

Student Worksheet

STOP 1 Read the introductory panel to the hall

What are two characteristics of the ideal gem?

STOP 2 Explore the “Rough and Cut” case

Learn about how people transform rough mineral crystals into cut and polished mineral crystals we call gems.

STOP 3 Find the case that features your birthstone

First, review the list below to identify your birthstone. (If the name of a gem is different from the name of its mineral it was fashioned from, the mineral’s name is listed in parenthesis.) Then, look for the case in the Hall of Gems that features your birthstone gem/mineral.

- | | | |
|--|---|---|
| <input type="checkbox"/> January: garnet | <input type="checkbox"/> May: emerald (beryl) | <input type="checkbox"/> September: sapphire (corundum) |
| <input type="checkbox"/> February: amethyst (quartz) | <input type="checkbox"/> June: moonstone (feldspar) | <input type="checkbox"/> October: tourmaline |
| <input type="checkbox"/> March: aquamarine (beryl) | <input type="checkbox"/> July: ruby (corundum) | <input type="checkbox"/> November: citrine (quartz) |
| <input type="checkbox"/> April: diamond | <input type="checkbox"/> August: peridot (olivine) | <input type="checkbox"/> December: zircon |

Observe the gems and describe them (e.g. size, color, shape).

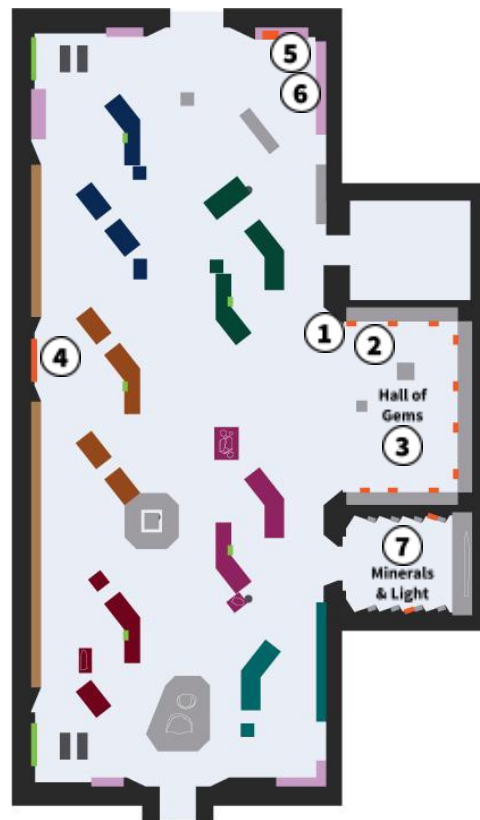
Observe the rough crystals in the same case (e.g. color, shape). How do the minerals compare to the gems?

STOP 4 Find the periodic table interactive

Make minerals by combining atoms of different elements. What do you notice about the atoms that bond together, and those that don't?

STOP 5 Go to the “What Causes Mineral Properties?” case

Observe the different types of bonds and compare the diamond and graphite specimens and models. How does the strength of a bond impact a mineral?



STOP 6 Explore the “Physical Properties” case

Examine this physical property	What does this property tell you about a mineral’s strength or bond arrangement?	How does this property help determine if a mineral should be made into a gem?
Cleavage/Fracture		
Hardness		

STOP 7 Go into the “Minerals and Light” room to explore the optical properties of gems

Explore these four cases. Write and/or draw about one way the interaction of light is important to gems.

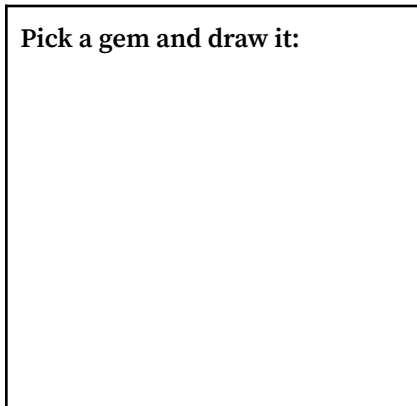
What Causes Color?	Why Do We Cut and Shape Gems?
How Does Light Pass Through Gems?	What Makes a Gem Sparkle?

STOP 8 Revisit your birthstone case in the Hall of Gems (from Stop 3)

In this case, find your birthstone’s data chart.

Record its chemical composition, hardness, and cleavage/fracture information.

Pick a gem and draw it:



Why is the mineral that this birthstone was fashioned from suitable to be used as a gem? Infer using your observations and what you’ve learned in previous stops; be sure to discuss both its physical and optical properties.
