

Unit 5: Producers

Algae Lab

Name: _____

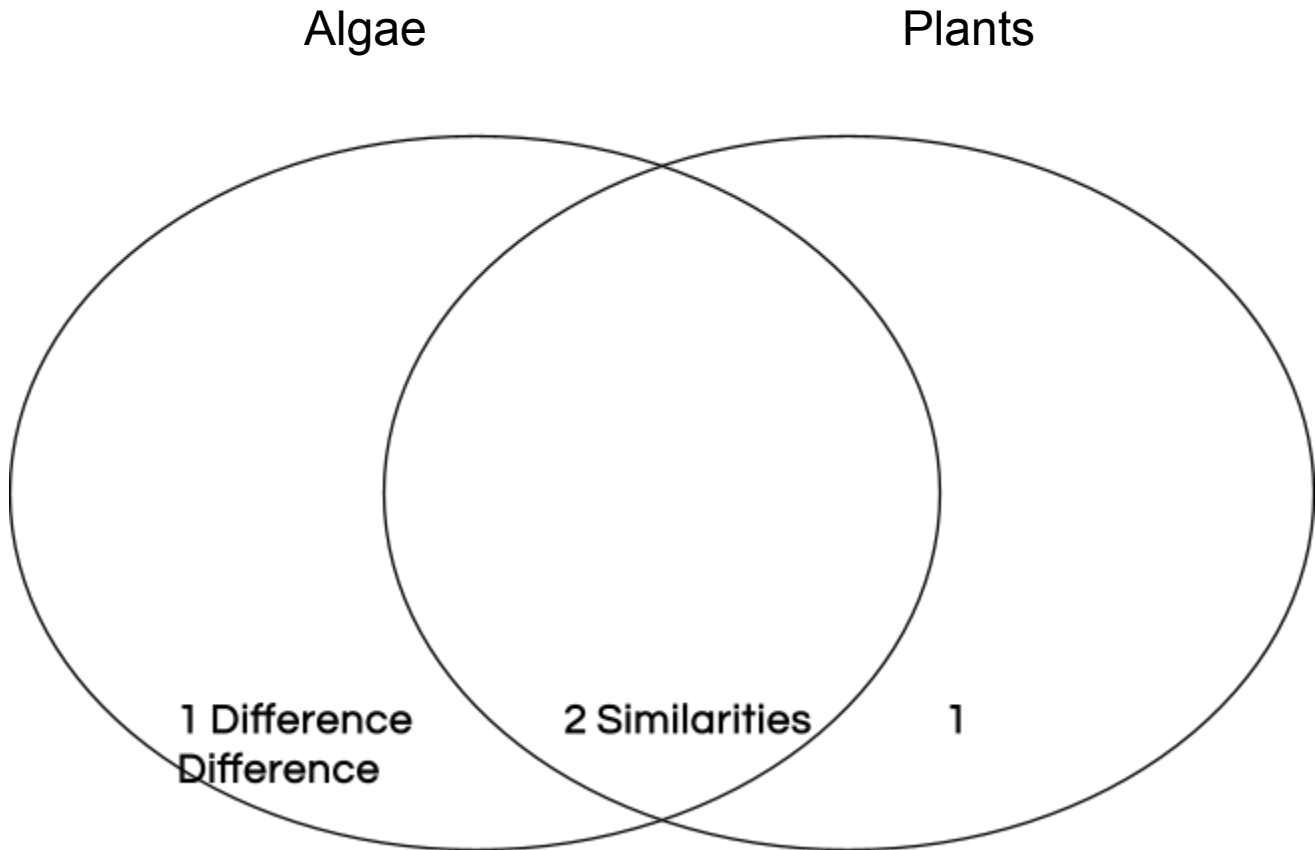
Lecture Period: _____

Teacher: _____

Pre-Lab:

During this week's lab, we will be looking at various phytoplankton, algae as well as other protists and discussing their impact on the environment. Algae used to be classified as plants but have been moved into the Protist kingdom because of their unique reproduction.

Draw a Venn Diagram that compares Alga to plants. Read the [link](#) to Simply Science to help you.



Use the internet in order to define the following terms:

Unicellular:

Filamentous:

Colonial:

Motile:

Name an advantage of being a Colonial unicellular organism.

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Facts about Algae:

- What are algae?

Algae are photosynthetic creatures. They are neither plant, animal nor fungi. Many algae are single-celled, however some species are multicellular. The scum found on the top of ponds are algae. They are the green hairy growth on things found underwater. Algae releases oxygen into the water as it manufactures its food. Algae form the broad base on which the food pyramids in ponds and lakes is built. In manufacturing food, algae release oxygen, increasing the amount dissolved in the water. However, when algae become overabundant the decaying algae depletes oxygen levels. So during the summer, when conditions for growing algae are ripe, oxygen levels may decrease, causing "summerkill" for aquatic plants and animals. An algal bloom is a relatively rapid increase in the population of (usually) phytoplankton algae in an aquatic system. Typically only one or a few species are involved and the bloom is recognized by discoloration of the water resulting from the high density of pigmented cells. Colors observed are green, yellowish-brown, or red. The excessive growth of algae may disrupt higher links of the local food web. Algae that die and sink to the bottom stimulate growth of decomposers, especially bacteria. Decomposition can result in the depletion of oxygen in the deeper water layers and these conditions may result in fish kills. Algal blooms may also be of concern as some species of algae produce neurotoxins. At the high concentrations reached during blooms, these may cause death in humans if affected water or shellfish are ingested.

Procedures:

- 1) Working in pairs, observe a prepared slide under scanning power, low power and eventually high power.
- 2) Locate the correct protist from the pictures available at your station.
- 3) Fill in the table below based upon the sample of algae that you have under the microscope.
- 4) Switch sides of the table to observe the other sample that was made and fill in the chart.
- 5) Rotate to the next table when told and continue observing and recording data.

Name of Alga	Found at Station #?	Motile(Moving) (Y or N) Structures?	Color	Other Characteristics (Filamentous, Colonial)	Protist Group
Anabaena					Blue-Green Algae
Blepharisma					Ciliophora
Chlamydomonas					Green Algae
Chlorella					Green Algae
Closterium					Desmids
Euglena					Euglenoids
Oedogonium					Green Algae

Name of Alga	Found at Station #?	Motile(Moving) (Y or N) Structures?	Color	Other Characteristics (Filamentous, Colonial)	Algal Group
Oscillatoria					Blue- Green Algae
Spirogyra					Green Algae
Stentor					Protozoa
Synedra					Diatoms
Volvox					Green Algae

Discussion Questions:

1. Why are algae such an important part of life on Earth (what do they contribute to the ecosystems of the world)?
2. Algae play a huge role in the natural world. However, there are many ways in which algae are being harnessed to serve human needs. What ways can you think of for algae to be a part of an ecosystem or energy production here in Colorado?
3. Make a branching diagram in order to organize the 12 protists in the above chart into at least 5 unique groups based upon characteristics that were observed.