



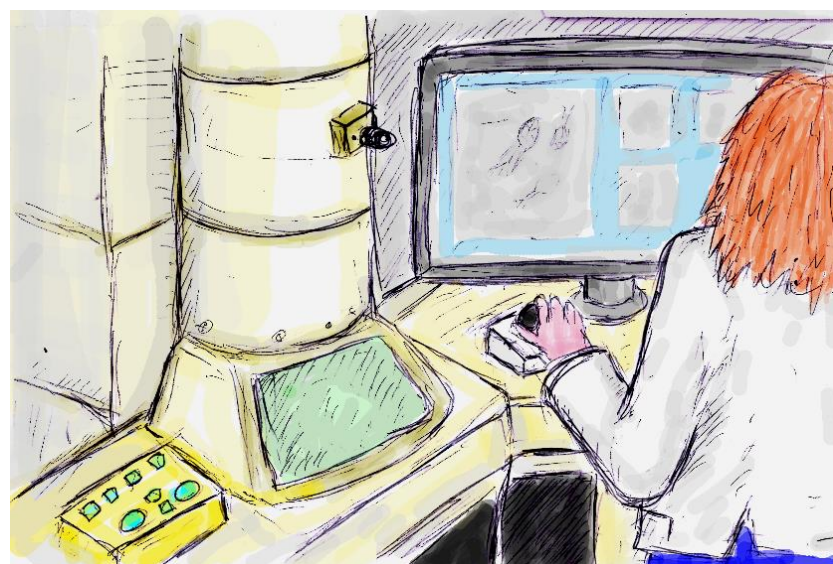
Greetings!

We're scientists from the University of Warwick and we need your help. I bet you've gone pond dipping before and I bet you've heard of Minibeasts, well, we don't want them - tadpoles, pond skaters even the tiny water flea are far too big for us to be interested in. Our electron microscope looks at the very smallest things there are - smaller than fleas, even smaller than germs.

We're looking for viruses!

You might imagine a cold or chicken pox when you think of viruses but most viruses don't infect people, they attack bacteria - they're called *bacteriophage* and it's these we're after.

Bacteriophage infect bacteria just as much as flu infects us. They're everywhere but they're so small we need our huge electron microscope to see them.



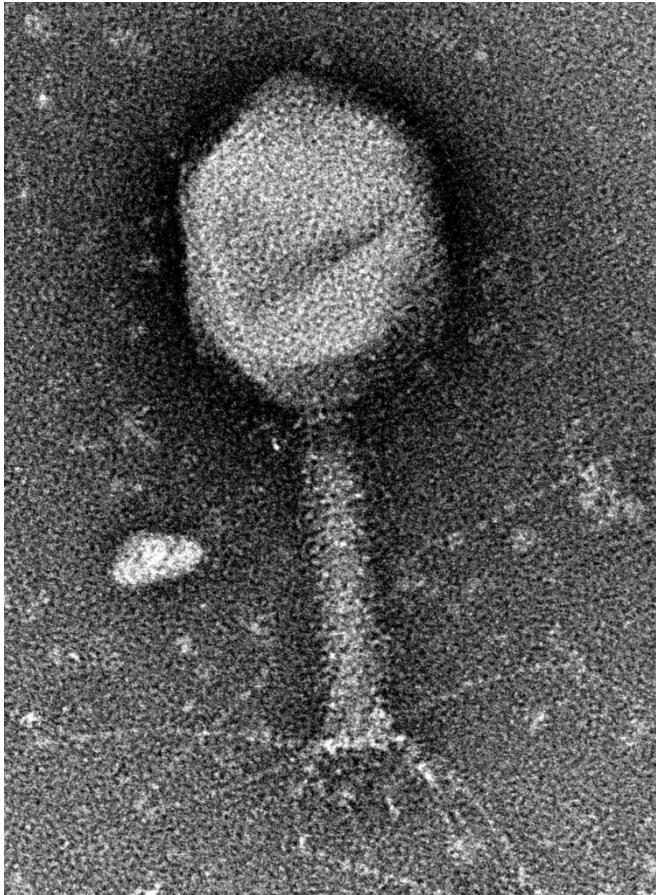
We want your class to fetch us some water from somewhere outside. A pond, a stream, a river or a lake - it doesn't matter which as long as you tell us about it and tell us the postcode.

We will collect the viruses from the water sample, take pictures under our electron microscopes and put them up on the website so you can see what the smallest things in your pond look like.

<http://www.warwick.ac.uk/virushunters>

Why are we doing this?

Every time someone asks us that, we wave our arms about and jump up and down shouting "Because viruses are cool!" and then they go away.



No one had even seen a virus until 1940 when electron microscopes were invented. A drop of water can contain millions of them.

Many bacteriophage help bacteria swap DNA which changes how they evolve. Some bacteriophage can actually make diseases more dangerous by giving them new genes.

Some might be useful for attacking bacteria that make us sick.

Bacteriophage come in loads of different shapes and sizes. We just don't know how many types there are.

If we get water from lots of different places and trying to look at everything in it, we'll get a much better idea of how many there are and where to find them. If we're lucky we might even find some that have never been seen before!



Once we have your water samples, it will take us a few weeks to do all the work so whilst you're waiting, why not check out the Virus hunters comic, activity sheets and information we have online!

<http://www.warwick.ac.uk/virushunters>

The Virus Hunters Team

As well as the kit we send you, you will need a few paper cups, jam jars or other clean things you can put some water in.

We want water from ponds, lakes, rivers, streams and canals not puddles gutters or sewers.

Make a note of where you're collecting the water from - at least a post code, if you can tell us map references, GPS coordinates or include a photo then even better.

Get some water from a few different spots along the bank. Mix them together in one clean container. Dip in a test strip. Leave it for thirty seconds then take it out and check the results against the chart, write them down and if you can, add take photo of the strip next to the chart.



Why?

The test strips are aquarium test strips they show the acidity, hardness and pollution levels in the water - this will help us see if some types of virus only show up in certain conditions. In the lab we'll also measure how many bacteria are in the water by looking at how much light it absorbs.

Fill your test tube to the top line with the mixed water and put the lid on tightly.

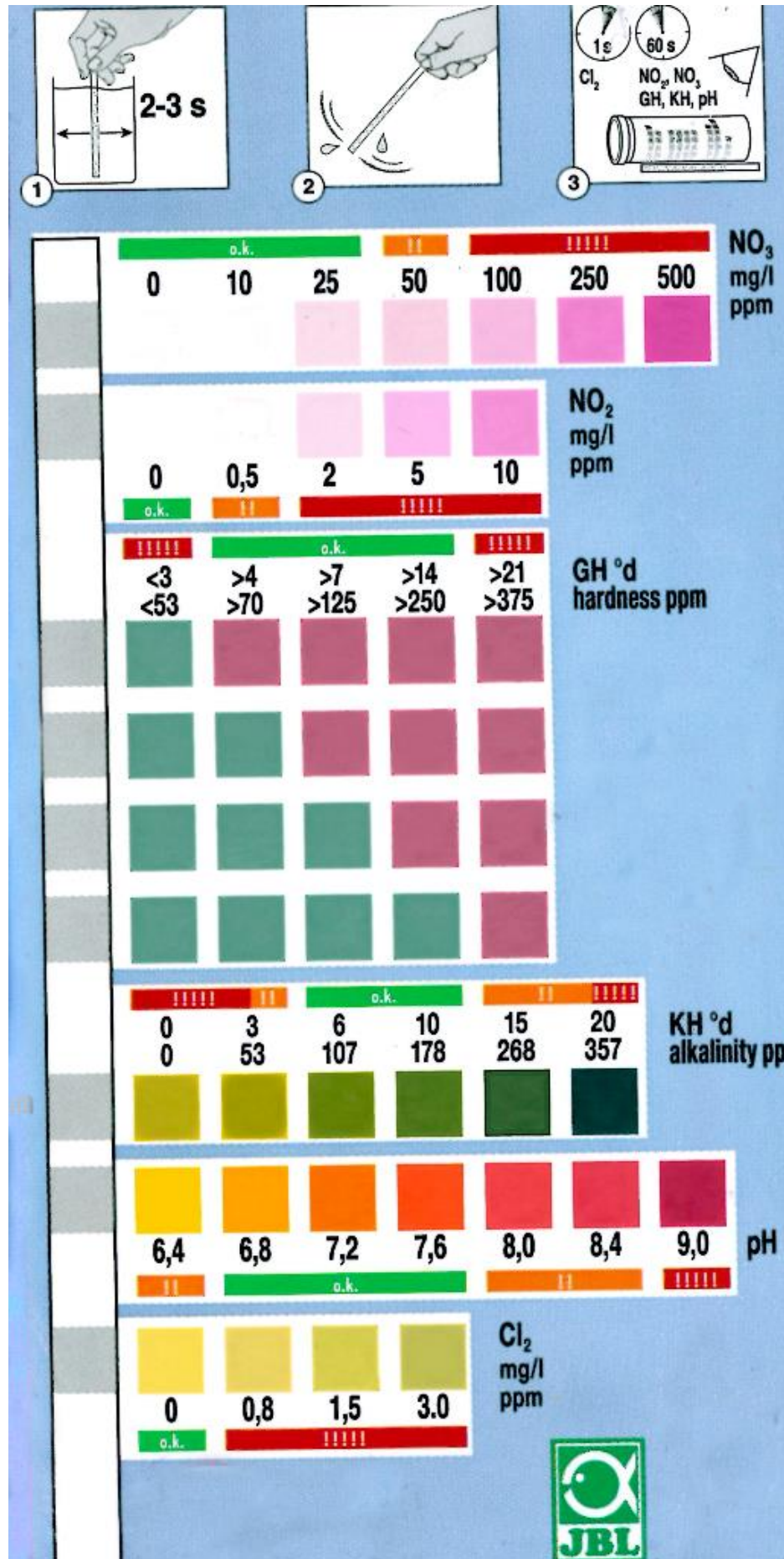
Wrap the lid with the sealing film.

Put the tube in the plastic bag with an absorbent sheet and close the bag.

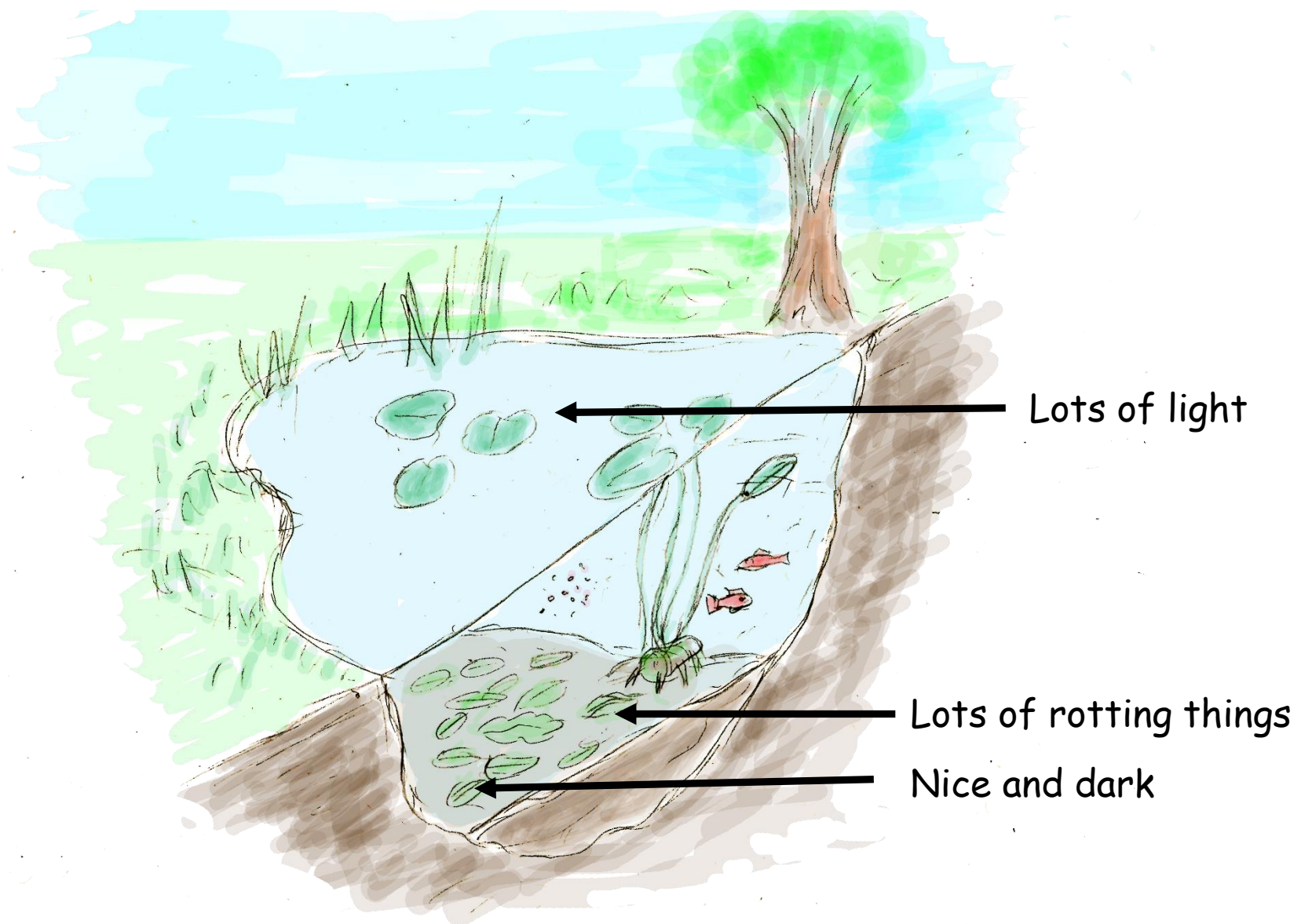
Post it back to us in the envelope provided

Fill in your details on the website form

Water Test Strip Chart



Why mix water from different spots?



A pond isn't just one habitat, it has different layers - like a cake - only soggy with mud in it. Different bacteria like different places to live, some will be in the mud away from light and air, others will be living on the dead leaves at the bottom of the pond and some will be floating near the surface to get sunlight. All these different bacteria have their own special viruses, by mixing water from different spots we hope we'll catch some of all of them.

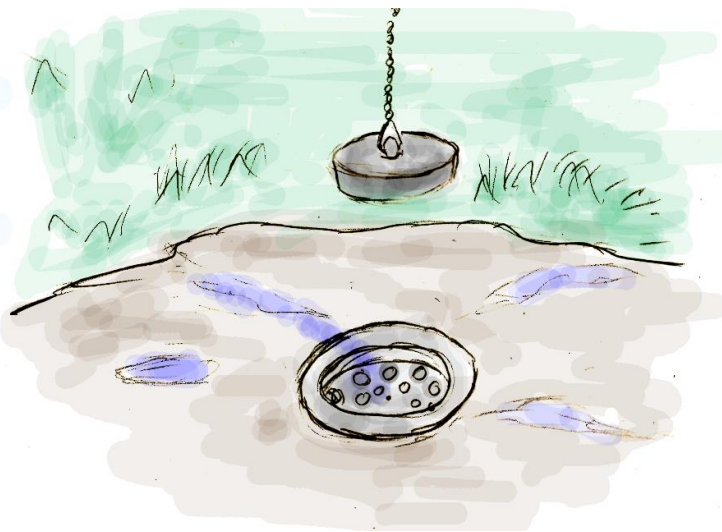
Please be safe!



Don't drink the water



Don't get in the water or push anyone else in



Don't take all the water - leave plenty in the pond



Wash your hands when you're finished

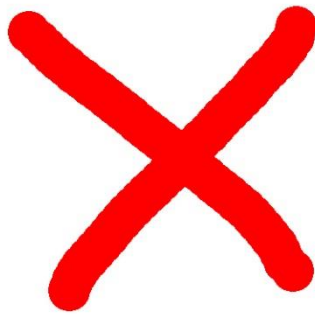
Tell us where the sample's from using the online form





Yes! Clear, hazy, green or cloudy water is what we're after.

No! Mud, sludge and smelly stuff will make us sad.



No! We don't mind a few daphnia but fish and big living things should stay in the pond. Definitely no octopuses.

How to post your samples back to us



In your kit you have

Two water test strips.

A strip of something called 'Parafilm'.

A collection tube.

A sheet of water absorbent foam.

An envelope and labels

Make sure the tube is full of water - we need it right up to the top.

Take the backing paper off the parafilm.



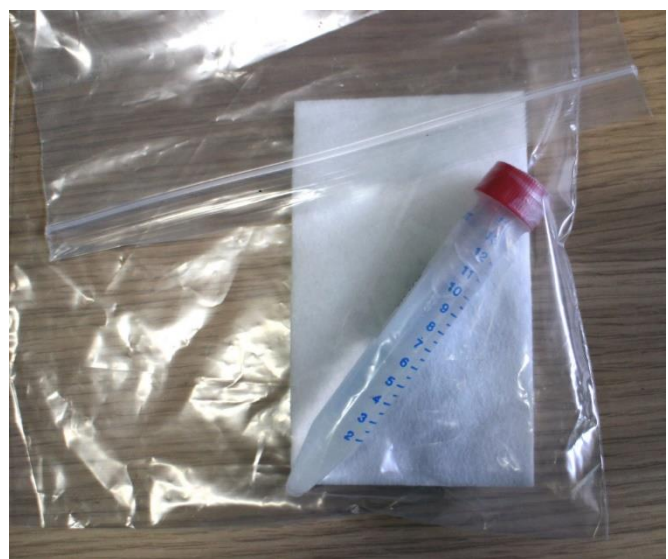
Seal the tube with the parafilm, make sure it's good and tight.



Put the tube in the plastic bag with the absorbent sheet and seal it.

Put the label on the envelope and post it back to us.

Fill out the sample submission form on the website



<http://www.warwick.ac.uk/virushunters>