### Weathering

The breakdown of Earth’s crust into __________ pieces. Chemical and physical processes ___________ down rock at Earth’s surface.

#### Mechanical (Physical) Weathering

The type of weathering in which rock is physically _______ into smaller pieces.

**Types of Mechanical weathering**
- Ice (Frost) wedging
- Plant root growth
- Release of Pressure
- Abrasion
- Burrowing of animals
- Temperature changes

### Ice (Frost) Wedging

The process that __________ rock when water seeps into cracks, then freezes and expands.

### Plant Root Growth

Trees, bushes, and other plants may take root in __________ in rocks. The roots grow and wedge open the cracks – splitting rocks.

### Release of Pressure

As erosion removes material from the surface of a _______ of rock, pressure on the rock is reduced.

This release of pressure causes the outside of the rock to _______ and flake off like the layers of an onion.

### Abrasion

The grinding away of rock particles carried in _______, _____, or _________.

### Burrowing of Animals

Burrowing animals, like moles and rabbits _______ holes that expose new rocks to the effects of weathering. The holes allow water and other weathering agents to reach the _______ layer that had been covered by the soil.

### Temperature Changes

Repeated _______ heating and cooling of rock; heat causes expansion and cooling causes contraction.

Different minerals expand and contract at different _______ causing stresses along mineral boundaries.

### Chemical Weathering

The process that breaks down rock through _______________ changes.
## Weathering, Erosion and Deposition

The agents of chemical weathering
- Water
- Oxygen
- Living organisms
- Acid Rain
- Carbon Dioxide

### Water
Water weathers rock by dissolving it.

### Oxygen
A chemical change in which a substance combines with ____________, as when iron oxidizes, forming rust. Rock that contains iron also oxidizes, or rusts.

### Living Organisms
Lichens that grow on rocks produce weak _______ that chemically weather rock.

### Acid Rain
Compounds from burning coal, oil and gas react chemically with water forming _________. Acid rain causes very ____________ chemical weathering.

### Carbon Dioxide
CO₂ dissolves in ________ water and creates carbonic acid. Carbonic acid easily weathers limestone and marble.

### Karst Topography
Karst is created by chemical weathering of limestone.

A type of landscape in rainy regions where there is limestone near the surface, characterized by caves, sinkholes, and disappearing streams.

### Erosion
The process by which water, ________, wind, or gravity moves weathered rock or soil.

#### Agents of Erosion
1. Gravity
2. Running Water
3. Wind
4. Glacier
5. Man

#### Gravity Erosion
A force that moves rocks and other materials _____________.
The force that ________ objects towards each other.
Gravity is the **underlying force** behind all erosion; it may act alone or with a transporting agent.
Gravity causes
- water to flow downhill.
- glaciers to flow down a valley or spread outward.
- winds by pulling heavier (more dense) cold air beneath (less dense) warm air.
- Mass movements of sediments downhill.

#### Types of Mass Movements
**Landslides** – Occurs when rock and soil slide ________ down a steep
### Notes: Weathering, Erosion and Deposition

<table>
<thead>
<tr>
<th><strong>Runing Water Erosion</strong></th>
<th>Rivers, streams, and runoff</th>
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<td><strong>What agent of erosion is responsible for carving out V-shaped valley?</strong></td>
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<th><strong>Wind Erosion</strong></th>
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<td><strong>What agent of erosion is responsible for carving out wind erosion?</strong></td>
<td><strong>Either wind or glacier erosion</strong></td>
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<tr>
<th><strong>Glacier Erosion</strong></th>
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<tr>
<td><strong>What agent of erosion is responsible for carving out U-shaped valley?</strong></td>
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<th><strong>Man Erosion</strong></th>
<th>1. <strong>Forestry</strong> – all vegetation of removed, and without roots, the soil will erode away. 2. <strong>Strip Mining</strong> – removing rock cover to get to the resources below, which causes the loose sediments to erode away. 3. <strong>Construction</strong> – the clearing of land to build buildings/houses also causes all loose soil to erode away. 4. <strong>Improper Farming</strong> – not plowing the land at right angles to slopes causes soil to erode away. 5. <strong>Salting Highways</strong> – the salt is washed off the road to the sides, where it prevents vegetative growth along the sides.</th>
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<th><strong>Deposition</strong></th>
<th>Process in which sediment is ________ down in new locations.</th>
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<td><strong>What causes deposition?</strong></td>
<td><strong>The agent of erosion</strong></td>
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<th><strong>Sediment</strong></th>
<th>Small, solid pieces of material that come from ________ or organisms; earth materials deposited by erosion.</th>
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<td><strong>What is sediment?</strong></td>
<td><strong>Small, solid pieces of material that come from ________ or organisms; earth materials deposited by erosion.</strong></td>
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**There are 3 factors that influence the rate of sediment deposition:**
1. **Sediment size**
2. **Sediment shape**
3. **Sediment density**

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<th><strong>Graded Bedding/Vertical Sorting</strong></th>
<th>A situation where larger particles settle on the ________ and smaller particles settle towards the ________.</th>
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<td><strong>What causes graded bedding?</strong></td>
<td><strong>The size of the particles</strong></td>
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This happens naturally when a ________ moving river/stream meets a large standing body of water.
This happens because the velocity of the water ________ very quickly. (A waterfall emptying into a lake)

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<th><strong>Horizontal Sorting</strong></th>
<th>A situation where moving water enters a larger, still body of water ________, and causes the larger particles to be deposited ________ to the shoreline.</th>
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<td><strong>What causes horizontal sorting?</strong></td>
<td><strong>The size of the particles</strong></td>
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Particle size ____________ as you move away from the shore.
| **Delta** | A _______ shaped deposit that forms at the mouth of a river/stream when it enters a larger body of water.  
This is seen under the water. The particles are ____________ sorted. |
| **Alluvial Fan** | A _______ shaped deposit of sediments that forms when a stream/river flows out of a mountain on to flat, dry plains.  
These are not under water and are very visible. This only happens on the land. You can call it a “_______ delta”. |
| **Cross-Bedding** | A situation where layers of sediments are deposited at _______ to one another as a result of a change of direction of the erosional agent.  
These are usually found in sand dunes, deltas, and alluvial fans. |