



The Summer of Cyanobacteria and Scientists Benchmarks

Big Idea 1: The Practice of Science

- SC.6.N.1.3 Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.
- SC.6.N.2.3 Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.
- SC.7.N.1.3 Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.
- SC.7.N.1.4 Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.
- SC.7.N.1.5 Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.
- SC.8.N.1.4 Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.
- SC.8.N.1.5 Analyze the methods used to develop a scientific explanation as seen in different fields of science.
- SC.912.N.1.7 Recognize the role of creativity in constructing scientific questions, methods and explanations.



The Summer of Cyanobacteria and Scientists Vocabulary Sheet

Benthic habitat: The ground under the water. This habitat can be rocky, sandy, or muddy. It can be in shallow water (like the Indian River Lagoon) or the deep ocean sea floor.

Bloom: In this case, refers to a rapid increase in the population of photosynthetic organisms (including algae, cyanobacteria, and others) in an aquatic system. Blooms may occur in freshwater as well as marine environments. Following a bloom, oxygen in the water may become too low for larger organisms- like fish, crabs, and snails- to survive.

Cyanobacteria: A type of bacterium that can make its own food through photosynthesis. They are generally blue-green in color and found all over the world. In estuaries, like the Indian River Lagoon, they can sometimes grow in number very rapidly. This is called a bloom (*see definition above*).

Extract: In this case, to remove the chemicals from an organism and isolate those chemicals for use in a scientific experiment.

Inhibit: To prevent or discourage, in this case, the growth of other organisms (like bacteria and fungus).

Manipulative Field Experiment: A scientific experiment that takes place in the natural environment. It is common for scientists to conduct experiments both in the lab and in the field to see if they get the same results in both settings.

Quadrat: A simple scientific tool used for estimating population abundance in a habitat. Usually shaped in a square or rectangle.

Quantify: To measure, in this case, the size of a population and its distribution in the Indian River Lagoon.

Sediment: In this case, the material that settles to the bottom of a liquid (e.g. the Indian River Lagoon). Sediment may be many things, including dirt, sand, shells, and bones.



The Summer of Cyanobacteria and Scientists Guiding Questions

1. At the beginning of the video, what did the narrator think about scientists?
2. What was she studying? Why is it important?
3. What else did the narrator say scientists do besides experiments in a laboratory?