Oceans

Ocean Composition
- Contains dissolved salts, gases, and nutrients as ions
- Salts & nutrients replenish via decay of marine organisms

Layers
- Surface Layer: warm, light, 100 m deep
- Thermocline: rapidly decreasing temperature with depth.
- The warm surface layer and thermocline are absent in the polar regions.
- IT IS ALL COLD!!

Ocean Circulation
- Global movement of water
- Transfers energy, minerals, & nutrients
- Driven by:
  - Deep currents — thermohaline differences
  - Surface currents — air circulation
  - Tides (caused by moon’s gravity)
- Rotate via Coriolis Effect like air currents
Oceans as Energy Transporters

- Move energy via currents
  - Warm currents begin near the equator and move warm water toward the poles.
  - Cold currents begin near the Earth’s poles and moves cold water toward the equator.
- Affects local climate patterns

Oceans as Heat Sinks

- High specific heat
- Global absorption of solar radiation
- Moderate coastal temperatures
Zones of Ocean Life

Upwelling

- What happens:
  - Longshore winds combine with the Coriolis Effect cause warm surface water to move away from shore
  - Cold water rises from depths to replace warm H2O
- Effects:
  - Increased concentrations of dissolved nutrients (nitrates & phosphates)