

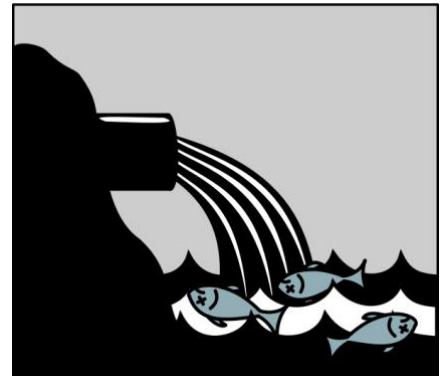


How healthy is the creek?

Water quality testing – Sydney North Region Scouts

This investigation has been written to support a Special Interest Area – Environment Project. Scouts may like to expand on their findings with a report to their Unit or following up with Hornsby Council about more information on the water quality of local creeks.

Have ever been for a walk at your local creek and it smells bad? Maybe it smells like poo or the water is murky, maybe there is rubbish or bubbles in the water. Waste water ends up in two places. When we flush the toilet it goes into the sewer and when it rains, water runs down the gutter and enters the creek as stormwater. The sewer shouldn't be ending up in the creek but sometimes when there is heavy rain it can overflow into the stormwater. Other pollution can be in the stormwater from local surrounding land uses. Some pollution can be seen like litter, as well as murky water from mud and sand. Other pollution is too small to see and becomes dissolved such as chemicals, nutrients and bacteria.



Living in Sydney North Region we are lucky enough to have access to many natural areas with bushland and creeks. However, living so close to bushland means that if our creeks are polluted the whole environment is not healthy.

We are going to have a closer look at your local creek. The first thing you need to do is find a good location. Have a look at Google Maps and find your house, then look around to find a creek nearby. Once you have a location in mind, go and check it out to see if you have access (tell someone where you are going).

Describe your location:

What is the name of the creek? Or the creek that it flows into?

Below, draw a sketch plan of your creek and some of the local features around it like houses, school, shops etc.

Or

Take a screen shot of a map and insert below.

Chemical testing

During this investigation we will look at the pH (acidity) of naturally occurring soils and the pH of creek water to determine if urban land uses are impacting the creek and what this means for the organisms that live there.

pH is the measure of acidity and alkalinity. The scale ranges from 0 to 14. Strong acids are found down the lower end of the scale (pH 1 to 3) and bases or alkalis are found at the higher end of the scale (pH 11 to 14). Fresh water is neutral pH7. pH is water soluble, therefore, water flowing through a catchment should reflect the pH of the surrounding bedrock.

Human impacts on an urban catchment can result from the surrounding land use. In the table below identify urban land use in the catchment, their potential contamination to the creek and result of this contamination to creek health.

Urban landuse	Potential contamination	Impact on creek health
Playing field/ parkland	Fertiliser/ excess water/ pesticides/ grass cuttings	Excess nutrients algal bloom Increased runoff and flow Chemicals kill creek animals Grass seeds, weed infestation

What you will need:

pH water testing kit or pH strips, plastic cup to collect water sample (soil pH testing kit if possible), hand sanitiser, print out of these worksheets, bottle of tap water, backpack with first aid kit and other essentials for bushwalking.

Soil pH test: Using a soil pH testing kit

1. Collect a sample of soil from the surrounding weathered natural bedrock (the sample should be about the size of a 50c piece);
2. Add 5 drops of universal indicator, allow indicator to soak into sample;
3. Sprinkle white powder (barium sulfate) onto sample, allow to soak up colour change;
4. Use colour chart to determine pH and record this on your data sheet.

Water pH test: Using a water pH testing kit or pH paper strips

1. At the creek, collect a sample of creek water in small container;
2. Add 5 drops of universal indicator, cap container and shake sample; OR
3. Dip pH test strip in water sample
4. Use colour chart to determine pH and record this on your data sheet.

First we will test the pH of the natural soil and also a sample of tap water

Date:	Soil	Tap Water
pH		
Soil Observation such as colour and texture		

Also record any visual observations such as litter or smell that could indicate pollution

pH test results

Date:	Water
pH	
Observation	Any litter? Smell, murky, bubbles, oil?

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Use these questions to help you think about your results. We will discuss results together so you can put together a report for your Unit for your SIA project.

Questions:

1. How would you describe the pH of the soil and the water? (acid or base?)
2. Was there a difference in the pH of the soil and the creek water? Did it change over time?
3. What could be affecting the change?
4. How could changing the pH of the creek impact the organisms living in the creek?
5. Did you see any other pollution that could be affecting the animals and the health of the creek?
6. How could we and others look after this creek better?

