



“How do you know if that fish is toxic?”
The Characteristics of Scientific Knowledge

SC.8.N.2.2: Discuss what characterizes science and its methods.

Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.



“How do we know if that fish is toxic?” Vocabulary Sheet

Bioassay: An experiment testing, in this case, the toxicity of a pollutant on a living organism.

Luminescent: The ability to produce light. Light produced from animals is called bioluminescence.

Microtox®: A product brand that measures the toxicity of a pollutant using a bacteria that emits its own light (*Vibrio fischeri*).

Toxicity: Degree to which a substance can damage a living organism.

Toxins: a poison produced by a living organism; a substance accumulating in the body that could cause harm.

Lesions: a wound, especially an area of skin that is broken or infected.

Tumors: an unusual swelling in or on the body

Disease: a condition in humans, plants, or animals that results in pathological symptoms and is not the direct result of physical injury

Cancer: the illness or condition that is caused by the presence of a malignant tumor

Organisms: a living thing, e.g. a plant, animal, virus, or bacterium

Species: a kind, sort, or variety of something

Bacteria: (plural for bacterium) a single-celled, often parasitic microorganism without distinct nuclei or organized cell structures.

Inhibits: to prevent or slow down

Respiration: the act of breathing air in and out

Tissue: organic body material in animals and plants made up of large numbers of cells

Pollutant: a substance that pollutes something, e.g. a chemical or waste product contaminating the air, soil, or water

Pollution: the act of polluting something, especially the natural environment



**“How do you know if that fish is toxic?”
Guiding Questions**

1. At the beginning of the video, what question is the narrator trying to answer?
2. How did she plan to answer this question?
3. Why is it important that she find the answer to this question?
4. What were the steps she took to answer this question? Explain how these steps were different/creative from how “you” would imagine science being done.

5. What were the results of her research project? What were some of the questions that came out of her results?

6. Are science results always definite? Explain why or why not.

7. How would you help to reduce pollution in your community?

8. List and Explain, two ways you could help others understand the harmful effects of pollution.