**Pond Dipping**

Fresh water bodies, like this pond here, can sometimes be susceptible to pollution. There are many indicators of pollution for fresh water, but today we're going to look at the invertebrates, some of which are sensitive to pollution, and some of which are not so sensitive.

Some of the causes of pollution can come from physical; biological; or chemical sources. This pollution can cause eutrophication where excess of nutrients in the water, such as nitrogen and phosphorus, can cause algae to grow rapidly. These events are known as algal blooms and can sometimes include toxic blue-green algae, harmful for many animals including humans. The algae can also make the water murky and restrict the light that reaches the plants, causing some of them to die. When the algae eventually dies, the bacteria required to break the algae down needs lots of oxygen to do so, and can lead the water to have low levels of dissolved oxygen within it.

When working near a pond it is very important to take care, especially when working with children. Make sure children are supervised beside the pond; never walk across a pond when it's iced over; be vigilant for hooks and bits of broken glass; and if you have any wounds on your hands make sure they are covered and that you wash your hands thoroughly after pond dipping.

We're going to start by using a simple pond net to sweep around the plants in the pond for about 15-20s. You'll need to disturb the plants in the pond but be careful not to damage them, and don't disturb the bottom of the pond too much, as you'll end up with lots of mud.

We’re using a net with a mesh size of 1mm, which is ideal for some of the bigger invertebrates that we’ll be looking at.

Now we're just going to empty the contents of this net into the tray, just making sure you get everything out; and now we can remove any of the big bits of vegetation, making sure there's nothing attached to them. So this can be repeated four or five times throughout the pond in different areas, and if you leave the contents to settle then you'll start to see the invertebrates moving around.

The OPAL Water Survey includes a guide to most of the invertebrates you might find and what they tell you about the water quality. Animals that score 1 are the most tolerant whereas animals that score 10 are the most sensitive.

Here are some of the invertebrates we found in the pond. As you can see here, we've got quite a few damselfly larvae. They have three prongs on their tail, which look like little feathers, which is quite good because we've had quite a few damselfly flying around the pond.

Next we've got a couple of water boatmen. So these have got paddles at the front of their bodies and they look like little mini boats.

Along here we've got diving beetles. These are little tiny ones, so these guys stay at the top on the surface, look down, and then dive down deep to the bottom of the pond.

Be gentle with all the animals, and make sure that you return them to where you found them. Don't leave them in the sun as they will get too hot. If it helps identification, you can use spoons or pipettes to transfer some of the animals into small sorting trays like this one.

If you carry out this survey and you find that the invertebrates in your pond indicate that you don't have such a healthy pond, there can be lots of information on how to improve your pond found on the OPAL website. A healthy pond is great for biodiversity and it’s great to have in your area.