



OFFICIAL MID-HUDSON VALLEY GEM & MINERAL SOCIETY (MHVG&MS)

2013 EARTH SCIENCE SCAVENGER HUNT QUESTIONNAIRE (KEY)

SHOW THEME - **The World of Agates & Jaspers**

Please sign in at the Earth Science Table before you start answering the questionnaire

Name _____ School District _____

Teacher _____ Grade _____

Instructions: This scavenger hunt is designed so that you can find the answers easily. Each exhibit cube has the mineral's properties listed above it. Question numbers correspond to the number on each mineral exhibit cube. If you are unable to find a specific mineral cube, check the locator map at the Earth Science table.

The goal is to find the answers to earn extra school credit and to enjoy the gem & mineral show. At least 20 questions are to be completed for extra credit. In addition, if you complete the questionnaire, you will be given a raffle ticket for a student-only prize!

Part 1 – Show Theme

Go to the **Special Exhibits** on the Show Theme, “**AGATES & JASPERS**”

Agates and Jaspers are formed differently. Agates form in a roundish void or open seam in the rock.

Jaspers are formed when sedimentary rock is colored by oxides and minerals. The binder is quartz in the form of microscopic silica fibers, which is called chalcedony. Without color, chalcedony is translucent blue-gray with a waxy luster and is hard enough (Mohs 7) to take a high polish, glass-like – vitreous.

1. Find a specimen that is roundish and layered - this specimen is: Please circle answer.

Agate Chalcedony Jasper Carnelian

2. Find a specimen in the display that has very fine banding. Please circle answer.

Quartz Crystals in Center Botswana agate Opaque Jasper Fairburn Agate

3. What are some of the visual properties of Agate? Circle all that apply.

Translucent Fortification Pattern Mossy Thin Bands Sagenite Tubes

4. What are some of the visual properties of Jasper? Circle all that apply.

Asymmetrical Patterns Opaque Brecciated Fine Particle Content Oxide Coloration

5. Go to the Lapidary Demonstration Area- What tools are used to work with Agate & Jasper? Circle all that apply.

Pliers Trim Saw Geologist Hammer Tumbler Grinding & Polishing Wheels Ruler

Part 2 – Cubed Minerals

Find the exhibit cubes (numbered) mentioned below. Read the properties and information about the mineral, and answer the questions below that correspond to that cube number.

Cube 1: Pyrite

Pyrite is known as Fool's Gold. The metallic mineral pyrite, when struck with steel, will spark and emit a sulfurous odor. This mineral is used in the manufacture of ____Sulfuric Acid____.

Cube 2: Calcite

Calcite, whose chemical name is Calcium Carbonate, reacts with acid in what way? ____Effervesces vigorously with bubbles of carbon dioxide____.

Cube 3: Talc

The Mohs scale measures the hardness of a mineral to being scratched. The scale ranges from 1 to 10. What number is Talc on the Mohs Scale? __One____.

Cube 4: Apatite

What is the chemical name of Apatite? __Calcium Fluorine-Chlorine-Hydroxyl Phosphate__. (Saying that ten times fast will surely work up an "appetite"!) What fossil animal parts are frequently found in phosphate deposits? __Shark's teeth, ribs, back bones____.

Cube 5: Kyanite

Is Kyanite a sedimentary, metamorphic, or igneous mineral? __Metamorphic____.

Cube 6: Gypsum

Gypsum, which can be colored _____white, colorless, gray, yellow, red, or brown_____, has a streak that is white. This is part of what defines and identifies this mineral.

Cube 7: Hematite

Hematite crystals come in a variety of forms—including thick to thin tabular, roses, botryoidal (resembling a bunch of grapes), micaceous (resembling mica), and earthy—but its crystal system is ____Hexagonal____.

Cube 8: Gold

Gold, whose chemical name is Native Gold because it is an element on the periodic table (like Sulfur—Cube 10), rarely combines with other elements. It is used for ____Jewelry and Coin____.

Cube 9: Orthoclase

Orthoclase, potassium feldspar, is one of the major rock forming minerals in granite. Under short wave UV light, the mineral can fluoresce the following colors: __Red, pink, brilliant light blue, blue-violet____. (You can see fluorescent and phosphorescent minerals at the Fluorescent Booth.)

Cube 10: Sulphur/Sulfur

During volcanic activity, bright yellow Sulfur precipitates directly from sulfur-rich gases. What type of acid can be made from sulfur? ____Sulfuric Acid____.

Cube 11: Ulexite

Ulexite is nicknamed ___"TV Stone"___ because its fibrous structure allows images and light to be transmitted through it.

Cube 12: Halite

Halite has a ___Salty___ taste. It is used for ___Table Salt___.

Cube 13: Tourmaline

Tourmaline and window glass fracture with the same pattern which is called ___Conchoidal___.

Cube 14: Sphalerite

Sphalerite has an interesting property whereby it flashes orange when scratched or struck. What is this property called? ___Triboluminescence___.

Cube 15: Beryl

Specific gravity is a measurement of how heavy an object is relative to the weight of water. What is the specific gravity of Beryl? ___2.66-2.92___.

Cube 16: Quartz

The tip of Quartz crystals are terminated by hexagonal pyramids. The crystal structure is ___Hexagonal___.

Cube 17: Copper

Copper's crystal system is isometric. Its crystals can be various shapes, including ___cubic, dodecahedral, flattened, elongated, distorted, scales, plates, lumps, branching aggregates, wire___.

Cube 18: Hornblende

The cleavage angles of Hornblende are ___56___ and ___124___ degrees.

Cube 19: Galena

The chemical name of Galena is ___Lead Sulfide___ . Galena is the most important ore of Lead.

Cube 20: Willemite

Willemite, a zinc ore, is strongly fluorescent and phosphorescent. What color is created by using short-wave UV light? ___Green___ . (You can see fluorescent and phosphorescent minerals at the Fluorescent Booth.)

Cube 21: Corundum

Corundum's gem varieties are ___Ruby (Red) and Sapphire (Blue)___.

Cube 22: Sodalite

The chemical name of Sodalite is ___Sodium Aluminum Silicate with Chlorine___ . Its crystal system is ___Isometric (Cubic); crystals rare___.

Cube 23-A: Chalcopyrite

Chalcopyrite has a ___Greenish-black___ streak.

Cube 23-B: Bornite

Bornite, known as Peacock Ore, has a ___Metallic___ luster.

Cube 24: Siderite

In acid (HCl), Siderite ___effervesces slightly___.

Cube 25: Malachite

Malachite is a semi-precious gemstone. Is the gemstone opaque or transparent? ___Opaque___.

Cube 26: Stibnite

Stibnite crystals are striated lengthwise and slightly flexible. The crystal system is ___Orthorhombic___.

Cube 27: Kaolinite

Kaolinite has a luster that is ___Dull, pearly on cleavage___.

Cube 28: Cinnabar

The chemical name of Cinnabar is ___Mercury Sulfide___.

Cube 29-A: Cordierite

Cordierite has a property known as dichroic, which means ___the hue appears to change from violet-blue to gray when rotated___.

Cube 29-B: Topaz

The specific gravity of Topaz is ___3.4-3.6___.

Cube 30: Barite

Barite is the most common barium minerals. It is used for ___Oil well drilling muds, manufacture of glass and paints___.

Cube 31: Muscovite

Muscovite is a light-colored mica. Its chemical name is ___Potassium Aluminum Silicate___.

Cube 32: Almandine Garnet

Almandine Garnet is the New York State Gemstone. Its color is ___Deep red to brown, brownish black___.

Cube 33: Diopside

Diopside has short prismatic crystals with good terminations. Its crystal system is ___Monoclinic___.

Cube 34: Fluorite

Fluorite can be the following colors: ___Violet, blue, green, yellow, brown, pink, colorless, white___.

Cube 35-A: Diamond

Diamond and Graphite (Cube 35-B) are both formed from pure carbon. Diamond is at the top of the Mohs hardness scale at ___10___.

Cube 35-B: Graphite

Graphite has a streak that is ___grayish to black, shiny___ . It is mixed with clay and fired to be pencil "lead."

Cube 36: Wollastonite

The crystal system of Wollastonite is Triclinic.

Cube 37: Magnetite/Lodestone

Magnetite crystals are usually octahedrons, sometimes dodecahedrons with striations, cubic (rare), and also massive. Its crystal system is Isometric (Cubic).

Part 3 – Additional Questions

A) What is your favorite mineral at the show? Why? _____

B) What is one fact about a mineral or rock you find very interesting? _____

CONGRATULATIONS!

YOU HAVE COMPLETED THE EARTH SCIENCE SCAVENGER HUNT. GO TO THE EARTH SCIENCE TABLE AND HAVE YOUR QUESTIONNAIRE STAMPED WITH THE MID-HUDSON VALLEY GEM & MINERAL STAMP.

PLEASE FILL OUT A FORM FOR A CHANCE TO WIN A MINERAL SPECIMEN.

PLEASE TAKE TIME TO ENJOY THE GEM & MINERAL SHOW!

Place MHVG&MS stamp here:

