- ✓ **Crystal**- the solid form of a material that has a characteristic shape or pattern.
- ✓ **Dissolve**- when a solid material is put in water and seems to disappear.
- ✓ **Evaporate**- when water is left open to air.
- ✓ **Geologist**- a person who studies Earth and the materials it is made of.
- ✓ **Geology**- the scientific study of Earth's history and structure.
- ✓ **Mass**- the amount of space an object takes up.
- ✓ **Mineral**- is a pure earth material that cannot be broken down into other materials.
- ✓ **Outcrop**- exposed portion of Earth's crust.
- ✓ **Property**- is something you can observe, such as size, color, shape or texture.
- ✓ **Rock**- a solid earth material made up of two ore more different minerals.
- ✓ **Identify-** to identify an object, you match the object with its description
- ✓ **Hardness**- is a property of minerals. Hard mineral score high in the scratch test.
- ✓ **Calcite**- is a common rock-forming mineral. It scores low Mohs hardness (3) and its high chemical reaction with weak acids. Calcite is the only common mineral that bubbles when it comes in contact with vinegar
- ✓ **Gypsum**- a mineral used to make plaster.
- ✓ **Quartz**- is the hardest common rock-forming mineral found on Earth.
- ✓ **Fluorite**- is a mineral used to make high-octane gas and smelting iron
- ✓ **Mineral**- A pure earth material that cannot be physically broken down into different ingredients.
- ✓ **Ore**- is a type of rock that contains minerals with important elements including metals.
- ✓ **Vinegar** - is an acid that can be used to test for calcite.
- ✓ **Acid rain-** is acidic as a result of rain interacting with chemicals in the air.
- ✓ **Chemical weathering** is the breaking down of rocks and minerals when minerals are exposed to air and water.
- ✓ **Igneous** rocks form when melted minerals crystallize.
- ✓ **Sedimentary** rocks forms when sediments become cemented.
- ✓ **Metamorphic** rocks form when existing rocks change in response to heat and pressure.
- ✓ **Streak** is the color of a mineral powder.
- ✓ **Luster** describes the way light reflects off a mineral's surface
- ✓ **Metallic** means something looks shiny like metal.
- ✓ **Nonmetallic** describes all other luster's, including glassy and dull.
- ✓ **Cleavage** describes how a mineral breaks. Evidence of cleavage is a flat, shiny surface.
- ✓ **Magnetism** is when a mineral is attracted to a magnet.
- ✓ **Granite** is an igneous rock and is the most common rock in Earth's continents. It contains the minerals feldspar, hornblende, mica and quartz.
- ✓ **Rock Cycle-** Any rock can change into any other rock through a process of melting, heat and pressure, and weathering.
- ✓ **Abrasion**The rubbing, grinding, and bumping of rocks that cause physical weathering.
- ✓ **Weathering** The process by which larger rocks are cracked and broken over time to form smaller rocks.

- ✓ **Chemical weathering** The process by which the minerals in a rock can change due to chemicals in water and air. Chemical weathering can change rocks and cause them to break apart.
- ✓ **Physical weathering** The process by which rocks are broken down by breaking and banging.
- ✓ **Crust** Earth's hard outer layer of solid rock.
- ✓ **Deposition** The settling of sediments.
- ✓ **Earthquake** A sudden movement of Earth's crust along a fault.
- ✓ **Erosion** The carrying away of weathered earth materials by water, wind, or ice.
- ✓ **Fault** A break in Earth's crust along which blocks of rock move past each other.
- ✓ **Flood** Covered with water.
- ✓ **Glacier** A large mass of slow-moving ice.
- ✓ **Landform** A feature of the land, such as a mountain, canyon, or beach.
- ✓ **Landslide** The movement of earth materials down a slope.
- ✓ **Canyon** a V-shaped valley eroded by a river or a stream
- ✓ **Delta** is a fan-shaped (triangular) deposit of earth materials at the mouth of a stream.
- ✓ **Plateau** is a large, nearly level area that has been lifted above the surrounding area.
- ✓ **Floodplain** a low-lying area that gets covered by water when a river runs high.
- ✓ **River mouth** is where a river empties into a lake or sea.
- ✓ **Basin** is a low area in which sediments are deposited.
- ✓ **Channel** is the course or path that water takes in a stream or a river.
- ✓ **Sediments** are eroded earth materials that have been deposited.

Content Questions

1. What properties can help us tell one rock from another? (Shape, size, color, texture, crystal pattern)
2. Why do geologists try to look carefully at the different properties? (Looking at the different properties helps geologists identify rocks).
3. What is the difference between rocks and minerals? (Minerals are pure materials and rocks are made of two or more minerals)
4. How can the minerals in a rock be separated? (Some minerals can be separated and identified by breaking the rock apart and some separate and settle when mixed with water)
5. How do you separate dissolved salt from the water? (The salt reappeared as salt crystals when the water evaporated).
6. Which ore could produce a metal you might find in a radio? (Copper ore because copper is a good conductor of electricity.)
7. Which ore could produce a metal that would make a good hammer? Why? (Iron ore because it is very strong and heavy.)
8. Which ore could produce a metal you would like to wear? Why? (Gold ore is very precious and luxurious.)
9. Which ore could produce a metal that would make a good airplane wing? Why? (Aluminum ore is very light and strong.)
10. What do we mean when we say a mineral has a certain hardness? (Hardness is a property of minerals. Hard minerals are difficult to scratch; minerals can be ordered by hardness.)

11. If you didn't have any tools, how could you learn if one mineral is harder than another? (Rub them together. The harder mineral will always scratch the softer one.)
12. Name some common rocks: basalt (igneous), limestone (sedimentary), marble (metamorphic), and sandstone (sedimentary).
13. Why do geologists carry a small bottle of weak acid in the field? (To detect the presence of calcite in rocks.)
14. Why does calcite fizz? (Because it has a chemical reaction with acid.)
15. What kinds of rocks contain calcite? (mostly sedimentary rocks)
16. What do you think happens when acid rain falls on a marble monument like the Washington monument? (After many years it begins to weather.)
17. What type of rocks do the three rock-forming processes produce? (Igneous, sedimentary and metamorphic.)
18. How do sedimentary, metamorphic, and igneous rocks form? (Sedimentary rock forms when bits of rock and mineral are cemented together; metamorphic rock is existing rock changed to new rock by heat and pressure; igneous rock is new rock crystallized from melted minerals.)
19. Which property of calcite makes it easy to identify? (Calcite bubbles when it is placed in vinegar, an acid.)
20. Why do geologists use the property of streak to help identify a mineral? (Streak is always the same for a particular material, no matter what the color sample is).
21. How do you do a streak test? (Drag a mineral sample across a streak plate to get a powdered sample. Use a hand lens to check the color of the powder).
22. Why is it important to observe a mineral's luster, cleavage and other properties like magnetism? (Knowing more than one property of a mineral makes it easier to identify the mineral.
23. What do geologists use a mineral properties table for? (You can use a mineral properties table to help identify minerals).
24. What happens when a river flows over a flat surface like a plateau? (Water erodes weathered rocks)
25. What are some of the landforms that erosion can create? (Canyons, valleys, meanders).
26. How do the pieces of rocks form that later erode? (Large rocks have to be broken into smaller pieces by physical or chemical weathering)
27. What happens to earth materials that have been eroded by a river? (They are deposited as sediments in a basin).
28. Which earth materials are deposited first as the water in a river slows down? (The heaviest earth materials).
29. What happens to water flowing in a river? (It moves back and forth, following the lowest channel.)
30. Describe 3 ways rock is eroded and 3 ways rock is deposited. (Rock is eroded by flowing water, wind, glaciers, and waves; rock is deposited by slowing water, slowing wind, and melting glaciers).
31. Describe how mountains can become sand on a beach. (Rock is weathered by roots, ice, abrasion, chemicals and gravity. It is then eroded (transported) by

steams and rivers until it reaches the sea. It is deposited at the shore when the river flows into the sea.

32. What is the role of erosion and deposition in the rock cycle? (Weathering and erosion break down and transport existing rocks, depositing them in other places. After millions of years, sediments will cement into new sedimentary rocks.)