

Match the person to what they did.

- | | |
|----------------------------|---------------------------------------------------------------|
| 1) Georgius Agricola _____ | A) Was an alchemist |
| 2) Henning Brandt _____ | B) Came with "atomic theory" that everything is made of atoms |
| 3) Neils Bohr _____ | C) Invented the Periodic Table |
| 4) Jabir ibn Hayyan _____ | D) Studied mines in Europe |
| 5) John Dalton _____ | E) Discovered the element phosphorus |
| 6) Dmitri Mendeleev _____ | F) Proposed the solar system model of the atom |

- 7) Which one of these substances is NOT on the Periodic Table?
 a) gold b) bismuth c) phosphorus d) water e) iron
- 8) When two or more atoms pair up, they form a: a) molecule b) element c) ion d) nucleus
- 9) What determines which element an atom is?
 a) number of electrons b) number of protons c) number of neutrons d) number of electron shells
- 10) What did alchemists think the philosopher's stone would do, besides turning things into gold?
 a) make you invisible b) cure your diseases c) make you wise d) give you power and wealth

Can you remember the five rules that decide whether something is a mineral?

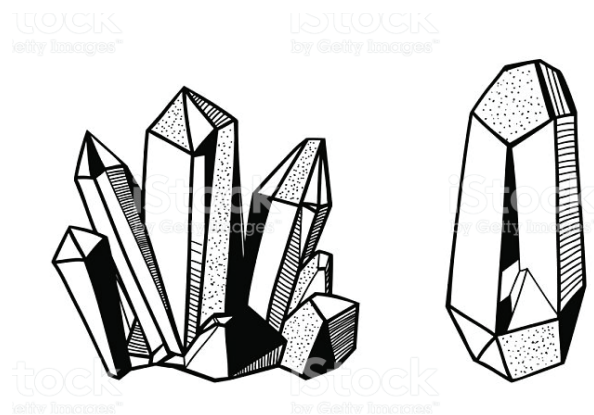
- 11) _____
 12) _____
 13) _____
 14) _____
 15) _____

Name two substances that disobey one of these rules and are still included in most mineral books.

- 16) _____ and 17) _____

Can you match the chemical formula with the name?

- | | |
|---------------------------|-------------------------|
| 18) CaCO_3 _____ | A) gold |
| 19) FeS_2 _____ | B) silver |
| 20) SiO_2 _____ | C) salt |
| 21) NaCl _____ | D) iron |
| 22) Cu _____ | E) pyrite (fool's gold) |
| 23) Au _____ | F) calcite |
| 24) Fe _____ | G) quartz |
| 25) Ag _____ | H) copper |



Match the mineral with its crystal shape.

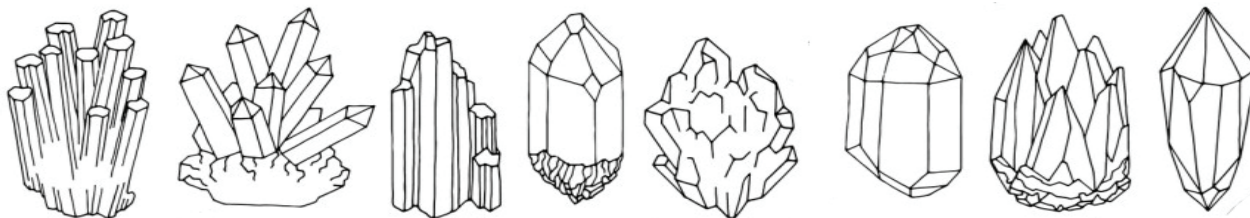
- | | |
|-------------------------|-----------------|
| 26) halite (salt) _____ | A) hexagon |
| 27) quartz _____ | B) rhombohedron |
| 28) calcite _____ | C) cube |

- 29) Which is the softest on the Mohs hardness scale? a) gypsum b) quartz c) corundum d) apatite
- 30) Which one of these is NOT used to help identify a mineral?
 a) color b) luster c) cleavage d) density e) size f) hardness

When magma containing silicon begins to cool, the tetrahedrons form patterns in a certain order. Put the patterns in the correct order.

- 31) First: ____ A) sheets
 32) Second: ____ B) framework
 33) Third: ____ C) "stone soup"
 34) Fourth: ____ D) lines
 35) Last: ____ E) double lines

- 36) Which of these is an example of a framework mineral? a) mica b) olivine c) asbestos d) quartz
 37) Which of these is a "stone soup" mineral? a) mica b) olivine c) asbestos d) quartz
 38) Which contains more iron and magnesium? (HINT: look at color) a) muscovite mica b) biotite mica
 39) Which has a lot of potassium, K, and sodium, Na? a) feldspar b) quartz c) olivine
 40) What special property is unique to quartz?
 a) It has a hexagonal crystal structure. b) Its formula is SiO_2 . c) It can form sheets. d) It is piezoelectric.

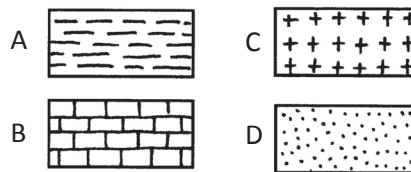


These crystals are not related to any of the questions. They are just sitting here looking pretty. :)

- 41) The ocean floor is made mostly of: a) granite b) basalt c) gabbro d) pumice
 42) Rubies and sapphires are both made of this mineral: a) diamond b) quartz c) corundum d) tourmaline
 43) TRUE or FALSE? Mafic rocks are darker in color than felsic rocks. ____
 44) Which of these has a "frothy" texture? a) granite b) obsidian c) pumice
 45) Which is thin and runny and is less likely to explode out of a volcano? a) mafic lava b) felsic lava
 46) Slate used to be shale, and shale used to be: a) clay b) silt c) sand d) magma
 47) What do field geologists use to differentiate clay from silt? a) eyes b) fingers c) tongue d) nose
 48) Which is softer and easier to carve? a) marble b) granite

49) Which of these patterns represents limestone? ____

50) Which of these pattern represents sandstone? ____



BONUS QUESTIONS: (just a little harder)

- 1) This type of metamorphic rock always has stripes: a) mica schist b) marble c) gneiss d) diorite
 2) Which one of these is NOT an evaporite? a) gypsum b) travertine c) salt d) coal
 3) The word "quartz" comes from a German word meaning: a) hard b) clear c) silicon d) hexagon
 4) Foliated rocks have: a) lots of thin layers b) fossilized leaves c) stripes d) quartz crystals
 5) TRUE or FALSE? By definition, all clasts are made of silicon-based minerals. ____

COOKIE MINING**Start-up funds: 19 cents**Land acquisition (purchase of property): _____Equipment costs:

of flat toothpicks _____ x 2 cents each = _____

of round toothpicks _____ x 4 cents each = _____

of paper clips _____ x 6 cents each = _____

Labor costs:

Number of minutes _____ x 1 cent per minute = _____

Reclamation costs: _____

2 cents if cookie remains are inside original outline

4 cents if cookie remains go outside original outline

TOTAL MINING COSTS: _____

Gross profit:

of chips _____ x 2 cents per chip = _____

CALCULATE NET PROFIT:

Start up 19

Gross profit + _____

Minus mining costs - _____

NET PROFIT:

Was this a successful mining operation?

COOKIE MINING**Start-up funds: 19 cents**Land acquisition (purchase of property): _____Equipment costs:

of flat toothpicks _____ x 2 cents each = _____

of round toothpicks _____ x 4 cents each = _____

of paper clips _____ x 6 cents each = _____

Labor costs:

Number of minutes _____ x 1 cent per minute = _____

Reclamation costs: _____

2 cents if cookie remains are inside original outline

4 cents if cookie remains go outside original outline

TOTAL MINING COSTS: _____

Gross profit:

of chips _____ x 2 cents per chip = _____

CALCULATE NET PROFIT:

Start up 19

Gross profit + _____

Minus mining costs - _____

NET PROFIT:

Was this a successful mining operation?