



How do Microbes Vary in Different Sponge Species? Benchmarks

SC.6.N.1.2

Explain why scientific investigations should be replicable.

SC.6.N.1.5

Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.

SC.7.L.16.1

Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these.

SC.7.L.17.3

Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

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.1.2

Design and conduct a study using repeated trials and replication.



How do Microbes Vary in Different Sponge Species? Vocabulary

Sponge: Filter feeding animals of the phylum Porifera.

Squeeze method: the process of squeezing all cells out of an organism.

Homogenizer: A piece of laboratory equipment used to break open cells of various types of material, such as tissue, plant, food, and soil.

Centrifuge: A piece of equipment used to separate multiple components that are in the same tube.

Pipette: A laboratory tool commonly used to transport a measured volume of liquid.

PCR (Polymerase Chain Reaction): A procedure used to amplify a single or a few copies of a piece of DNA to generating thousands to millions of copies of a particular DNA sequence.

Gel Electrophoresis: A method for separation and analysis of macromolecules (DNA, RNA and proteins) and their fragments, based on their size and charge.

NanoDrop Spectrophotometer: A piece of equipment used to measure the reflection or transmission properties of a material as a function of wavelength.



How do Microbes Vary in Different Sponge Species? Guiding Questions

1. What are the scientists researching and how can this organism benefit us on earth?
2. Explain how sponges are good water indicators.
3. How is this necessary for the reef?
4. What are the methods the scientists using?
5. How are these steps related to the scientific method? What step of the scientific method are they on?