

Be careful around water not to fall in – you do not know how deep the pond is!

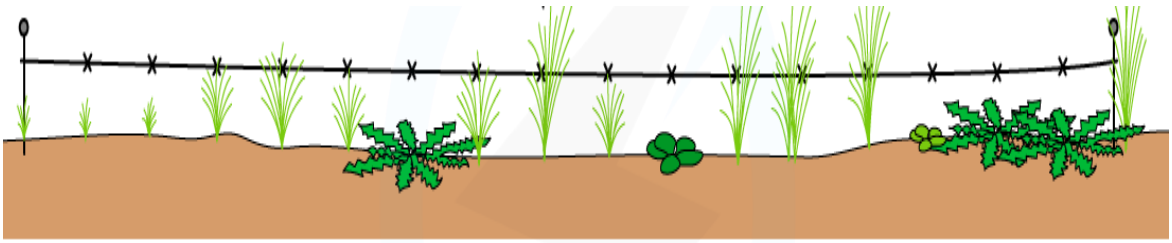
At the end of the activity, swill out and clean the trays using clean water from the pond. Also carefully check the net for any creatures that may still be there and remove any vegetation. It is a good idea to wash the nets and trays under tap water (where available) prior to returning them.

Flora typically found in and around ponds

Pond plants are essential for a good pond ecosystem. Ponds contain both submerged oxygenating plants and plants that stick out of the water (emergent plants). Emergent plants allow insects that start life in the water - such as dragonflies - to leave the pond when they are ready to transform into adults.

There are also many plants that grow in wet ground around the pond.

You can make a transect along the bank of the pond using two poles and a long string tied at least as high as the tallest plant.



Mark on the Transect Worksheet, the ground level and then all the different plants you see, using the Identification Chart. You can draw them too.

You will see birds and other wild life in and around the Sanctuary. Use the Identification charts to note any that you see. You do not need to make a tally just tick the box when you see and identify an individual.

There are many other features of a pond that can be investigated like the quality of the water which will have an impact on the minibeast population of the pond.

You will need:

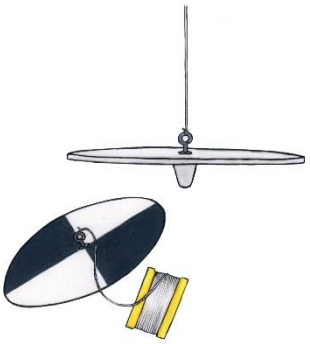
1. A Digital dissolved oxygen metre

This will measure how oxygen rich the pond water is.

2. 

A thermometer for measuring the temperature of the water.

3. A Secchi disc which will measure the light intensity of your pond. The deeper into the pond you are able to lower the Disk and still be able to see the sectors the higher the light intensity.



4. A freshwater pH testing kit to test the acidity or alkalinity of the pond water.

Record your measurements, taken at hourly intervals, on a Data Collection Sheet.

Follow-up Work

Use the results of your pond dipping tally to draw histograms to show the minibeast population of the pond.

1. Which organism was the most abundant?

2. Which minibeast did you find the least of?

3. Were there more creatures on the surface of the pond or the bottom of the pond? Give a reason for your answer.

4.Which process in a pond produces oxygen?

5.Does the oxygen concentration vary throughout the day?

6.Comment on any differences in pond and air temperature.

7. How do you think that the light intensity affects the rate of photosynthesis.

8. Were there many plants growing in the pond? What does this tell you about the quality of the water?

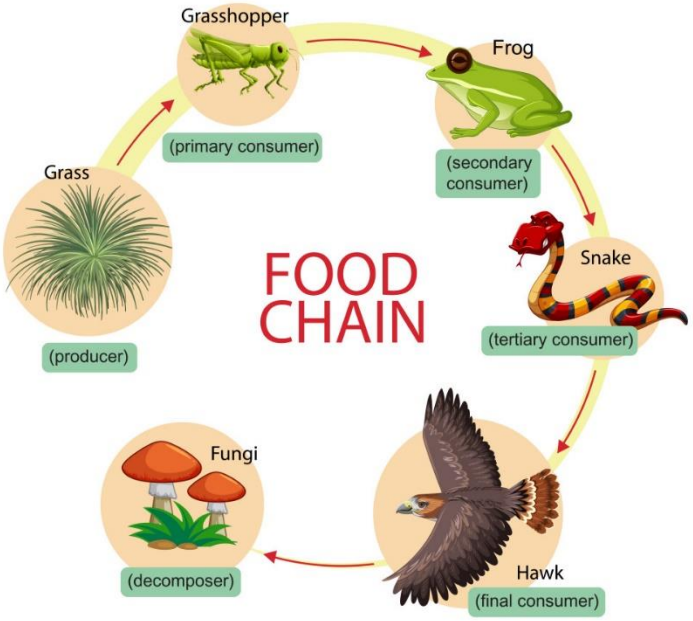
9.How would you describe the pH concentration of the pond? Is this a healthy pond?

10.Use all of your results collected today to write a description of the pond and its surroundings.

All animals and plants need food to grow and move. Animals that eat plants are called herbivores. Animals that eat other animals are called carnivores. Animals that eat both plants and animals are called omnivores. Animals that eat dead plants and animals are called detritivores.

Take a copy of the Food Chain Information Sheet and the Pond Food Chain Worksheet.

'In ecology a food chain is a series of organisms that eat one another so that energy and nutrients flow from one to the next. A food chain describes how energy and nutrients move through an ecosystem. In other words, at the basic level are green plants which produce energy (the primary energy producers) which then moves up to higher levels in the herbivores (the consumers). Consequently, when the carnivores eat the herbivores energy is transferred from one to the other. Every food chain will end with a predator reliant on every previous level.



Use all your information gathered today to complete the tasks on the worksheet.

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We support a network of teaching professionals to develop and disseminate accessible talk-for-learning activities in all subject areas and for all ages.
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Andrew Morris Wild About WAMS Blog
RBKC Holland Park Ecology Centre for invaluable information