

# GLACIATION NOTES

---

## Glacier Formation:

- Theorists predict that the earth's climate cooled due to changes in the earth's orbit around the sun as well as a tilt of the earth's axis, or changes in the heat output from the sun.
- glaciers form when the earth's climate cools, and snow that falls in the winter does not completely melt in the summer
- over thousands of years the snow becomes thicker, and the weight of the layers causes immense pressure turning the bottom layers into ice

## Ice Ages:

- evidence of previous ice ages 2 billion years ago, 600 million years ago, and 250 million years ago
- last Ice Age began between one and two million years ago, when *ice sheets* covered almost all of Canada and parts of the United States, Europe, and South America
- last Ice Age ended about 10,000 years ago

## Glacier Movement:

- glaciers **advance** (grow) when the rate of melting is *slower* than the rate of accumulation
- glaciers **retreat** (shrink) when the rate of melting is *faster* than the rate of accumulation
- **zone of accumulation** is part of the glacier where snow builds up and turns to ice, and glacier ice moves outward from here

## Types of Glaciers:

- **alpine glaciers** are found in mountainous regions, and move down valleys from high elevations under the force of gravity
- **continental glaciers** are found in flatter regions with ice sheets covering a larger area, and move under their own weight

### **Glacier Erosion:**

- as glaciers move (advance and retreat) they *erode* the land underneath
- **striations** are grooves gouged in the bedrock underneath a glacier caused from rocks being frozen and dragged in the ice
- **spillways** are deep valleys created by large amounts of water flowing from a melting glacier

### **Glacier Deposition:**

- as glaciers erode the land they *deposit* the eroded material called **till**
- **moraines** are ridges of till deposited at the edge of a glacier
- **drumlins** are egg-shaped hills with a steep side at the wide end and a gentle slope at the other end
- **erratics** are large rocks that were carried by a glacier and deposited elsewhere
- **lake plains** are fertile bottoms of an ancient glacial lake that is used for agriculture