



KIDSEUM AT HOME

*Creative fun and learning for the entire family,
all from the comfort of home!*

Introduction to GEMSTONES

Inspired by
Bowers' exhibit
GEMSTONE CARVINGS:
Masterworks
by Harold Van Pelt



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EXPLORING QUARTZ

AGES

8-12 years old

SKILL LEVEL

Beginner / Intermediate

DESCRIPTION

Learn about the different types of quartz crystals that are found in the Gemstone Carvings: Masterworks by Harold Van Pelt exhibit at the Bowers Museum.

MATERIALS

| |
|----------------|
| Paper * |
| Pen / Pencil * |
| Quartz Guide |

Note: Materials with a () are optional*

1. Read through the fun fact section of the Quartz Guide as a family. Do not read the question portion until you are ready to do the trivia portion of the activity.

2. When ready, you'll start the trivia portion. Try coming up with a fun prize for the winner, like they will be waited on at home by the other players for one day, etc.

3. Grab a piece of paper and pencil and assign one person to keep track of everyone's points. They should be the only one looking at the questions and seeing the answers.

4. Move onto the art projects as follow-up to your Quartz lesson!

Background on Quartz crystals:

- Quartz is the most well-known mineral on earth and comes in a variety of colors that produces different types of gemstones.
- There are a variety of names given to quartz than any other mineral. Some examples are Amethyst, Citrine, Smoky Quartz and Chalcedony.
- It is durable to both mechanical and chemical weather. When quartz-bearing rocks become weathered and eroded, the grains of resistant quartz are concentrated in the soil, in rivers, and on beaches.
- Quartz on its own does not have any color, if extra elements are added to the silicon and oxygen add color to quartz in nature.
- Microcrystalline quartz can be any color depending on its impurities such as green, if it has nickel, red if iron, or even blue or yellow.



QUARTZ GUIDE

FUN FACTS

Chalcedony Skeleton Hand

- Chalcedony is a form of quartz that occurs when the mineral is composed of tiny crystals called microcrystalline.

- The name normally describes only white or blue Chalcedony, it is used to separate it from agate and other minerals.

- The Chalcedony resembles the color of real bones, it was used to carve this beautiful skeleton hand.



Agate Rhyton

- Just like Chalcedony, Agate Rhyton is a microcrystalline variety of quartz.

- This form of quartz is found in bigger rock formations, most commonly volcanic areas.

- This image is a carved agate drinking vessel with gold capped nose and a hole to restrict the flow of liquid.



"Izok" Hollow Quartz Skull

- Since quartz can grow in different environments, other minerals and watery solutions can be enclosed in quartz.

- Fragile minerals will occur as fibers or thin needles survive inside.

- This quartz is special because it contains very rare izoklakeite inclusions.



QUARTZ GUIDE

FUN FACTS

Chrysoprase Candlestick

- Chrysoprase is a green variety of chalcedony, which has been colored by nickel oxide.
- The name "chrysoprase" is from the Greek words for "gold" and the meaning green.
- This gemstone has been carved into a symmetrically beautiful candlestick.



Bivalve Shell (Moss Agate)

- This is a special form of agate, it forms different patterns suggestive of moss.
- The colors are formed due to trace amounts of metal present, such as chrome or iron.
- This Moss Agate was beveled and carved into the shape of a shell.



Amethyst Cup

- Amethyst is known for its vivid colors of dark blue-purple, violet, and reddish tones.
- Its color occurs through iron built into its crystal lattice.
- Carved amethyst cup has twenty-four flutes on the body and the base.

Resources

<https://www.minerals.net/mineral/quartz.aspx>

<http://www.geologyin.com/2016/04/major-varieties-of-quartz.html>

TRIVIA TIME!

Now it's time to test your knowledge on quartz!

Answer each question and receive points to see who is a quartz expert.

1. What is most common known mineral on earth? 5pts

The most common known mineral on earth is quartz.

2. On its own, what color is quartz? 2pts | Extra points: 3 pts if you can tell us how you get color into the mineral.

Quartz has no color. Color is added by extra elements in the silicon and oxygen that make up the quartz.

3. Is quartz durable in chemical weather? 2pts | Extra points if you can name another type of weather it can survive in.

Yes, it is also durable in mechanical weather.

4. What are microcrystalline? 5pts

Microcrystalline are tiny crystals that make up gems.

5. Where can you find Agate quartz in nature? 3pts

Agate can be found in large rock formations.

6. How do fragile minerals look inside quartz? 5pts

Fragile minerals look like fibers or thin needles inside quartz.

7. What color is Chrysoprase? 5pts

Chrysoprase is a green color.

Bonus Questions

1. What elements are found in Moss Agate? 5pts

Metals like chrome or iron are found in Moss Agate.

2. What color(s) are found in Amethyst? 5pts

Amethyst has dark blueish purple, violet and reddish hues to it.

2

HOW TO DRAW QUARTZ OBJECTS

AGES

12-17 years old

SKILL LEVEL

Intermediate / Advanced

DESCRIPTION

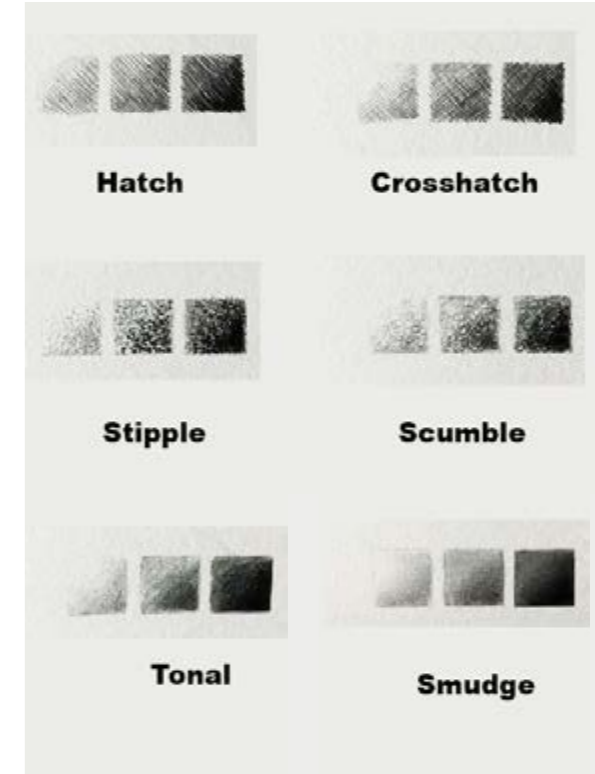
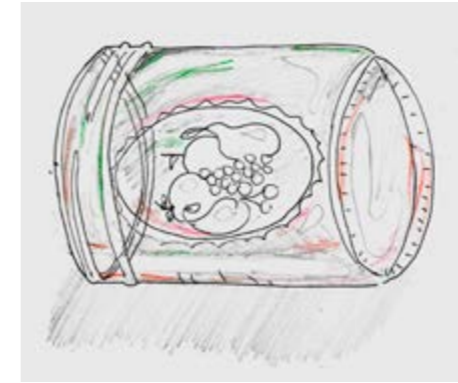
In this activity, you will learn to draw objects that resemble quartz. This will be an intermediate to advanced lesson for those of us practicing sketching at home. Use any glass object from home or look up our quartz egg under “Current Exhibitions” at bowers.org, in our *Gemstone Carvings: Masterworks by Harold Van Pelt* exhibit.

MATERIALS

| | |
|--------|-----------------|
| Pencil | Pen |
| Paper | Colored Pencils |
| Eraser | Glass Object |
| Ruler* | |

Note: Materials with a (*) are optional

1. Place your glass object close to you and start by looking at it closely to notice what can be distinguished as hard lines and soft lines.
2. Now begin by lightly drawing a shape that resembles your object. It can be a square, circle, rectangle, triangle or a combination of shapes put together.
3. Next, draw the outline of your object. Include the rounding or squaring the of edges the sketch.
4. Draw anything that stands out as detail to you. For example, when drawing a glass mason jar you might have the indentation of a flower or the word “Mason” on it.
5. After you have lightly sketched your glass object go over the sketch with pen, this will help you determine what will stay bold and you will shade in later. Remember by now you have not added any shading, we just have focused on lines.
6. Start looking at highlights in the glass. They will appear white in the light. Lightly draw the outline of your highlights in pencil on your object as you see them.
7. After you have light drawn the outline, start shading any areas that aren’t highlighted. Make sure to make some areas darker and some lighter. You may do this by adding pressure to create dark shading or lightly press onto the paper. (Please see the types of shading in the image at right.) Erase any lines outside of your drawing to clean it up.
8. Using colored pencils, shade in any colors that may be reflecting off your object.
9. Add the shadow that is cast by your object to make it look more realistic.



3

CRYSTAL COLLAGE ART

AGES

7-11 year old

SKILL LEVEL

Beginner / Intermediate

DESCRIPTION

In this activity you will be collaging different shapes of paper to make a crystal.

MATERIALS

| | |
|----------|--|
| Pencil | Glue Stick or Bottle |
| Eraser | Ruler / Straightedge / The spine of a book |
| Scissors | Paper /Construction Paper* /Gift wrap / Old Newspaper / Magazines |
| Markers* | |

Note: Materials with a () are optional*

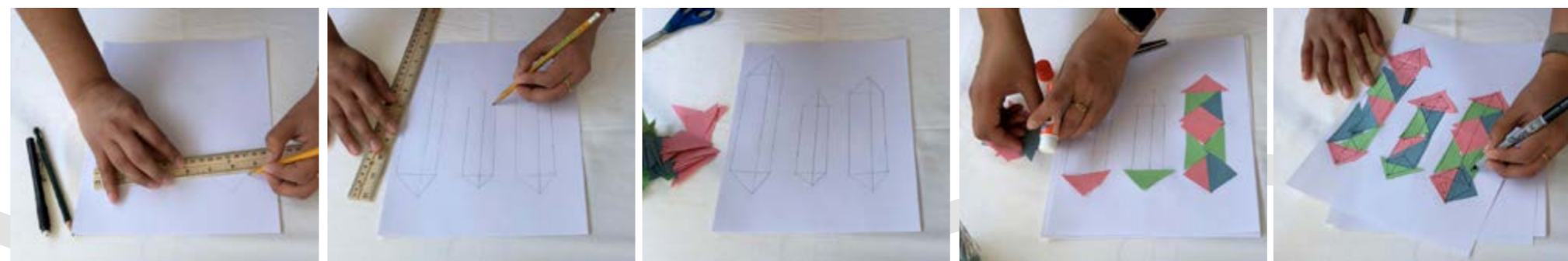
1. Use a ruler and a pencil to draw a small triangle.

2. Place the ruler on the corner of the triangle facing vertically. Draw a line from that corner downward. Repeat this on the remaining corners of the triangle.

3. Take your construction paper, newspaper or magazines and cut long strips. Cut those strips into triangles in varies sizes. You may cut as many triangles as you need to cover your crystal outline.

4. Glue your triangles down onto your drawn crystal shapes. Make sure to completely fill your crystal shapes.

5. Use markers to outline the shape of your crystals and add highlights or shading to it if you'd like.



State and National Standards

Exploring Quartz Lesson

Science Standards

| | |
|--|---|
| <p>ES.4.4b The properties of rocks and minerals reflect the processes that formed them. As a basis for understanding this concept: Students know how to identify common rock-forming minerals (including quartz, calcite, feldspar, mica, and hornblende) and ore minerals by using a table of diagnostic properties.</p> | <p>IE.4.6a Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will: Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.</p> |
| <p>NGSS.5.PS1.3 Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)</p> | <p>NGSS.6-8.ESS3.A Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes.</p> |

How to Draw Glass Objects Lesson

VAPA Standards

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|--|
| <p>VA.K.5.4 Discuss the various works of art (e.g., ceramics, paintings, sculpture) that artists create and the type of media used.</p> |
| <p>VA.1.2.8 Create artwork based on observations of actual objects and everyday scenes.</p> |

Crystal Collage Lesson

VAPA Standards

| | |
|--|--|
| <p>VA.K.2.2 Demonstrate beginning skill in the use of tools and processes, such as the use of scissors, glue, and paper in creating a three-dimensional construction.</p> | <p>VA.K.2.3 Make a collage with cut or torn paper shapes/forms.</p> |
| <p>NVA.2.2.1 Demonstrate beginning skill in the use of basic tools and art-making processes, such as printing, crayon rubbings, collage, and stencils.</p> | |

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