PQRST Science Journal

Notice, Wonder, and Learn
Digital Journal

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Phenomenon

Questions

Research Investigation

Science Story

Thinking More

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Draw and Label Phenomenon

Add a Google drawing or take a picture and insert in this slide.

Phenomenon __what is the best water in tucson.__

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Phenomenon observations

I believe the water will be more pure from drinking water sources than water in nature (rainwater/river water).

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Questions

I wonder why...? I wonder if...? I wonder what...? I wonder how...? I wonder what would happen if...?

I wanted to know about the quality of water where I live. Does it have below acceptable levels of various chemicals

Does the water quality differ in different neighborhoods?

How much better is water from our sink than rainwater or water in a wash or river?

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All Materials and Equipment Available

List all materials and equipment (be as specific as possible with quantity and type)

- One water test kit

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Research Investigation (Experiment)

Independent Variables (a variable manipulated or changed by the experimenter-think "I" control it)

What water we use

Dependent Variables (a responding variable which could vary depending on other factors and can be measured and/or calculated with available equipment)

The output from the water (chemical levels)

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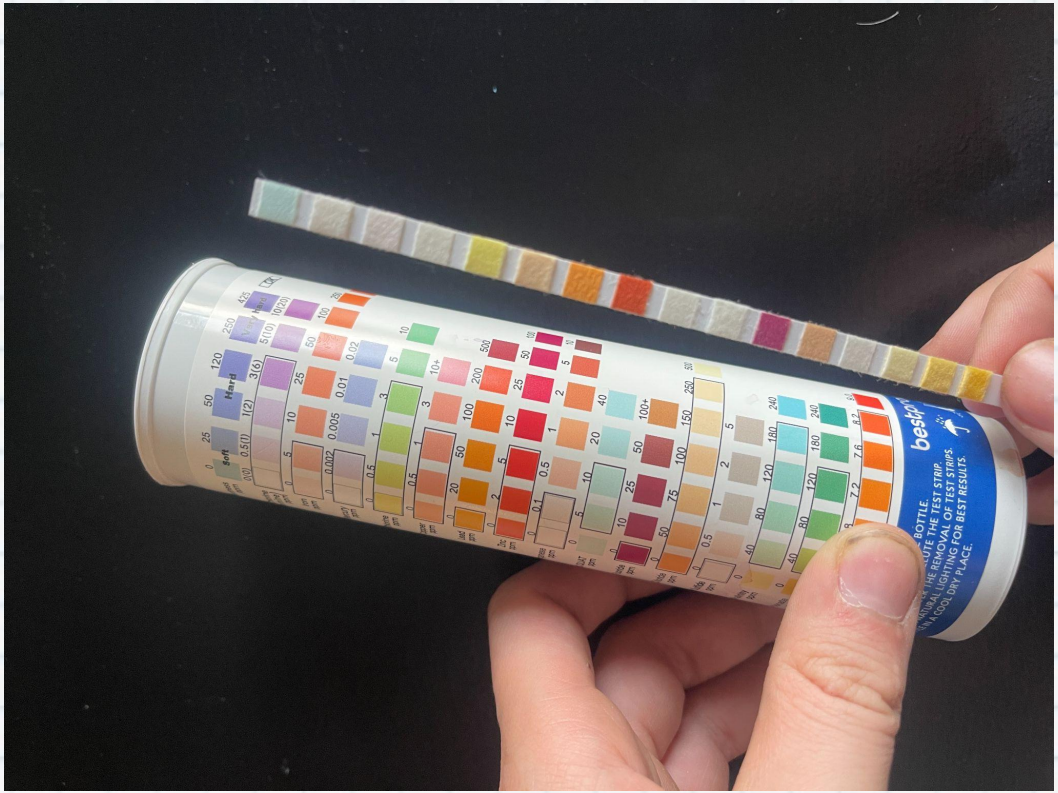
Draw and label experimental setup

Add a Google drawing or take a picture and insert in this slide.



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Materials and Equipment List for Experiment

List all materials and equipment (be as specific as possible with quantity and type)

Water, water test kit, and chromebook.

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Experimental Procedure (detailed enough to allow data collection to be repeated exactly as you collected it)

I purchased a water testing kit with test strips. These strips test for 16 different levels of elements in the water. You dip the test strips in the water for 2 seconds and let it dry for 15 seconds. You then compare your strip to the color code key to read how much of each element is in the water. I will collect 8 different samples from a variety of locations in Marana and sample the quality of the water. I will record the data in a chart so I can compare them. The locations are: Saguaro Bloom, Marana High School, Mountain View High School, Gladden Farms, Twin Peaks k-8, Cortaro/I-10 interchange (Wendy's), and river water from the Santa Cruz river. The 8th water sample is from rain collected in Saguaro bloom.

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	Saguaro Bloom	Marana High	Twin peaks K-8	gladden farms	Coriaro & I-10	Thornydale & linda vista	rainwater	Santa Cruz Reservoir	Normal range
water softness	0	120	25	50	50	25	25	120	
(in ppm)									
free chlorine	0	0	0	0	0	0	0	0	0-3
Iron ppm	0	0	0	0	0	0	0	0	0-5
mercury	0	0	0	0	0	0	0	0	0-.002
total chlorine	0	0	0	0	0	0	0	0	0-3
copper	0	0	0	0	0	0	0	0	0-1
lead	0	0	0	0	0	0	0	0	0
zinc	50	0	0	2	0	2	0	0	0-5
manganese	0.1	0	0	0.1	0	0.5	0.1	0	0-.1
qac/quat	5	0	0	5	0	0	10	0	5-10
Fluoride	50	0	0	10	0	10	10	25	0
sodium chloride	0	250	150	150	250	500	150	500	0-250
hydrogen sulfide	0	0	0	0.5	0	0	0	0	0
total alkalinity	180	120	40	0	80	40	0	0	40-180
carbonate	240	120	40	0	40	120	0	0	40-120
PH	9	9	7.6	6	7.6	7.6	6	6	6.4-8.2

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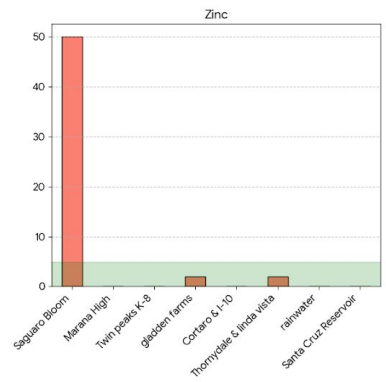

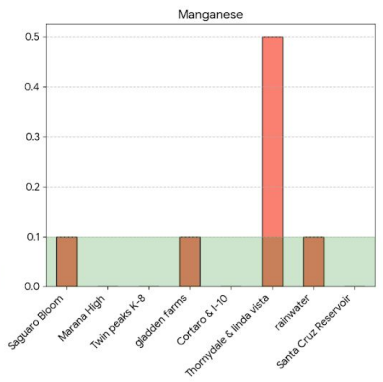

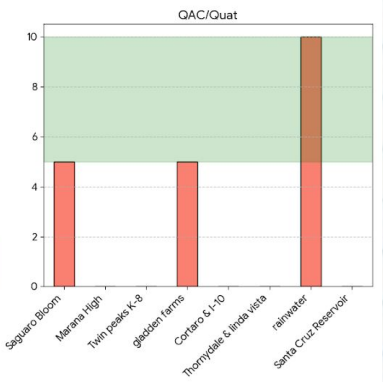

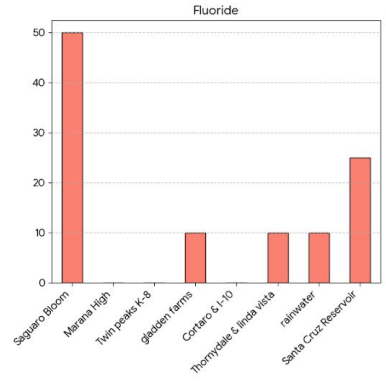

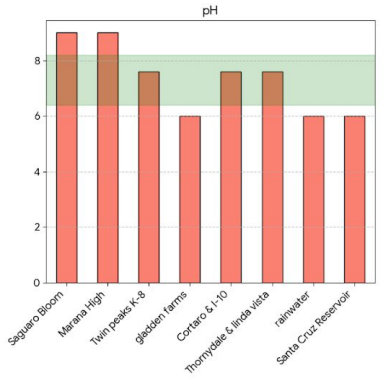

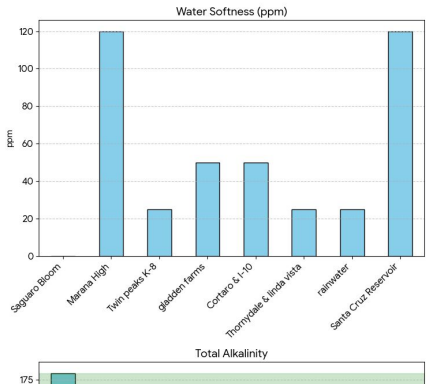

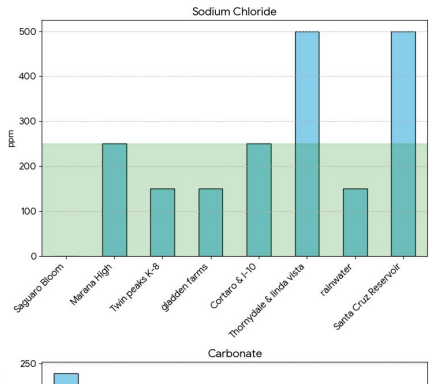

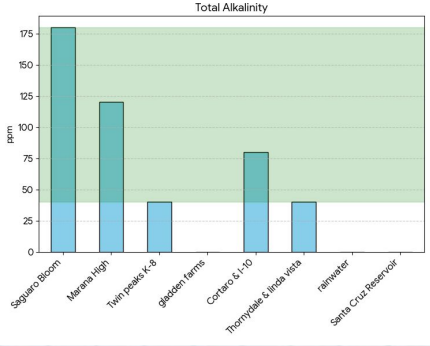

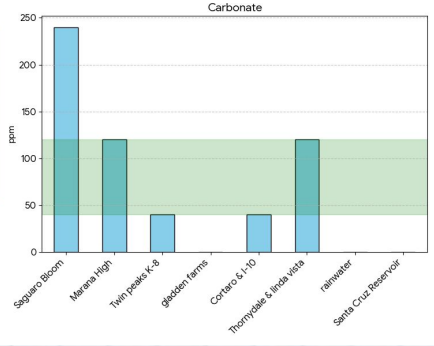

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Data Observations (What do you notice as you look at the raw data collected in the data table and at the graphical representation of the data?)

Based on the data provided, Twin Peaks K-8 and Gladden Farms appear to be the healthiest options, as they show lower mineral, chloride, and alkalinity levels compared to others. They maintain lower pH (closer to neutral) and zero to minimal amounts of heavy metals like mercury, zinc, and manganese compared to locations like Saguaro Bloom or Santa Cruz.

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Science Story (Using Claim, Evidence, and Reasoning, share the story the data tells and the science explains.)

Claim (answer to investigation question, should either be one of your hypotheses from page 7 or a new claim you had not considered)

quality will be similar in neighborhoods across marana even if they come from different sources. I believe the water will be more pure from drinking water sources than water in nature (rainwater/river water). I assume because of laws that regulate water quality, the levels will most likely be within acceptable levels, but they might still be not as good as we would like.

Evidence (cite data from the experiment to support the claim)Twin Peaks K-8 and Gladden Farms appear to be the healthiest options

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Science Story continued using CER

Reasoning (connect evidence to claim using scientific principles and rules) I assume because of laws that regulate water quality, the levels will most likely be within acceptable levels, but they might still be not as good as we would like.

Peer Critique of CER (is there another way to interpret the data? Is there something they might not have considered? Is there another explanation which could connect the evidence to the claim?) the natural water wasn't bad in chemicals, it's bad in bacteria

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Thinking more..

Now I wonder why...? Now I wonder if...? Now I wonder what...? Now I wonder how...? Now I wonder what would happen if...?

Now I wonder how much bacteria is in the water?

Now I wonder if it is safe to drink?

Now I wonder if our rain rains out pure water from our drinking water?

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