WunderSTEM
Career & Workforce Explorations

Water Testing

Test the levels in your tap water with this simple kit.

Materials

Kit provided materials

- 1 test strip
- 1 pipette
- 1 set of directions

Materials to gather

- cup
- paper towel

Vocabulary

pH - A measurement of how acidic or basic something is. PH is measured on a scale from 0 to 14 and is based on the concentration of hydrogen ions in a solution.

Water Quality - The measurement of the cleanliness and health of a body of water. Water quality describes chemical, physical, and biological characteristics to determine it's safe to use.

Pipette - A device for transferring and measuring small amounts of liquid. The tool is usually a narrow plastic or glass tube into which the liquid is drawn by suction.

Standards

5-PS1-3. Make observations and measurements to identify materials based on their properties

2-PS1-2 Matter and its Interactions: Analyze data from the testing of the water samples to determine which materials have the properties that are suited for certain purposes such as drinking, swimming or cooking.

PS1.A: Structure and Properties of Matter: Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.

WUNDERSTEM
Career & Workforce Explorations

Mister C

The Experiment

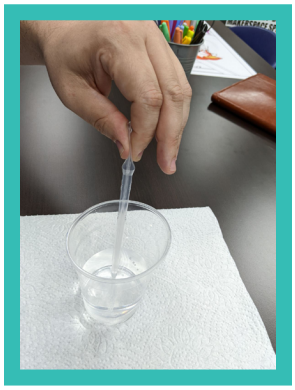
1. Get a clean cup from your cupboard. Make sure it is clean so you get an accurate test. Fill your cup with some water. Lay a paper towel on a clean surface.

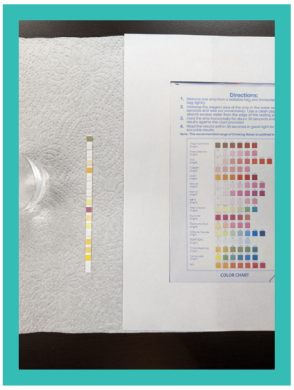
2. Squeeze the top of your pipette, insert it in the water, and then loosen your grip. Water will be sucked up into the pipette.

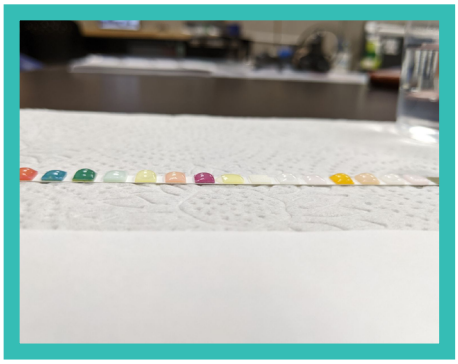
3. Take out your test strip and sit it face up on the paper towel—the end with the excess length should go at the bottom. Make sure you are in an area with good lighting, so you can see the colors. Have your color chart handy.

4. Place one or two drops of water on each square on the test strip.

5. Wait 30 seconds and then compare your test strip squares to the color chart.



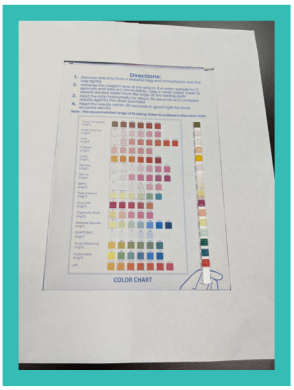




WunderSTEM
Career & Workforce Explorations

Mister C

Water Quality Test Chart



Greene County Public Library
Discover. Learn. Grow.

WWW.WUNDERSTEM.COM

WUNDERSTEM
Career & Workforce Explorations

Mister C

The Experiment – Results

Interpreting your results

Now that you have collected your water sample, consider the results you have collected.

How do your results compare to the provided test chart?

Are any of your sample's levels outside of the acceptable range?

If you were to collect a sample from another source (i.e. a puddle outside, a rain barrel, or the ocean) do you think the results would change? Why or why not?

Depending on its use, the quality of water may require different characteristics. For example the water in a pond would require different pH than the water in a swimming pool. Look at the table below for examples of different parameters that might be tested and the applications they would be needed.

Below table shows what types of water each parameter is designed to test for.

NO.	Parameter	Application
1	Total Hardness	Drinking water, Pool & Spa, Aquarium
2	Free Chlorine	Drinking water, Pool & Spa, Aquarium
3	Iron	Drinking water
4	Copper	Drinking water
5	Lead	Drinking water
6	Nitrate	Drinking water, Aquarium
7	Nitrite	Drinking water, Aquarium
8	MPS	Pool & Spa
9	Total Chlorine	Drinking water, Pool & Spa, Aquarium
10	Fluoride	Drinking water
11	Cyanuric Acid	Pool & Spa
12	Ammonia Chloride	Drinking water
13	Bromine	Pool & Spa, Aquarium
14	Total Alkalinity	Pool & Spa, Aquarium
15	Carbonate	Aquarium
16	pH	Drinking water, Pool & Spa, Aquarium

WUNDERSTEM
Career & Workforce Explorations

Mister C

Water Quality

Scientists measure and track water quality for a wide variety of reasons. Water quality can reveal important things about the health of a water body. By monitoring things such as temperature, acidity (pH), dissolved solids (specific conductance), particulate matter (turbidity), dissolved oxygen, hardness and suspended sediment, scientists can determine if a water body is safe or if something has contaminated it. Each measurement reveals something different about the health of a water body.

A single measurement is only a snapshot in time so it is important to monitor for changes over time. Scientist must determine what is “normal” from observations and then when levels change, it can be that something is affecting water quality. Water properties that are important in determining water quality may include measuring temperature, acidity, dissolved oxygen, turbidity, specific conductance, hardness and suspended sediments.

Read a book and keep Exploring

*City of Water by Andrea Curtis, (2021) Groundwood Books ISBN 9781773061443

*Clean Water and Our Future by Kathy Furgang, (2022) Power Kids Press ISBN9781725323773

*One Planet: The Water Cycle by Annabel Griffin (2021) Hungry Tomato Publishers ISBN 9781914087059

*How a City Works by D.J. Ward (2018) Harper Collins Publishing ISBN 9780062470317