

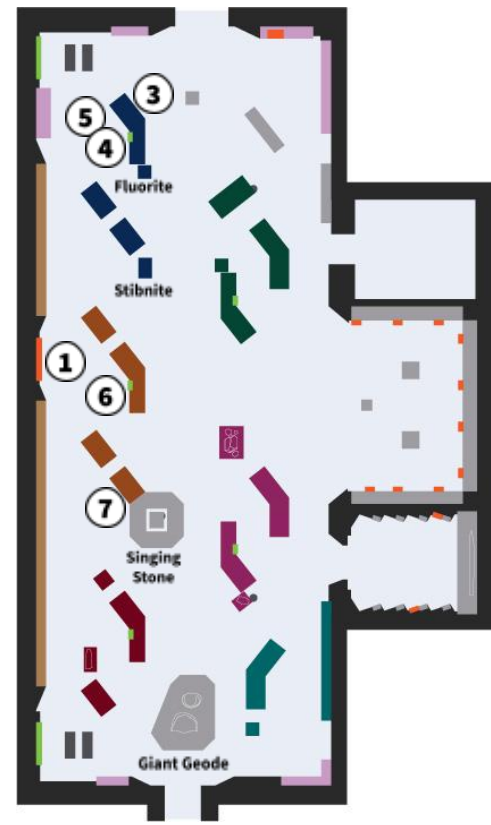
Student Worksheet

STOP 1 Find the periodic table interactive

Make minerals by combining atoms of different elements!

STOP 2 Select one of four specimens (labeled on map)

- Fluorite How would you describe it and its crystals to someone who has never seen them?
- Stibnite
- Singing Stone _____
- Giant Geode _____



STOP 3 Go to the “How Water Transports Minerals” case

Read the text panel (left). What makes it possible for water to dissolve minerals, transport elements, and deposit minerals? Draw or write about it.

Observe specimen #35. What does the order of the two mineral layers show about (1) how the minerals formed, (2) their solubility, and (3) water temperature?

Observe specimens #14–22. These nine minerals are organized from most soluble in water at moderate temperature (top) to least (bottom). What is the relationship between solubility, water, and chemical bonds?

STOP 4 Go to the “Hydrothermal Environment” video

Watch the video.

What role does water play in the formation of minerals?

Draw or write about it.

STOP 5 Go to the “Veins and Pockets of Crystals” case

	Observe the minerals in each section. What physical traits do they have in common?	What do these traits tell you about the role of water in the formation of these minerals?
Crystals That Grew In Veins (# 1–14)		
Crystals That Grew In Pockets (# 15–26)		

How might water have interacted with rock to form the specimens in this case?

Check all that apply.

- Chemical addition (adding elements)
- Chemical exchange (swapping elements)
- Deposition (depositing new minerals)
- Dissolution (removing minerals)
- Hydration (adding hydrogen and oxygen)

TIP: Learn about these interactions in the case: “Hot Water Carries, Exchanges, and Deposit Minerals” (to the right of the Hydrothermal Environments video in Stop 4)

STOP 6 Go to the “Weathering Environment” video

Watch the video.

In each zone, what role does water play in the formation of minerals?

Draw or write about it.

STOP 7 Go to the “An Enriching Process” case

	Observe the minerals within each zone. What physical traits do they have in common?	What do these traits tell you about the role of water in the formation of these minerals?
Leached Zone (# 1–10)		
Oxidized Zone (# 11–21)		
Enriched Sulfide Zone (# 26–36)		

How might water have interacted with rock to form the specimens in this case? Check all that apply.

- Chemical addition (adding elements)
- Chemical exchange (swapping elements)
- Deposition (depositing new minerals)
- Dissolution (removing minerals)
- Hydration (adding hydrogen and oxygen)

TIP: Learn about these interactions in the case: “Hot Water Carries, Exchanges, and Deposit Minerals” (to the right of the Hydrothermal Environments video in Stop 4)

STOP 8 Put it all together: Go back to the specimen you selected in Stop 2

Observe the specimen again.

How might water have interacted with rock to form this specimen?

- Chemical addition (adding elements)
- Chemical exchange (swapping elements)
- Deposition (depositing new minerals)
- Dissolution (removing minerals)
- Hydration (adding hydrogen and oxygen)

Support your inference with your observations (e.g. physical traits) and what you’ve learned in previous stops (e.g. water temperature, solubility, polarity, weathering processes).
