

# **Weathering**

**Chemical and Physical**

**&**

# **Erosion**

# Build a Statue

- Someone wants to build a statue of you that needs to last forever!
- What type of rock should you make the statue out of?

# Weathering

Once **Igneous** rocks reach the surface they begin to experience **Weathering**.

# Processes of Weathering: Two Types

**Mechanical** (Physical) and **Chemical**

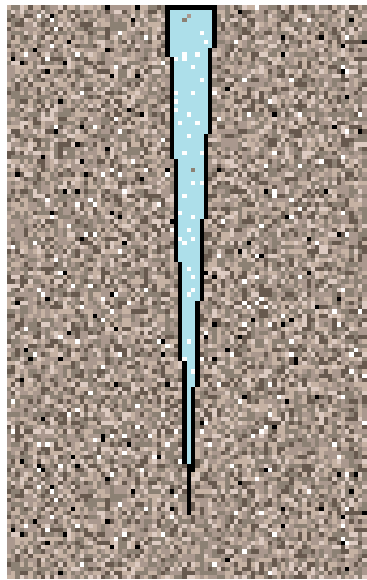
# Definition of Mechanical Weathering

**The breaking down of  
rocks into smaller pieces  
without changing the  
rock's chemical  
composition**

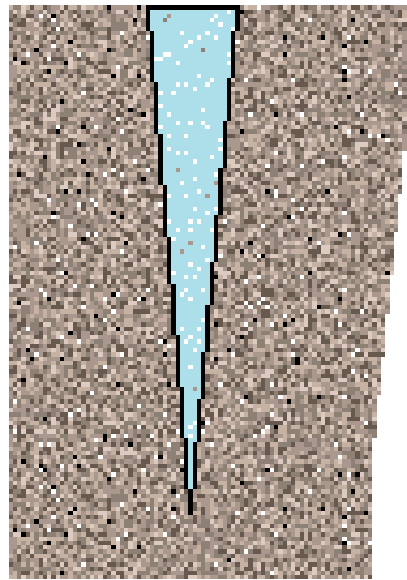
# Types of Mechanical Weathering

3. **Frost wedging**- is when water fills a crack and freezes, causing the rock to break apart

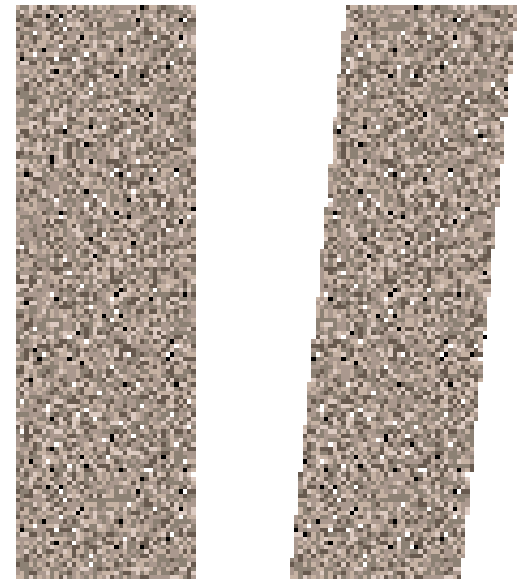
# Frost Wedging



Water-filled  
crack



Freezes to  
ice



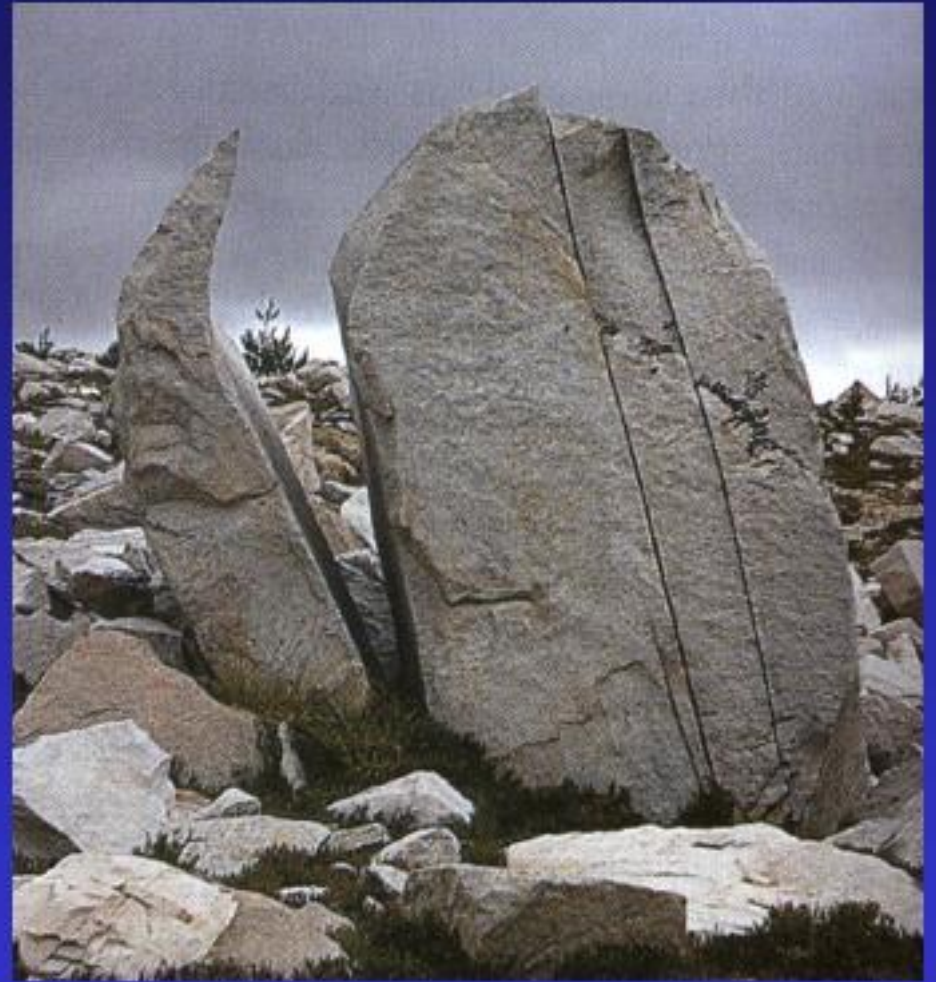
Breaks  
Rock

Frost  
wedging-





# *Physical Weathering: Water and Ice*



*Mechanism for fracturing rocks?*

# Chemical Weathering....

Definition: When the **Chemical** properties of rock are transformed through chemical reactions.

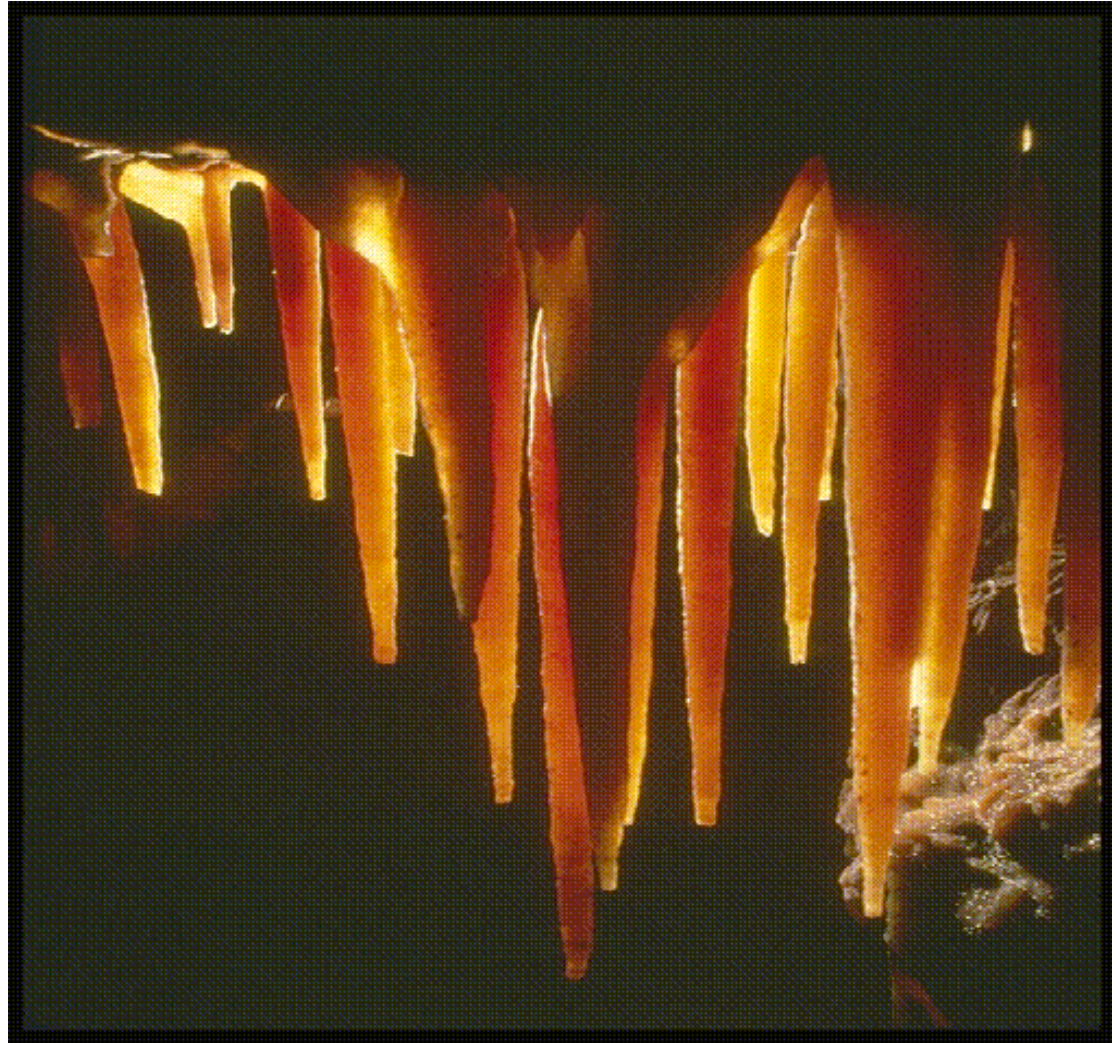
# Types of Chemical Weathering

## 1. Reactions with Carbon Dioxide

(Carbonation) Water combines with Carbon Dioxide to form a **weak acid** that eats away at rocks and minerals

# Stalactites caused by carbonation

Limestone is eaten away by acid and deposits as it drips from ceiling of cavern



# Types of Chemical Weathering

## 2. Reactions with Water:

Some minerals dissolve after reacting with water.

The dissolved minerals form new secondary minerals

Feldspar combines with  $H_2O$  to form a common clay called kaolin



# Types of Chemical Weathering

## 3. Acid Precipitation

When **Coal** and petroleum are burned, chemicals are released into the air and react with water molecules to form **acid rain.**

# Types of Chemical Weathering

