



**ALGAE – SOME POND SCUM IS GOOD!**

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# Algae – Some Pond Scum Is Good!

## What are algae?

Simple photosynthetic organisms other than mosses, liverworts or vascular plants.

Can be unicellular (one cell) or multicellular (two or more cells)

Grow in almost any habitat in the world, such as:

Animals	Farm dams	Rivers & lakes
Aquatic plants	Mud & sand	Snow
Billabongs & lagoons	Ponds, puddles & pools	Soil
Bogs, marshes & swamps	Reservoirs	Terrestrial plants

## Field Work

You will need: Jars with screw top lids, Perspex viewing box or snorkeling goggles, fine mesh net, wading boots

### Collecting algae

- ❖ Macroalgae and attached microalgae can be collected by hand or with scissors.

Be sure to look in all habitats in the water such as the edge of stones, aquatic plants, and floating objects. If the water is quite turbid (muddy) a viewing box made of Perspex or a pair of goggles can be used to look into the water

- ❖ Floating microscopic algae can be collected with a fine mesh net or by scooping a jar in the water.
- ❖ Label each jar, noting the date and where in the wetland it was collected
- ❖ Leave the jar overnight for the algae to settle to the bottom of the jar.

## Wetland

Collect algae from various sites in the wetland complex. Choose sites that have different characteristics, for example:

1. a shallow water site and a deeper water site
- or 2. still water and moving water
- or 3. different habitats such as rocks and vegetation

## Classroom

### Preserving Algae

(information from Entwisle et al (1997). *Freshwater Algae in Australia*)

Algae can be stored in buckets or jars, bottles or plastic bags for a short period. If kept on ice or refrigerated not long after collecting algae can be kept alive for 1-2 days.

For long term preservation storage can be either in liquid, dried or mounted on slides.

#### 1. **Liquid preservation** – formalin diluted between 1/10 and 1/20

NOTE: avoid formalin contact with skin and eyes

**2. Dried specimens** – dry out algae on cellophane in dry air or warm room. When dried and ready for examination, add a few drops of water. After a while the specimen will swell and lift from the cellophane a little. Carefully remove a small piece of algae with a pair of scissors.

#### 3. **Permanent slides** –

Stain algae for 30 seconds to 5 minutes in Analine blue, Toluidine blue O or Potassium permanganate.

Rinse and place a small piece on microscopic slide

Add drop or two of 10% corn syrup solution to algae on slide and carefully lower cover slip.

Add corn syrup to solution to side of cover slip as the liquid underneath evaporates easily

When dry seal the sides of the cover slip with nail polish.

#### 4. **Examining fresh material**

Place a drop of water, which contains the algae, onto a slide and carefully lower cover slip onto it. Smaller fragments of algae are easier to observe under a microscope than larger pieces.




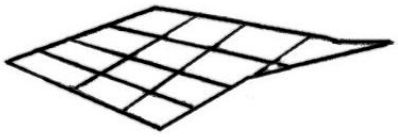
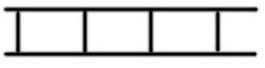
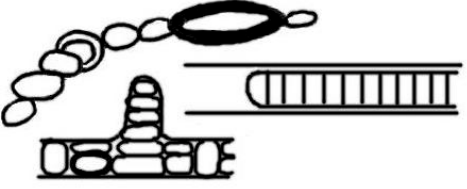
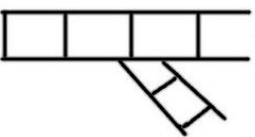

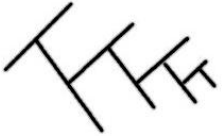
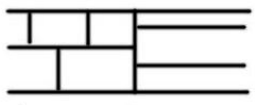
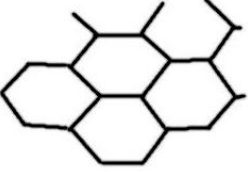
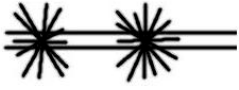

### Wetland

Examine and draw the algae collected from the different wetland sites. Compare similarities and differences between sites and comment on possible reasons.

### Further Resources

Freshwater Algae in Australia. – Entwisle TJ, Sonneman JA & Lewis SH (1997).  
Published by Sainty and Associates Pty Ltd.

## Algae Key

	Single Cell (or compact group of 1-4 cells)		Soft or firm colony of many cells or filaments
	Motile single cells		Sheet or blade of tightly packed cells
	Unbranched filaments		Cyanobacteria (cells without organelles)
	Branched filaments		
	Siphons (no crosswalls)		Zigzag axis
	Some filaments more than one cell thick, or tightly packed cells in a cylinder		Netted
	Whorls of smaller branches around an axis		Crust-like

*Algae key and pictures from Schematic Key, page 20, Entwisle et al (1997). Freshwater Algae in Australia.*