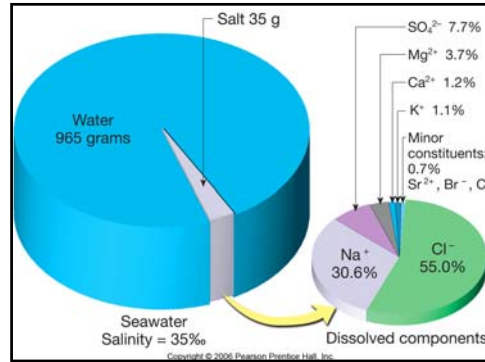


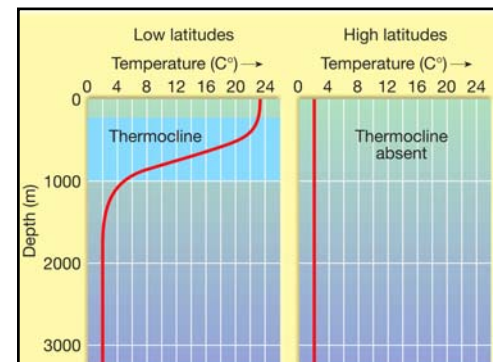
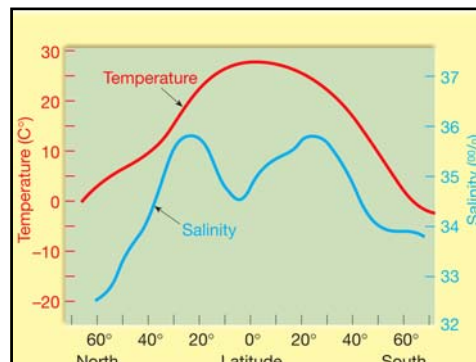
Chemistry and Physics  
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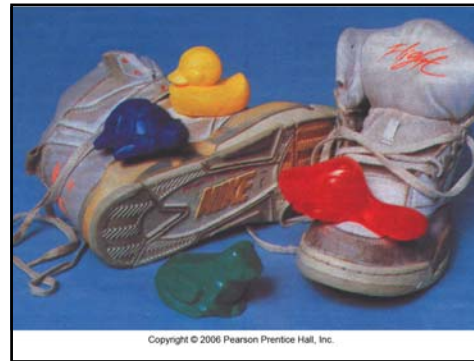
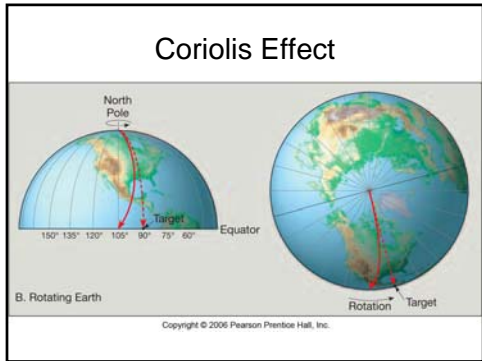
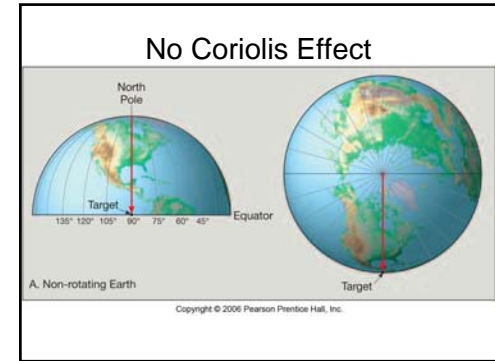
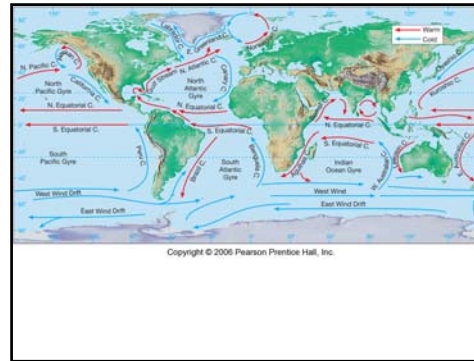
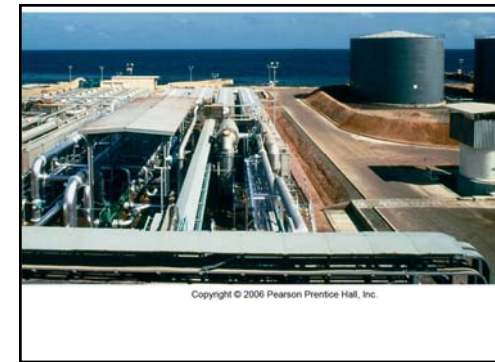
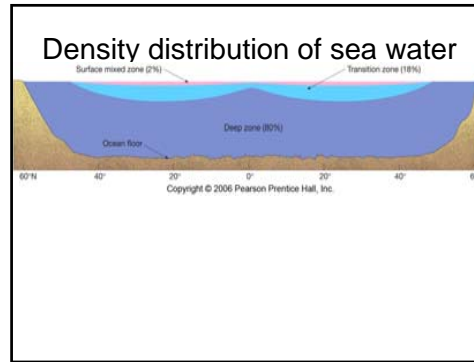
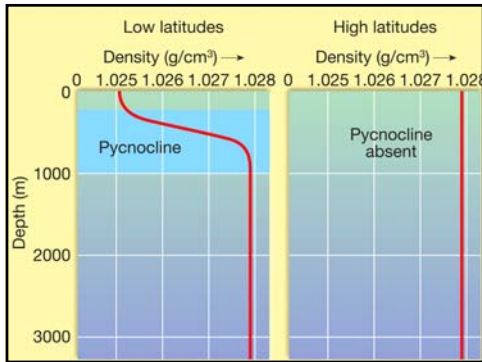


**TABLE 14.1** Recipe for artificial seawater.

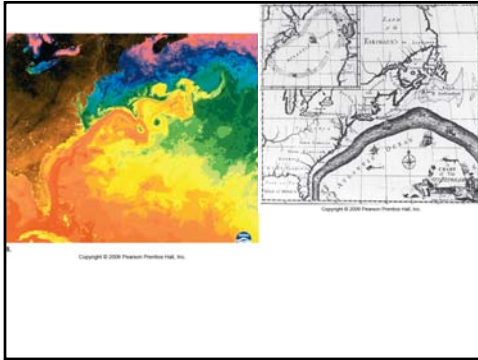
To make seawater, combine:	Amount (grams)
Sodium chloride (NaCl)	23.48
Magnesium chloride (MgCl <sub>2</sub> )	4.98
Sodium sulfate (Na <sub>2</sub> SO <sub>4</sub> )	3.92
Calcium chloride (CaCl <sub>2</sub> )	1.10
Potassium chloride (KCl)	0.66
Sodium bicarbonate (NaHCO <sub>3</sub> )	0.192
Potassium bromide (KBr)	0.096
Hydrogen borate (H <sub>3</sub> BO <sub>3</sub> )	0.026
Strontium chloride (SrCl <sub>2</sub> )	0.024
Sodium fluoride (NaF)	0.003

**Then add:**  
Pure water (H<sub>2</sub>O) to form 1000 grams of solution.

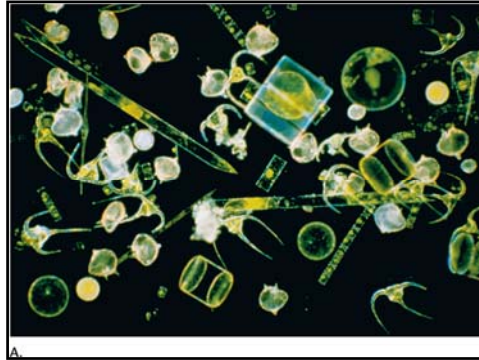
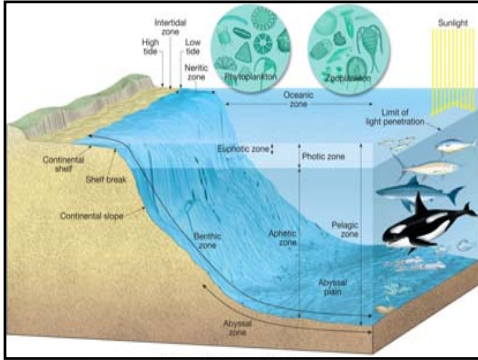
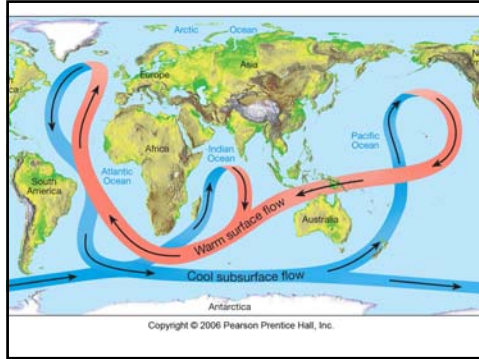
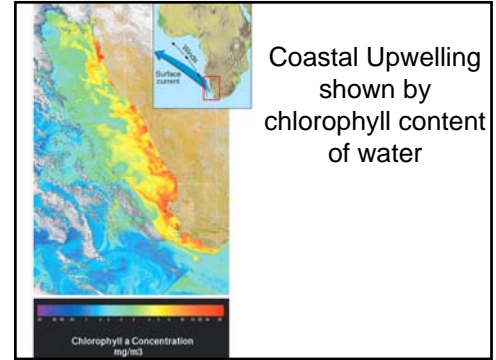


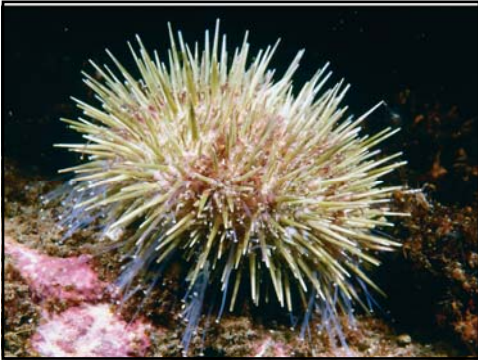






- ### Currents to remember:
- Gulf Stream
    - Warm northward flow along west side of N. Atlantic
  - Kuroshio
    - Warm northward flow along west side of N. Pacific
  - California
    - Cool southward flow along east side of N. Pacific
  - West Wind Drift
    - West to east “around the world” flow in southern hemisphere
  - Equatorial currents
    - East to west flow that run into land masses at west side of ocean basins





### Marine life zones

**TABLE 14-2** Marine life zones.

Basis	Marine Life Zone	Subdivision	Characteristics
Available sunlight	Photic		Sunlit surface waters.
	Aphotic	Euphotic	Has enough sunlight to support photosynthesis. No sunlight; many organisms have bioluminescent capabilities.
Distance from shore	Intertidal		Narrow strip of land between high and low tides; dynamic area.
	Nearctic		Above continental shelf; high biomass and diversity of species.
	Oceanic		Open ocean beyond the shelf break; low nutrient concentrations.
Depth	Pelagic		All water above the ocean floor; organisms swim or float.
	Benthic		Bottom of ocean; organisms attach to, burrow into, or crawl on seafloor.
		Abyssal	Deep-sea bottom; dark, cold, high pressure; sparse life.

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