

Before the Unit Begins

1. The science inquiry in this unit depends on growing a healthy culture of algae. Vouchers for the purchase of the algae kits that will be used in this field test have been provided for you. All materials for culturing *Chlorella vulgaris* come from Algae Research Supply. This particular stock has proven to be the most dependable for growing in the classroom.

Growing enough of the culture for a class requires that it be set up **4-5 days before the students set up their investigations in Lesson 8**. Instructions for setting up the culture are below.

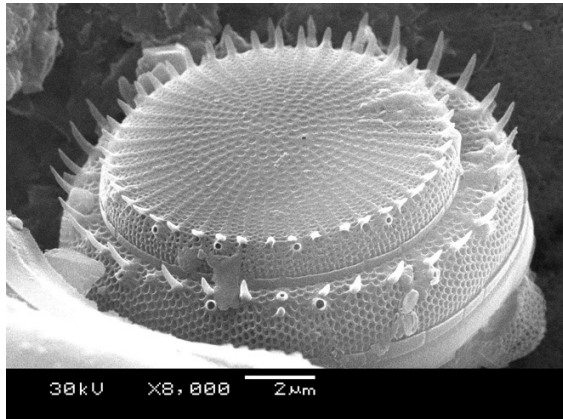
Please note that the algae are referred to as the “green substance” in the beginning lessons. It is hoped that the students themselves, through their inquiry, will discover what the green substance actually is. In Lesson 12, the teacher confirms that it is algae.

Setting up the algae culture:

- You will need to provide 1 gallon of spring water and enough 8 oz (small) empty water bottles so that each team has 2 for their investigation. Remove labels from them ahead of time.
- You will need another clear empty gallon bottle or container to culture the algae in.
- Set up your lamp w/fluorescent bulb in a location where students will not see it until ready (home?) (Direct the lamp right onto the bottle with the algae.)
- Schedule the arrival of the algae early in the week- you will need to open it as soon as it arrives.
- The algae kit will contain 2 containers of algae, 1 pkg of salts, 1 container of medium culture
- Empty about 50-60 mL of water from the gallon of spring water, then add the salts. Shake the container vigorously until salts dissolve. Next add in the 50 mL culture medium and shake again to mix. Keep the culture medium in subdued light, not under the lamp.
- Next, pour both containers of the algae culture **into the empty gallon bottle or container**. Add 1/5 (~757 mL) of the culture medium to it.
- Shake the container vigorously. You will need to shake it multiple times a day to keep cells from settling at the bottom!!
- Place under the lamp. Using a 12- hr. timer is optimal! Do not place in direct sunlight!
- Every day you will add another ~757 mL of the culture medium to the algae. Don't forget to shake!!
- When the time comes (Lesson 8) to set up the student bottles, use a funnel to pour ~89 mL (3 oz) of the algae culture into each bottle. (2 per team)
- Continue to shake the remaining gallon bottle of algae daily!

2. Lesson 1 requires that a model of a diatom- *Stephanodiscus hantzschii* - be constructed out of air-dry clay.

The model should be built 3 days before the first class. Attached is a photo of the diatom and an example clay model.



Additionally, you will need a shoebox to prepare for setting the model into.

- 5 windows will be cut out at different offset places to give different views of the model inside.
- Cut out and tape felt to cover the windows. Students will be looking through different windows (see full lesson 1 instructions)

