Algae Academy

Phycologist : _____

Group # _____ Period: ____

Essential Questions: How quickly does algae grow? How do we measure growth rate?

Necessary Materials

- Secchi Stick
- Algae culture
- Sharpie
- 50 mL skirted Falcon tube
- Diluted algae media
- Plastic Flask
- Graduated Cylinder
- Pipette Wheel
- 10 mL Serological Pipette

Instructions:

Part 1: Setting Up Your Algae Culture

1. Watch the "Day 2 – Setting up Your Algae Culture" video prior to starting.

2. With the permanent marker, label your flask with your team name, the class period and the date.

3. Take your flask to the **diluted algae media** station, and add the correct amount of media into your flask. Use a graduated cylinder to add the correct volume of media to your flask!
   It may be helpful to use a beaker or a cup to pour the media into your flask

Group #	1, 4 or 7	2, 5 or 8	3, 6 or 9
mL of Media	50 mL	70 mL	80 mL
mL of Algae	50 mL	30 mL	20 mL

4. After filling your flask with media, use your **pipette and wheel-style pipettor, a graduated cylinder, or a beaker** to add the correct "mL of Algae" to your flask. Find your group number and "mL of Algae." For example: Group 5 would add 30mL of algae!

   For Wheel-Style Pipettor:
   - *a.)* Place the pipette into the algae culture, and using your thumb, turn the wheel downwards to draw up algae to your specific volume. ***** Some groups may have to do this multiple times!***
   - *b.)* Now place your pipette into your flask, and use your thumb to roll the wheel upwards to push the algae into your flask.

5. Tightly screw the cap onto your flask and gently turn it upside down **3** times to mix the algae.

6. You have now started your experiment! Turn the worksheet over to sample your algae culture.

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Part 2: Sampling Your Algae Culture

7. Watch the "Dirty Labcoat – Secchi Stick" video prior to starting this portion.
8. Swirl your flask 2-3 times to mix it up, then pour 50mL of your algae culture into the skirted Falcon tube.
   - ***Use the lines on the Falcon tube to measure the 50mL***
9. Place the Secchi Stick into the Falcon Tube, black and white target going into the water, and record the number where you can no longer see the black and white target (when it disappears!)
   - Record this number in the "Secchi Stick Reading (cm)" portion of the Data Table below
10. **Repeat Step 9 for each student**: Have each person in the group take their own Secchi Stick reading
11. Using the "**Algae Biomass Estimator**" handout, identify your "Secchi Stick Reading" and see how many algae cells are in your flask. Record this number in the "Amount of Biomass in Your Flask" on Data Table
12. Pour the 50mL of algae back into your flasks! Screw the cap back on and place it in a well-lighted and warm area of the classroom.

Data Table

Date	Group #	How many mL of algae did you add to your flasks?	Secchi Stick Reading (cm)	Amount of Algae (Biomass) in Your Flask (g/L)

13. Record your observations about your algae. What color is it? Compare that color to something else. Does your look more or less colorful compared to another group?

Qualitative Data (What does your algae culture look like?):

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