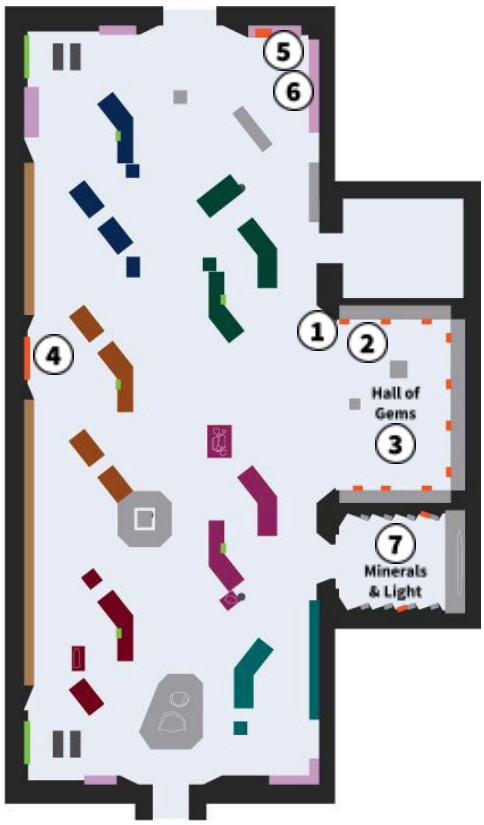
# Student Worksheet




## STOP 1 Read the introductory panel to the hall

What are two characteristics of the ideal gem?

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## 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.

- ▢ January: garnet
- ▢ February: amethyst (quartz)
- ▢ March: aquamarine (beryl)
- ▢ April: diamond
- ▢ May: emerald (beryl)
- ▢ June: moonstone (feldspar)
- ▢ July: ruby (corundum)
- ▢ August: peridot (olivine)
- ▢ September: sapphire (corundum)
- ▢ October: tourmaline
- ▢ November: citrine (quartz)
- ▢ 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?

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## 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?

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## 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.

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