VIRTUAL LEARNING JOURNEY
GEORGIA WATER
gpb.org/water-journey

Name: _____

Date: _____

Student Guide: Water Purification Structured Investigation

Learning Targets: I can...

- plan and carry out investigations to identify properties of water.
- design and evaluate water purification solutions using physical changes.
- construct an explanation of the role of water in the health of ecosystems.

Engage: What makes water safe for different living things?

1. What makes some water safe for people to drink, while other water is not safe?

_____

_____

_____

2. What about your pets? Should pets drink the water from the creek?

_____

_____

_____

3. What about fish and other organisms that live in or around water? What kind of water is safe for them?

_____

_____

_____

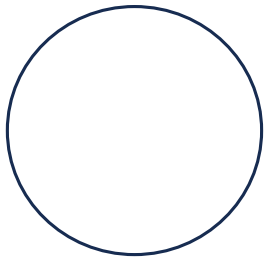
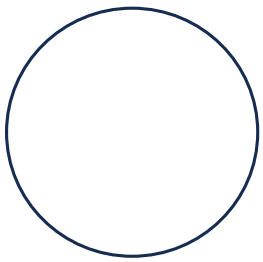
Gather and communicate information about water properties that are safe for different living things.

Properties of Water			
Safe for Humans	Safe for Our Pets	Safe for Fish and Other Aquatic Living Things	Safe for Other Living Things

A water sample has been collected at a nearby creek. What do you notice? What are you wondering? How could you gather additional data about the water to determine if its properties are safe?

Collected Water		
What do you observe?	What are you wondering?	How could you gather additional data about the water sample to determine its properties?
Color: _____ Odor: _____ Big (Macro) Particles: _____ _____ _____ Small (Micro) Particles: _____ _____		pH: ppm: conductivity: dissolved oxygen: nitrate levels: presence of microorganisms:

Explore: Plan and carry out investigations to identify these additional properties of the collected water sample. Organize the data you collect.

Properties of Collected Water			
Color	Odor	pH	Temperature
ppm	Conductivity	Dissolved Oxygen	Nitrate Levels
Evidence of Microorganisms		Macro Particles	Micro Particles
			

Explain: Based on the data you have gathered, do you think the collected water sample is safe for humans to drink? Construct an initial claim supported by evidence you collected.

Initial Claim	This sample of collected water _____ safe for humans to drink.	
Supporting Evidence		
Color:	Presence of Macro Particles:	Presence of Micro Particles:
Reasons This Evidence Is Connected to the Claim		
The color of water should be _____, but this water is _____.		

Ideate/Design a Prototype: What could you design and test to clean the water sample?

Possible Purification Strategies:

- mesh/cloth filter
- cotton ball
- filter paper
- sand
- soil
- large pebbles
- charcoal filter
- small pebbles
- other: _____

Design 1: Draw a model of your purification system. Include labels.

Results of Design 1:

How well did the design work? Record new properties of the water sample.	What might be your next steps for continued improvement to the design?
Color: Removal of Macro Particles: Removal of Micro Particles: Other:	

Design 2: Draw a model of your revised purification system. Include labels.

Results of Design 2:

How well did design 2 work? Record new properties of the water sample.	What might be your next steps if you continued to improve the design?
Color: Removal of Macro Particles: Removal of Micro Particles: Other:	

Explain: Which of your designs worked the best at purifying the water?

Best Design (include labels)		
Supporting Evidence		
Reasons This Evidence Supports This Best Design		

Other Considerations:

Do you think your purified water is clean enough to replace in the creek? Things to consider in your response: How might your purified water affect microorganisms in the creek? How might your purified water affect larger organisms, like crayfish or fish?

Do you think your purified water is clean enough for humans to drink? Explain your thinking.