

U-Pick Projects: Earth Science

Name _____

Directions: Pick projects that will earn you a minimum of 10 points. Shade in the boxes to show the projects you complete. You may create electronic versions that can be shared with your teacher or complete them with materials you have available at home. You may choose up to 2 more boxes to complete to earn extra credit equal to the number of points the boxes are worth.

1 pt	Make a list of at least 5 scientists who study the Earth. Identify what each one studies and why it is important.	Create a flyer to teach people what safety precautions they should take to protect themselves from a natural disaster (earthquake, volcano, hurricane, tornado, etc.)	Create a set of flashcards for 10 vocabulary terms from the Earth Science unit. Each flashcard should have the term listed on the front along with a picture clue and a definition on the back.
2 pts	Create a coloring page with pictures or diagrams to teach a younger student about each of the “spheres” on Earth: atmosphere, geosphere, biosphere, and hydrosphere.	Create a game to teach younger students about the natural resources (rocks and minerals) used to make the items we use each day.	Create a crossword puzzle using at least 15 terms from the Earth Science unit vocabulary. You must provide the clues and an answer key.
3 pts	Research the natural resources used to create your phone, TV, laptop, and other electronics. Create a display to share with other students.	Make a model to demonstrate an earthquake, volcanic eruption, or other natural disaster. You will need to include a paragraph explaining the main components or parts.	Create a comic strip or cartoon to teach younger students about the rock cycle. You need to include the 3 types of rocks and how they change.
4 pts	Compare the layers of the Earth to an object. Label the parts of the object and describe the relationships to the layers of Earth for each.	Create tweets or Facebook posts for three different geologic time periods. Each tweet or post must be between 120-140 characters long.	Create 5 questions using the Earth Science unit vocabulary that your teacher could add to a quiz or test. Each question must have 4 answer choices with the correct one identified.

Total Points Earned = _____

Earth Science Vocabulary – Also available on [Quizlet](#)

- Active - Volcano that is currently erupting
- Anticline - Upwards bend in rock
- Asthenosphere - The soft layer of the mantle on which the lithosphere floats
- Atmosphere - Outermost layer of Earth's system where weather occurs; composed of mostly N and O
- Batholith - A mass of rock formed when a large body of magma cools inside the crust; makes up the "cores" of mountains
- Biosphere - All the living things on Earth
- Caldera - Hole (or space) left when the top of a volcano collapses
- Carbonates - Family of minerals with one carbon and three oxygen atoms; fizzes to show a reaction with vinegar
- Chemical - Type of sedimentary rock that forms as minerals in water crystallize
- Cinder Cone - Volcano made by magma high in silica; forms as the materials build up around the central vent
- Clastic - Type of sedimentary rock that forms as sediments are cemented or compacted together
- Cleavage - A mineral's ability to split easily along flat surfaces
- Color - Property of minerals that may be used to help in identification, but not as reliable as its streak
- Composite - Volcano formed by alternating eruptions of lava and ash
- Compounds - Two or more substances that are chemically combined; such as silicon dioxide or SiO_2
- Compression - Force that pushes on the ends of rock causing it to get thicker in the middle
- Conduction - Heat is transferred between materials that are touching, such as a metal handle on a pot getting warm as the bottom of the pan heats up
- Conductor - Material that transfer heat, such as a metal pan
- Constructive - Force that shapes or builds up landmasses, such as mountains being created by earthquakes
- Convection - Currents in the mantle responsible for the motion of the plates
- Convection - The movement of matter due to differences in density that are caused by temperature variations, such as warm air rising to the top of a room and cooler air sinking
- Convergent - Plates move towards each other
- Core - Innermost layer of the earth made up of mostly Fe & Ni; inner = solid, outer = liquid
- Core sample - Rock sample taken from the Earth that can be used as direct evidence by geologists
- Crater - Bowl-shaped area at the top of a volcano
- Crust - Outermost layer of the earth made up of mostly Si & O
- Crystal - Regular repeating pattern found in minerals
- Crystallization - Process by which crystals form in a mineral or rock
- Density - Mass per unit of volume, such as g/ml
- Deposition - Process in which sediment is laid down in new locations
- Destructive - Force that destroys earth's landmasses, such as weathering and erosion
- Dike - A slab of volcanic rock formed when magma forces itself vertically across rock layers
- Divergent - Plates move away from each other
- Dome Mountains - Formed when magma collects and pushes the rock layers above it into a rounded-dome shape
- Dormant - Volcano that is not currently erupting, but is expected to do so in the future
- Earth - Third rock from the sun
- Earthquake - Shaking or trembling of the Earth's crust
- Energy - The ability to do work
- Epicenter - Point on the Earth's surface directly above where the rock first broke or moved to start an earthquake
- Erosion - Process by which weathered rock and soil are moved from one place to another
- Explosive - Eruption that occurs with magma that is high in silica
- Extinct - Volcano that is not expected to erupt
- Extrusive - Igneous rock that forms at or above Earth's surface; cools quickly which results in small crystals

- Focus - Point inside Earth where rock first breaks or moves to cause an earthquake
- Foliated - Type of metamorphic rock with minerals arranged in band or layers
- Foot wall - Block of the fault that lies below the fault line
- Fracture - The way a mineral looks when it breaks apart in an irregular way
- Gemstone - A hard, colorful mineral that has a brilliant or glassy luster and is valued for its appearance
- Geology - Study of the Earth and its structure and composition
- Geosphere - The Earth itself; composed of three layers
- Hanging wall - Block of the fault that lies above the fault line
- Hot spot - A volcanically active area of Earth's surface far from a tectonic plate boundary
- Hydrosphere - All the water on Earth
- Igneous - Type of rock that forms from magma or lava
- Inner - Layer of the core that is solid metal; believed to be involved in creating Earth's magnetic field
- Inorganic - Not from a living thing
- Insulator - Material that prevents or reduces conduction, such as the plastic on a pan's handle
- Intrusive - Igneous rock that forms inside the Earth; cools slowly which results in larger crystals
- Island arc - A string of islands formed by the volcanoes along a deep ocean trench or plate boundary
- Lava - Molten rock is at or above the Earth's surface
- Lava flow - Refers to the process of lava moving across the surface
- Lava Plateau - Forms from lava flowing out of cracks in the crust
- Lithosphere - Layer of the Earth that is divided into plates
- Lithosphere - Upper layer of the mantle that also contains the lower part of the crust
- Luster - The way a mineral reflects light
- Magma - Molten rock below the Earth's surface
- Magma chamber - Found beneath the surface of a volcano and contains molten rock
- Magnetism - Property of some minerals to attract and/or act as a magnet
- Magnitude - Refers to the total amount of energy released during an earthquake
- Mantle - Middle layer of the earth with a higher percentage of Fe & Mg; consists of 3 parts
- Mercalli Scale - Scale used to determine the intensity of an earthquake based on people's observations and the damage caused to structures
- Mesosphere - The strong, lower part of the mantle between the asthenosphere and the outer core
- Metamorphic - Type of rock that forms from great heat and pressure
- Mineral - A solid, inorganic material that makes up rocks
- Mohs - Scale used to rate the hardness of a mineral
- Native Element - Family of minerals composed of only one element, such as copper and gold
- New Madrid - Fault line that lies closest to Central Illinois
- Nonfoliated - Type of metamorphic rock without an orderly arrangement of minerals
- Normal - Hanging wall moves down the dip of the fault
- North American - Plate on which the United States is located
- Organic - Type of sedimentary rock that forms from the remains of plants and animals
- Outer - Layer of the core that is mostly liquid (molten) metal
- P-waves - Fastest seismic wave that can travel through liquids and solids
- Pipe - Long tubes through which magma moves to reach the surface
- Pressure - Force per unit area, which increases inside Earth as the depth increases
- Pyroclastic Flow - Occurs when gases, ash, and cinders flow down the sides of a volcano during an explosive volcanic eruption
- Quiet - Eruption that occurs with magma that is very hot or low in silica

- Radiation - Heat is transferred in waves through the air, such as heat coming from a campfire
- Reverse - Hanging wall moves up the dip of the fault
- Richter Scale - Scale used to measure the magnitude of an earthquake based on the evaluation of seismograms
- Ring of Fire - Area of volcanic and seismic activity that surrounds the Pacific plate
- Rock Cycle - A series of processes on the surface and inside Earth that slowly changes rocks from one kind to another
- S-waves - Secondary seismic waves that travel only through solids
- Sedimentary - Type of rock that forms from sediments
- Seismogram - A record of an earthquake's seismic waves
- Seismograph - Instrument used to record seismic waves
- Shearing - Force that pushes in two opposite horizontal directions
- Shield - Volcano with wide, gently sloping sides that forms from quiet eruptions
- Silicates - One of the most common mineral families that contains silicon and oxygen along with at least one other element
- Sill - A slab of volcanic rock formed when magma squeezes horizontally between layers of rock
- Streak - Color of a mineral when ground into a powder
- Strike-Slip - Blocks near the fault move horizontally past one another
- Subduction - Occurs where one plate moves under another plate
- Surface (L) waves - Slowest seismic wave that moves through the ground like ocean waves
- Syncline - Downwards bend in rock
- System - Parts work together as a whole, such as the Earth, water cycle, rock cycle
- Temperature - A measure of the average energy of motion of the particles of a substance, which increases inside Earth as the depth increases
- Tension - Force that pulls on the ends of rock causing it to get thinner in the middle
- Transform - Plates at this boundary slide past one another in two opposite horizontal directions
- Triangulation - Process of using data from at least 3 seismographs to locate the epicenter of an earthquake
- Vent - An opening in a volcano; may be more than one
- Volcanic neck - Forms as magma hardens inside a pipe
- Weathering - The breaking down of rocks and other materials on the Earth's surface by wind, rain, and other forces