Constructive & Destructive Forces Unit Study Guide

I Can Statements | Meaning | Examples/Diagrams
---|---|---
**I can explain how constructive and destructive forces affect the nature of landforms on Earth.**

- Breaks rocks in smaller pieces without changing them **chemically**
  - Identical to *composition* of original rock.
  - Causes: **ice wedging**
  - **plant roots growing**
  - **animals burrowing**

- Breaks rocks into smaller pieces by changing the **chemical composition** of the rock
  - It is rapid in **tropical** regions where it is warm and moist

  *Causes:*
  - **natural acids** *(carbonic acid)*
  - **plant acids** *(tannic acid)*
  - **oxygen** *(oxidation)*

  *Show a rock being mechanically weathered*

  *Show a rock being chemically weathered*

- **Compare & Contrast Mechanical and Chemical Weathering**
  - **Comparison**: Both break apart rock – can be caused by water/ice & plants
  - **Contrasts** – Mech./Phy. Rocks **not** changed chemically – Chem. Chemical composition of rock is changed

- **Wearing away and removal** of rock or sediments
  - **Agents:** gravity, ice, wind, water

  *Give one example for each*

- A force or process that **builds** landforms
  - **Processes:** deposition - **dropping of sediments**
  - mountain building - **tectonic plate movement**
  - volcanic activity - **layering of lava**

  *Description of each process*

- **Give one example of each of the above constructive processes**
  - deposition - **deltas, glaciers-outwash and till** – moraines & drumlins
  - mountain building - **fault-block, folded, upwarped**
  - volcanic activity - **volcanic mountains (subduction-steep cone shaped, 1 central eruption zone Mt St Helen’s)**
  - **underwater eruptions/hotspots** *(growing underwater, more gently sloping sides multiple vents, Hawaiian Islands)*
**I can explain how constructive and destructive forces affect the nature of landforms on Earth.**

- A force or process that **breaks things down**
  - Processes: Chemical & Mechanical Weathering
    - Erosion
    - Explosive Volcanic Eruptions

**I can compare examples of constructive and destructive forces on Earth.**

- Give one example of each of the above destructive processes
  - Chemical & Mechanical weathering: oxidation/rust formation (Chem.), ice wedging (Mech/Phy.)
  - Erosion: gravity, ice, wind, water
  - Explosive volcanic eruptions: Mt St Helens

<table>
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<th>CONSTRUCTIVE</th>
<th>BOTH</th>
<th>DESTRUCTIVE</th>
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<tr>
<td><strong>Building of landforms</strong></td>
<td><strong>Create and change landforms</strong></td>
<td><strong>Breaking down of landforms</strong></td>
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<td>List 2 examples:</td>
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<td>deposition due to river flowing (delta)</td>
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<td>V-shaped valley carved by river</td>
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<td>Plate tectonics</td>
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<td>U-shaped valley carved by glacier</td>
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<td>Mountain Building</td>
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**I can predict types of landforms that result from both constructive and destructive forces.**

**Constructive**
* Rivers carrying sediments toward the ocean; slowing & dropping sediment can form a **delta**.
* A volcano slowly erupting lava over time can form a **volcanic** mountain.
* Plates colliding, compressing and folding rock layers can form a **folded** mountain.

**Destructive**
* Glaciers carving out bowl-shaped depressions called **cirques**.
* Wind carrying small particles in the desert leaving behind larger sediments creates **desert pavement**.
* Water carves out river valleys that are v-shaped, leading to forming **canyons/gorges**.