

Rocks, Crystals, Gems, Fossils, Minerals & Meteorites Teleclass Webinar!

You can fill out this worksheet as we go along to get the most out of time together, or you can use it as a review exercise at the end of the class to see where your strengths are.

What we're going to cover today:

- Three types of rocks
 - Crystals & Gemstones
 - Difference between rocks and minerals
 - Meteorites
 - What a real geologist studies and does in their career
 - Tests for identifying rock and mineral samples
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Write down two things you really want to know about geology, rocks, and/or minerals:

1. _____

2. _____

Do this NOW: Write down WHY you want to learn about the things you mentioned above. What will it give you, or provide you with, or make possible for you if you now understand these things that you wanted to learn?

IMPORTANT: During class, you can either fill out the worksheet, OR if that's too stressful or a hassle, just set it aside and fill it out after class is over so you can enjoy watching the class.

Answer key is on the last page, so put it in a place where you won't be tempted to peek at the answers until after you've given it your best shot.

Material List:

- Geology Field Trip in a Bag* (purchase Item# RM-GEOBAG from this link: <http://www.hometrainingtools.com/geology-field-trip-in-a-bag>)
- Unglazed porcelain tile (or use the bottom unpainted surface of a coffee mug) or Item #RM-STREAKC <http://www.hometrainingtools.com/plate-ceramic-1x2> **
- Microscope slide or old water glass that is ok to scratch, or get Item # RM-STREAKG <http://www.hometrainingtools.com/plate-glass-1x2> **
- Paper plate or disposable pie pan to work on
- Handheld magnifying glass**
- Cup of water
- Steel nail
- Tape (use double-sided if you have it)
- Magnet **

*Keep the *Geology Field Trip* bag unopened until class starts!

**Note: you can purchase the optional Mineral Test <http://www.hometrainingtools.com/mineral-test-kit> which contains most everything else needed on this list.



During the Lesson:

You can look over the worksheet so you know what to listen for as you go through the class with me, or you can go through it along with me during class. OR... flip it over and forget about it and just enjoy the class. When class is over, flip it back over and fill it out and be amazed at how much you've picked up and learned!

1. Geologists study _____, including the _____, structures and organisms of the Earth.
2. Geologists study landslides, _____, earthquakes and floods.
3. Geologists study and find the Earth _____ we use everyday.
4. Minerals are _____ chemical substances.
5. Rocks are made of two or more _____.
6. Moh's Hardness Scale (fill in missing):

1. _____

6. Feldspar

2. Selenite

7. _____

3. Calcite

8. Topaz

4. Fluorite

9. Corundum

5. Apatite

10. Diamond

7. Triboluminescence is the _____ made by friction or impact.
8. Density is _____ divided by _____.
9. _____ has cleavage.
10. _____ has fracture.
11. Fluorescent minerals emit light when exposed to _____ light.
12. Minerals that react to acid are _____ rocks, and minerals that don't react are _____ rocks.
13. Fossils formed from living material and were protected from decay by _____ and organisms.
14. Sedimentary rocks can be _____, chemical or clastic.
15. Metamorphic rocks are classified by as being _____ or non-foliated.
16. Igneous rocks are either _____ or extrusive.
17. Magnetite is a common _____ found in igneous, metamorphic and sedimentary rocks.
18. Meteorites are _____ from space that hit the Earth.

19. They can be pieces of asteroids, _____ or meteoroids.

20. Popcorn Rock has more _____ than regular dolomite samples.

21. A gemstone is a _____ that's been cut and polished to make jewelry.

22. A _____ is a mineral that looks how the atoms are arranged inside.

23. Rock Candy is 8 cups _____ +

3 cups _____.

24. What I didn't know about marine biology and oceanography until class today was:

2-2.5	Fingernail
3	Copper Penny
4	Steel Nail
5.5	Glass
5-6.5	Knife Blade
6.5-7	Streak Plate
7	Quartz

Geology Field Trip Rock Table

1 dinosaur bone (looks like a dried piece of meat)	2 horn coral (looks like a slender finger)	3 gastropod (snail-like shell)	4 brachiopod (small ribbed shell)	5 trilobite (flat, black, with ribs and thorax)
6 oyster (curved, twisted shell)	7 shark's tooth (small sharp tooth)	8 petrified wood (small chunk, looks like wood)	9 crinoid stem (ribbed cylinder)	10 pyrite (gold, brassy, metallic, and leaves a greenish-black streak)
11 magnetite (magnetic iron ore, heavy, black, leaves dark streak)	12 gypsum (white, soft-looking, can be scratched by a coin)	13 hematite (dark red, comes off in your hands, leaves dark red-brown streak)	14 sulfur (yellow color, smells like rotten eggs)	15 pumice (very lightweight, floats in water, full of holes, can be light in color)
16 selenite (looks like clear plastic, white streak, doesn't scratch calcite)	17 limonite (yellowish brown, soft to hard, yellow or brown streak)	18 quartz (very hard, pink or white color, scratches glass, no streak)	19 mica (flat sheet, silvery color, divides into sheets)	20 fluorite (transparent, greenish, larger sample size, white streak)
21 calcite (white or clear, diamond-shape like a rhombus, leaves a white streak, scratches selenite)	22 feldspar (pink, shiny, cleavages, can't be scratched by a steel nail or coin, can't scratch quartz)	23 coal (jet black, soft, and brittle)	24 sandstone (looks like grains of sand cemented together, can scratch glass, no streak)	25 conglomerate (looks like pebbles cemented together)
26 obsidian (black, glass-like)	27 scoria (red or black, full of holes, light red or no streak)	28 mica schist (glitters in the sunlight)	29 quartzite (very hard, can't be scratched by a steel nail or coin)	30 shale (gray-black, fine-grained, like clay)
31 gneiss (pronounced "nice", black and white speckled, banded)	32 turquenite (polished gem, hard, blue like turquoise)	33 rock crystal (clear quartz, polished)	34 agate (multi-colored, banded, polished)	35 amethyst (purple, polished gem)

Vocabulary Words:

Basalt-A hard dense dark volcanic rock often having a glassy appearance

Calcite-Crystalline form of natural calcium carbonates that is the chief substance of limestone, marble, and chalk

Chalk-A soft compact calcium carbonate generally gray-white or yellow-white and derived mainly from fossil seashells

Conglomerate-Rock consisting of pebbles and gravel embedded in a loosely cementing material

Crust-The earth's top layer.

Crystal-a mineral that looks how the atoms are arranged inside

Density=mass divided by volume

Diamond-A very hard mineral that is made from pure carbon crystals. It usually has no color and is the hardest natural substance known

Earthquake-A vibration caused by movements within the earth

Epicenter-The point on the earth's surface from which earthquake waves seem to radiate

Extrusive rock-Rock that forms on the surface from lava

Gemstone-a mineral that's been cut and polished to make jewelry

granite -A common, coarse-grained, light-colored, hard igneous rock used in monument and for buildings.

Halite-Rock salt

Igneous rocks- are either intrusive or extrusive. An intrusive rock has a courser grain texture. Extrusive rocks have finer grains (need a magnifier). Intrusive rock-Rock that forms when magma cools deep in the earth.

Lava-Molten (liquid form of heat) rock which erupts or flows from an active volcano

Limestone-A shale or sandy sedimentary rock used as a building stone

Marble-A metamorphic rock often irregularly colored by impurities used for architectural and ornamental purposes

Metamorphic rocks are classified by as being foliated or non-foliated.

Mineral- a solid inorganic substance of natural occurrence

Obsidian-An acid-resistant, lustrous volcanic glass that is usually black or banded and displaying curved shiny surfaces when broken

Quartz-A hard, crystalline mineral found world-wide in sandstone and granite

Rock-the solid mineral material forming part of the surface of the earth exposed on the surface or underlying the soil or oceans

Sandstone-Variouly colored sedimentary rock composed mostly of sand like quartz grains cemented by lime, silica, and other materials

Sedimentary rock -Layers of sediments that become cemented together

Sulfur -A pale-yellow, nonmetallic element occurring widely in nature.

Talc -A fine-grained white greenish or gray mineral, having a soft, soapy texture. It is used in talcum and face powder.

Triboluminescence- The flash of light produced by friction or impact.

Volcano -An opening in the earth's crust through which lava and other earth materials flow and collect

Answer Key:

1. Geologists study the Earth, including the material, structures and organisms of the Earth.
2. Geologists study landslides, volcanoes, earthquakes and floods.
3. Geologists study and find the Earth materials we use everyday.
4. Minerals are pure chemical substances.
5. Rocks are made of two or more minerals.
6. Moh's Hardness Scale: *See table at the right* →
7. Triboluminescence is the flash of light produced by friction or impact.
8. Density is mass divided by volume.
9. Calcite has cleavage.
10. Quartz has fracture.
11. Fluorescent minerals emit light when exposed to ultraviolet (UV) light.
12. Minerals that react to acid are chemical rocks, and minerals that don't react are clastic rocks.
13. Fossils formed from living material and were protected from decay by oxygen and organisms.
14. Sedimentary rocks can be organic, chemical or clastic.
15. Metamorphic rocks are classified by as being foliated or non-foliated.
16. Igneous rocks are either intrusive or extrusive.
17. Magnetite is a common mineral found in igneous, metamorphic and sedimentary rocks.
18. Meteorites are rocks from space that hit the Earth.
19. They can be pieces of asteroids, comets or meteoroids.
20. Popcorn Rock has more magnesium than regular dolomite samples.
21. A gemstone is a mineral that's been cut and polished to make jewelry.
22. A crystal is a mineral that looks how the atoms are arranged inside.
23. Rock Candy is 8 cups sugar + 3 cups water.

Mohs' Scale of Hardness

1. Talc
2. Selenite
3. Calcite
4. Fluorite
5. Apatite
6. Feldspar
7. Quartz
8. Topaz
9. Corundum
10. Diamond