

**Grade 8  
Science  
Unit 4: Landforms and Topography**

NOTES

**Weathering and Erosion**

**Weathering-** the breakdown of the materials of Earth's crust into smaller pieces.

**Physical Weathering-** Process by which rocks are broken down into smaller pieces by external conditions.

Types of Physical weathering

- **Frost wedging**
- **Plant roots**
- **Friction and impact**
- **Burrowing of animals**
- **Temperature changes**

**Chemical Weathering-** The process that breaks down rock through chemical changes.

The agents of chemical weathering:

**Water** - weathers rock by dissolving it

**Oxygen** - Iron combines with oxygen in the presence of water in a process called oxidation  
- the product of oxidation is rust

**Carbon dioxide** - CO<sub>2</sub> dissolves in rain water and creates carbonic acid  
- Carbonic acid easily weathers limestone and marble

**Living organisms** - Lichens that grow on rocks produce weak acids that chemically weather rock

**Acid rain** - Compounds from burning coal, oil and gas react chemically with water forming acids.  
- Acid rain causes very rapid chemical weathering

**Erosion-** the process by which water, ice, wind or gravity moves fragments of rock and soil.

Water Erosion - rivers, streams, and runoff

Ice Erosion - glaciers

Wind Erosion

Mass Movements - landslides, mudslides, slump and creep

**Soil Formation**

**Soil** is a mixture of weathered rock & organic matter that usually covers **bedrock** (solid rock that underlies all soil). Both chemical & mechanical processes are involved in the development of soils.

- Chemical weathering turns hard minerals into soft ones
- Mechanical weathering breaks solid rock into smaller pieces
- Plant & animals add organic materials in the form of waste products & dead organisms
- The decay of organic matter produces acids which accelerate chemical weathering
- Burrowing Animals, such as earthworms, insects, & rodents, help circulate air and water through the soil & mix mineral & organic remains