

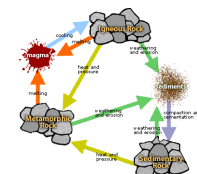
# Weathering, Soil, Erosion, and Deposition

S6E5: Obtain, evaluate, and communicate information to show how Earth's surface is formed.

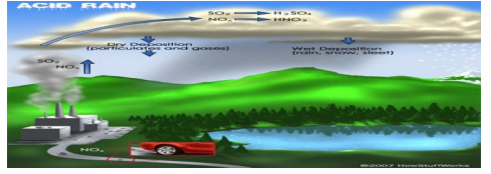




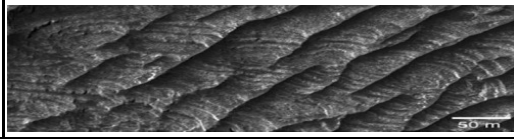




C. Construct an explanation of how to classify rocks by their formation and how rocks change through geologic processes in the rock cycle.



D. Ask questions to identify types of weathering, agents of erosion and transportation, and environments of deposition.

E. Develop a model to demonstrate how natural processes (weathering, erosion and deposition) and human activity change rocks and the surface of the Earth.



| Term  | Info   | Picture |
|---|--|---------|
| rock cycle  | a continuous series of events through which a rock is transformed from one type to another.  |         |
| weathering  | the breakdown of rock due to rain, wind, ice, sunlight, and plants.  |         |
| erosion   | the transport of fragments of rock by water, wind, ice, or gravity.  |         |
| deposition  | the process in which material is laid down   |         |
| mechanical weathering (ex: water freezing or roots) | the process by which rocks break down into smaller pieces by physical means  |         |
| abrasion  | the grinding and wearing away of rock surfaces through the mechanical action of other rock or sand particles                       |         |
| ice wedging   | mechanical weathering caused by the freezing and thawing of water that seeps into cracks in rocks                                  |         |
| gravity   | a force of attraction between objects that is due to their masses and that decreases as the distance between the objects increases |         |
| chemical weathering                                 | the process by which rocks break down as a result of chemical reactions  |         |

| Term                | Info  | Picture   |
|---------------------|---|---|
| acid rain           | precipitation that has a pH below normal and has an unusually high concentration of sulfuric or nitric acids, often as a result of chemical pollution of the air from sources such as automobile exhausts and the burning of fossil fuels |    |
| soil                | a loose mixture of rock fragments and organic material that can support the growth of vegetation  |    |
| (soil) horizons     | the line where the sky and the Earth appear to meet; also a horizontal layer of soil that can be distinguished from the layers above and below it; also a boundary between two rock layers that have different physical properties        |    |
| topsoil             | the surface layer of the soil, which is usually richer in organic matter than the subsoil is  |    |
| organic matter      | is anything that contains carbon compounds that were formed by living organisms   |   |
| bedrock             | the layer of rock beneath soil  |  |
| (soil) conservation | prevention of soil loss from erosion or reduced fertility caused by over usage, acidification, salinization or other chemical soil contamination  |  |
| contour plowing     | plowing along the contours of the land in order to minimize soil erosion.   |  |
| terracing           | To make or form (sloping land) into a number of level flat areas resembling a series of steps   |  |
| no-till farming     | A system for planting crops without plowing, using herbicides to control weeds and resulting in reduced soil erosion and the preservation of soil nutrients.  |  |

| Term          | Info   | Picture  |
|---------------|--|--|
| Cover crop    | a crop planted to keep nutrients from leaching, soil from eroding, and land from weeding over, as during the winter.   |  |
| crop rotation | the system of varying successive crops in a definite order on the same ground, especially to avoid depleting the soil and to control weeds, diseases, and pests. |  |

## Learning Targets:

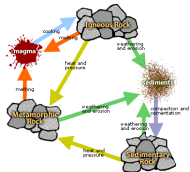
- 1.I can understand the rock cycle. I can explain how rocks recycle.  
I can describe how one rock can become a different rock under the right conditions.
2. I can analyze soil composition and explain how soil is formed.
- 3.I can list the main layers/horizons of soil in order. I can identify that topsoil (horizon A) is more organic, darker, better for farming (more fertile) and holds more water.
- 4.I can describe how soil can be conserved. (ex: trees slow down the wind and hold in the soil)
- 5.I can explain the processes of weathering, erosion, and deposition. I can demonstrate how these processes change what the earth looks like.
- 6.I can compare and contrast chemical and mechanical/physical weathering..
- 7.I can describe the causes and effects of erosion (example: more erosion means more sediments in the water which makes it difficult for the fish to live). I can observe that more weathering and erosion of rocks means they will become smaller and rounder





**Weathering, Soil, Erosion, and Deposition**

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| rock cycle   |      |         |
| weathering   |      |         |
| erosion  |      |         |
| deposition   |      |         |
| mechanical weathering<br>(ex: water freezing or roots) |      |         |
| abrasion   |      |         |
| ice wedging  |      |         |
| gravity  |      |         |
| chemical weathering                                    |      |         |

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|---------------------|------|---|
| acid rain           |      | <p>The diagram illustrates the process of acid rain. On the left, a factory and a car emit pollutants: SO<sub>2</sub> and NO<sub>x</sub>. These pollutants rise into the atmosphere where they react with water vapor (H<sub>2</sub>O) to form sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) and nitric acid (HNO<sub>3</sub>). These acids then fall as acid rain over a landscape with green hills and a lake. Labels include: ACID RAIN, SO<sub>2</sub>, NO<sub>x</sub>, H<sub>2</sub>O, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, and Water Vapor (Evaporation from surface).</p> |
| soil                |      | <p>A close-up photograph showing a pair of hands cupped together, holding a dark, moist, and crumbly substance, which is soil.</p>  |
| (soil) horizons     |      | <p>A cross-sectional diagram of the ground showing four distinct layers. From top to bottom, they are labeled: Topsoil (dark brown), Subsoil (lighter brown), Régolith (light tan, rocky), and Bedrock (dark grey, solid rock).</p>   |
| topsoil             |      | <p>An illustration of a soil cross-section. A small green plant with roots is growing out of the topsoil layer. The topsoil is the uppermost layer of soil, rich in organic matter. Below it is a darker layer, and further down is a lighter, more rocky layer.</p>  |
| organic matter      |      | <p>A diagram of a soil cross-section showing various components. Labels on the left include: Humus, Organic matter, Minerals, Water, and Air. Labels on the right include: Humus, Organic matter, Minerals, Water, and Air. The diagram shows a cross-section of soil with different layers and components.</p>   |
| bedrock             |      | <p>A photograph of a dark, layered rock formation. The layers are visible, showing a sedimentary or metamorphic structure. A scale bar in the bottom right corner indicates 50 m.</p>   |
| (soil) conservation |      | <p>A logo for soil conservation. It features a green leaf growing out of a blue water drop, which is set against a white background. The logo is circular with a blue border.</p>   |
| contour plowing     |      | <p>An aerial photograph of a large agricultural field. The field is divided into long, curved rows of crops, following the natural contours of the land. This technique is used to prevent soil erosion.</p>  |
| terracing           |      | <p>A photograph of a hillside that has been terraced. The hillside is covered with rows of crops, and the terracing has been used to create flat areas for planting. The terracing is visible as a series of steps or levels on the slope.</p>  |
| no-till farming     |      | <p>A photograph of a field with rows of crops. The crops are growing in rows, and the soil between the rows is covered with a layer of mulch or straw. This is a no-till farming technique used to reduce soil erosion and improve soil health.</p>   |

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| crop rotation |      |  |

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