

Measuring Water Quality: Presentation Notes

Slide 1:

What are we doing when we measure water quality? What do we want to know about the water?

- Measure how clean or pure the water is
- Investigate if anything is being added to the water that could be detected
- Investigate if the water is polluted or not
- Check the quality of lakes, rivers, streams, drinking water to make sure it is safe

Slide 2:

What could change water quality? What might be added to water that would change its quality?

- Construction or heavy equipment that loosen slopes can cause soil to flow into waterways.
- Mine tailings dumped into waterways or stored near waterways where they are transported into waterways from rain and melting snow.
- Fertilizers and pesticides used in agriculture is transported to waterways from rain and melting snow.
- Litter and trash blow in the wind and land in waterways. Rain and melting snow can also transport trash and litter into waterways.
- When water is not moving, in a stagnant lake or pond, it can become home to parasites and bacteria that are not safe for humans. Insects also lay their eggs in it, which means the water could carry diseases that those insects carry. Rivers, streams, and lakes with entrance and exit points have water is moving, so these waterways do not experience these types of water quality.
- To improve water quality, filters can be used to reduce or remove chemicals or critters that make water unsafe or unhealthy.

Slide 3:

Why is it important to check water quality?

- To track changes that may be happening in water quality
- To make sure water is safe for drinking, swimming, fishing, watering crops, and the organisms that live there

Slide 4:

One way to measure water quality is using conductivity.

To measure conductivity, scientists place a meter in a water sample and the meter tells them a number that represent its conductivity.

The meter has two metal probes that measure the ability of the water to pass an electrical current between them. There is no electricity used in this process, but the meter tells us how easily a water sample could pass an electrical current through it.

This tells us how much is dissolved into the water. It measures minerals like calcium that make our bodies healthy and pollutants like fertilizers, pesticides, heavy metals, and dirty water released from factories.

Slide 5:

Electricity can pass through all water, that's why we are careful to keep electrical devices away from the sink and the bathtub. But when more substances are dissolved in the water, electricity can pass through it even faster. Generally, the more we add to the water, the higher the conductivity.

Pure water has a low conductivity value because it does not have anything dissolved in it, so electricity cannot travel through it easily.

Dirty water that has lots of pollutants added to it can conduct an electrical current very easily because there are many chemicals dissolved in it, so its conductivity value is high.

Today, you will be a scientist using conductivity to evaluate water quality.