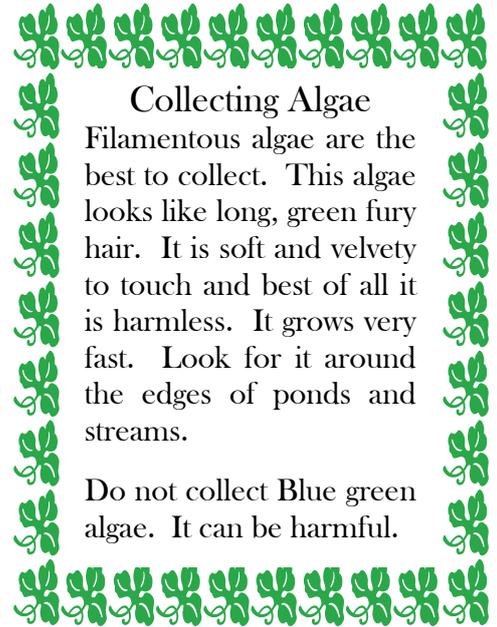


The Great Algae Growing Exercise

In small groups students investigate what additives help algae to grow, and record their findings.

Materials

- 5 large glass jars with the labels removed
- 1 litre (approximately) of pond or creek water with algae in it
- 1 litre of distilled water
- liquid measuring container
- stick on labels
- permanent marker pen for labeling
- teaspoons for measuring
- detergent containing phosphorus (has P on box)
- phosphorus free detergent (has NP on box)
- liquid fertiliser which contains phosphorus (need to read container)
- anything students may think might make their algae grow faster eg. dynamic lifter pellets, dried dog biscuits, chook poo
- reporting form (Activity Sheet 1) for each group



Collecting Algae

Filamentous algae are the best to collect. This algae looks like long, green furry hair. It is soft and velvety to touch and best of all it is harmless. It grows very fast. Look for it around the edges of ponds and streams.

Do not collect Blue green algae. It can be harmful.

Introduction

Discuss the algae outbreaks in the Swan and Canning Rivers. These outbreaks usually occur in the warmer months when temperatures are warm, nutrients (phosphorus) are high and water is calm. Phosphorus promotes the growth of algae. It is found in many detergents and washing powders, and also in fertilisers.

Method

A number of small groups are required. Each group will:

Measure 200mls of distilled water into each jar, and label them A, B, C, D and E.

Put 1 teaspoon of phosphorus free detergent in Jar A

Put 1 teaspoon of detergent containing phosphorus into Jar B

Put 1 teaspoon of fertiliser in Jar C

Leave Jar D as it is and write Control on the label

Jar E can be for students to add anything they think will make the algae grow faster

Add 100mls of pond or creek water containing algae to all of the jars.

Jars need to be placed in a window where there is plenty of sunlight.

Each day add a teaspoon of the respective additives.

Monitor the growth of algae over the next two weeks using Activity Sheet 1.

Groups report back to class using Activity Sheet 2.

Results

There should be more algal growth in the jars with the detergent containing phosphorus, fertiliser and possibly Jar E (depending on if the substances added to this jar are phosphorus rich).

Discussion

As with all plants algae grows faster with extra nutrients, especially phosphorus. Algae can be a problem because it does grow extremely fast, under the right conditions. Algae blooms can kill animals and plants in rivers (it starves them of oxygen or can be toxic), harmful to humans and animals if swallowed/rashes if touched, smells awful, looks awful and prevents people from using the river in the ways that they enjoy. Students might like to suggest ways that phosphorus gets into the waterways.

Students might also like to think about ways of stopping phosphorus from getting into waterways and causing algal blooms.

The Great Algae Growing Exercise

Activity Sheet 1



Group Name: _____

Date Experiment Started: _____

Objective: To feed the algae different additives to see what makes it grow fastest.

Remember algae needs to be placed where it will receive plenty of light without getting too hot or cold.

Also remember to add a teaspoon of the right additive into the right jar each day.

What has been added to the pond water?	What has changed after three days?	What has changed after seven days?	What has changed after 14 days?
A No phosphorus detergent			
B Detergent with phosphorus in it			
C Liquid fertiliser with phosphorus in it			
D Pond water only. Nothing added			
E Your own additive			

Note: You may also need to note down if anything unusual happens that could affect the experiment. For example, one of the jars gets knocked over, the wrong additive accidentally gets put into the wrong jar, etc.

The Great Algae Growing Exercise

Activity Sheet 2



Group Name: _____

Use this worksheet to help your group get ready to report to the class about what you discovered about growing algae. Write notes here to help you prepare for your presentation.

- Was there anything that might have affected your results? Like very cold weather, very hot weather or a jar getting knocked over and spilling some of the water?

- Which jar/s had the most amount of algal growth over the two weeks?

- Which jar/s had the least amount of algal growth over the two weeks?

- What do you think helped the algae to grow?

- What are some interesting things about algae that you have discovered through your experiment?

- What are some interesting things about algae that you have discovered through research or through your teacher?