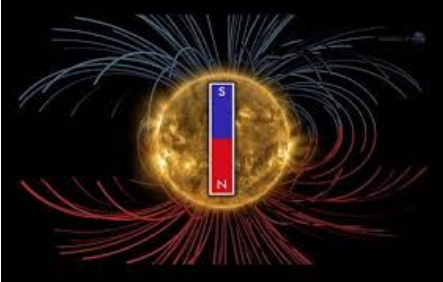
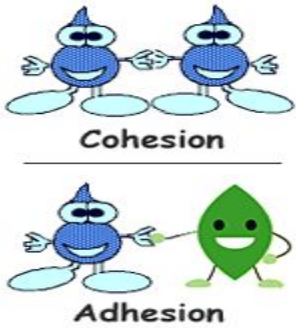

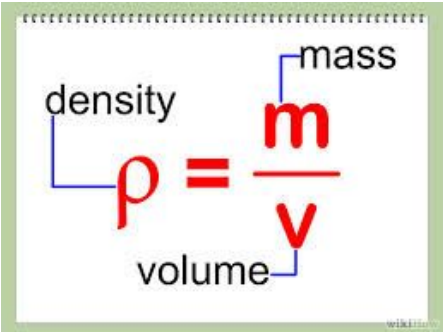


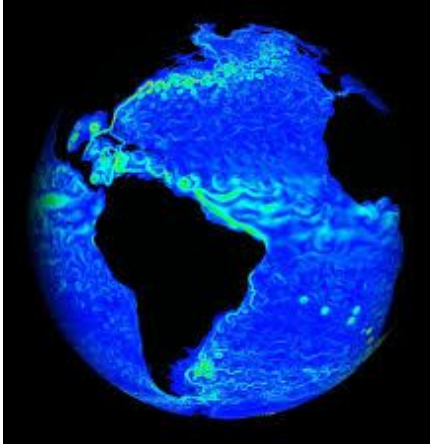


# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Polarity</b> (8.E.1.1)</p>	<p>The property or characteristic that produces unequal physical effects at different points in a body or system, as a magnet or storage battery.</p>	 A diagram of Earth showing its magnetic field. The Earth is depicted as a yellow sphere with a vertical bar through its center representing the magnetic axis, with 'S' at the top and 'N' at the bottom. Blue and red lines represent magnetic field lines emerging from the North pole and entering the South pole, curving around the planet.
<p><b>Cohesion</b> (8.E.1.1)</p> <p><b>Adhesion</b> (8.E.1.1)</p>	<p>The clinging together of particles of the same substance</p> <p>Clinging of one substance to another</p>	 Two cartoon illustrations. The top one shows two blue water droplets with faces and arms, each with a small hand reaching towards the other, labeled 'Cohesion'. The bottom one shows a blue water droplet with a face and arms reaching towards a green leaf with a face and arms, labeled 'Adhesion'.
<p><b>Surface Tension</b> (8.E.1.1)</p>	<p>A measure of the force necessary to stretch or break the surface of a liquid</p>	 A photograph of a water bug (Belostomatidae) floating on the surface of a blue liquid. The bug's legs are spread out, and its body is supported by the surface tension of the liquid.
<p><b>Density</b> (8.E.1.1)</p>	<p>The substance's mass per unit volume</p>	 A diagram showing the formula for density: $\rho = \frac{m}{v}$ . The Greek letter rho ( $\rho$ ) is labeled 'density'. The letter 'm' is labeled 'mass'. The letter 'v' is labeled 'volume'. The entire diagram is enclosed in a green border.

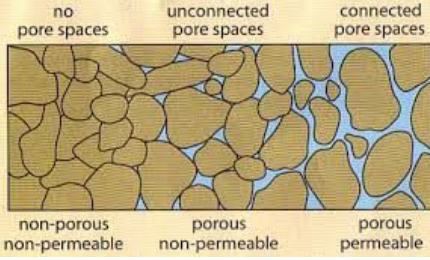

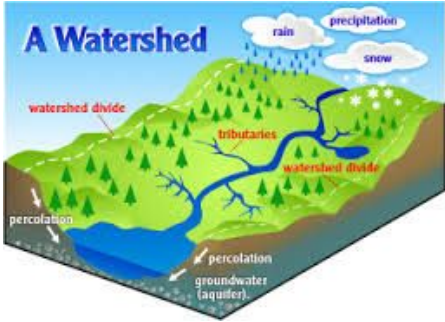

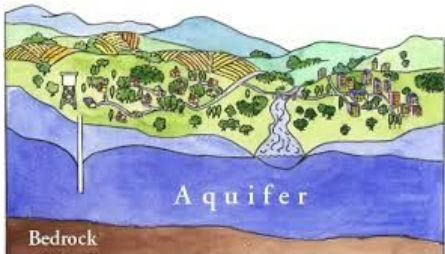
# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Specific Heat</b> (8.E.1.1)</p>	<p>The amount of heat that must be absorbed or lost for one gram of a substance to change its temperature by 1 C</p>	<p>Specific Heats of Common Materials</p> <table border="1"><thead><tr><th>MATERIAL</th><th>SPECIFIC HEAT (Joules/gram • °C)</th></tr></thead><tbody><tr><td>Liquid water</td><td>4.18</td></tr><tr><td>Solid water (ice)</td><td>2.11</td></tr><tr><td>Water vapor</td><td>2.00</td></tr><tr><td>Dry air</td><td>1.01</td></tr><tr><td>Basalt</td><td>0.84</td></tr><tr><td>Granite</td><td>0.79</td></tr><tr><td>Iron</td><td>0.45</td></tr><tr><td>Copper</td><td>0.38</td></tr><tr><td>Lead</td><td>0.13</td></tr></tbody></table> <p>ESRT page 1</p>	MATERIAL	SPECIFIC HEAT (Joules/gram • °C)	Liquid water	4.18	Solid water (ice)	2.11	Water vapor	2.00	Dry air	1.01	Basalt	0.84	Granite	0.79	Iron	0.45	Copper	0.38	Lead	0.13
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<p><b>Hydrosphere</b> (8.E.1.1)</p>	<p>All the waters on the earth's surface, such as lakes and seas, and sometimes including water over the earth's surface, such as clouds</p>																					
<p><b>Universal Solvent</b> (8.E.1.1)</p>	<p>Water is capable of dissolving all substances</p>																					
<p><b>Salinity</b> (8.E.1.1)</p>	<p>Saltiness or dissolved salt content of a body of water</p>																					

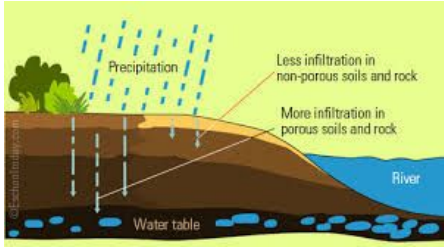




# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Permeability</b> (8.E.1.1)</p>	<p>The state or quality of a material or membrane that causes it to allow liquids or gases to pass through it</p>	
<p><b>River Basin</b> (8.E.1.1)</p>	<p>Land that water flows across or under on its way to a river</p>	
<p><b>Watershed</b> (8.E.1.1)</p>	<p>Areas of land that drain into a stream, river, lake, or other body of water</p>	
<p><b>Groundwater</b> (8.E.1.1)</p>	<p>Water located below the Earth's surface</p>	
<p><b>Aquifer</b> (8.E.1.1)</p>	<p>A rock layer that collects and stores water</p>	

# Earth Systems, Structures, & Processes Unit

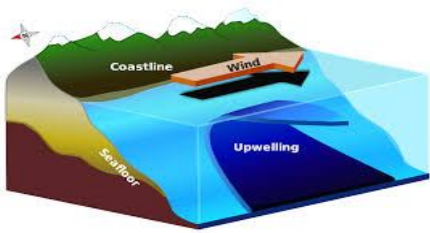

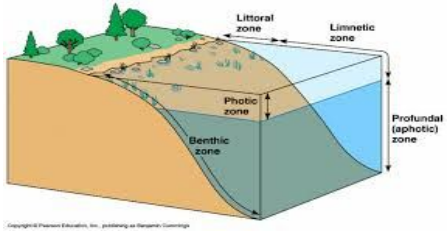

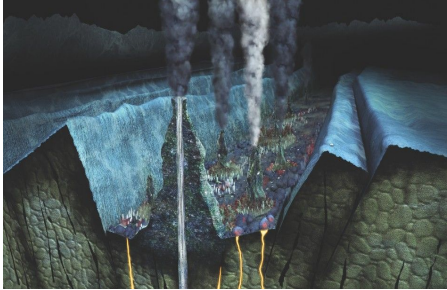
## 8.E.1

<p><b>Infiltration</b> (8.E.1.1)</p>	<p>To pass into or through (a substance) by filtering or permeating</p>	
<p><b>Reservoir</b> (8.E.1.1)</p>	<p>A large natural or artificial lake used as a source of water supply</p>	
<p><b>Benthos</b> (8.E.1.2)</p>	<p>The flora and fauna found on the bottom, or in the bottom sediments, of a sea, lake, or other body of water</p>	
<p><b>Nectos (Nekton)</b> (8.E.1.2)</p>	<p>Aquatic animals that are able to swim and move independently of water currents</p>	<p><b>Marine Nekton</b></p> 
<p><b>Plankton</b> (8.E.1.2)</p>	<p>Microscopic organisms that float freely with oceanic currents and in other bodies of water</p>	



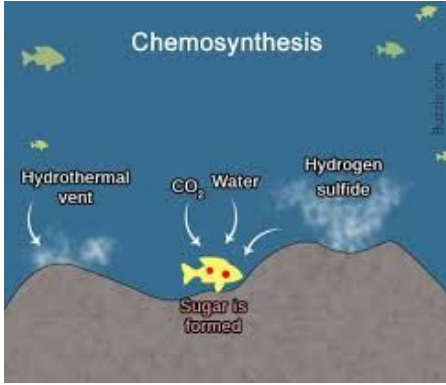
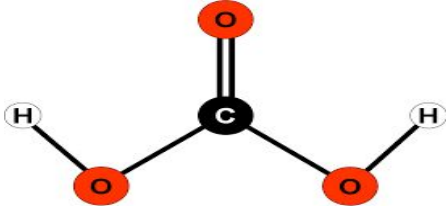

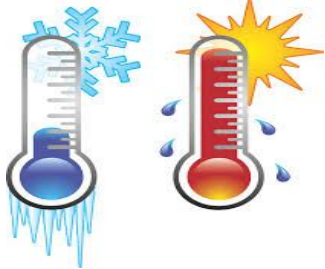
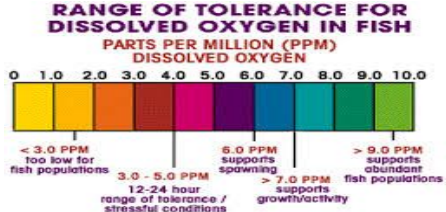
# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Upwelling</b> (8.E.1.2)</p>	<p>Carries cold water from the deep in the ocean up to the surface</p>	 A 3D diagram showing a cross-section of the ocean. On the left, a coastline is shown with a red arrow labeled 'Wind' blowing from the right. This causes the water surface to slope down towards the coast. A blue arrow labeled 'Upwelling' points upwards from the deep ocean floor towards the surface. The ocean floor is labeled 'Seafloor'.
<p><b>Sediment</b> (8.E.1.2)</p>	<p>Naturally occurring material that is broken down by processes of weathering and erosion, and is transported by the action of the wind, water, or ice until deposited through gravity.</p>	 A close-up photograph of dark, jagged, and porous sediment, likely volcanic rock or coral fragments, showing a rough, textured surface.
<p><b>Photic Zone</b> (8.E.1.2)</p>	<p>Surface layer of the ocean that receives sunlight</p>	 A cross-sectional diagram of the ocean showing different zones. From top to bottom: the 'Littoral zone' near the shore, the 'Limnetic zone' in the open water, the 'Photic zone' (the upper part of the water column where light penetrates), the 'Benthic zone' (the bottom of the ocean), and the 'Profundal (aphotic) zone' (the deep, dark part of the ocean). A copyright notice for Pearson Education, Inc. is visible at the bottom.
<p><b>Phytoplankton</b> (8.E.1.2)</p>	<p>The tiny plants that make up plankton</p>	 A colorful cartoon illustration of various anthropomorphic phytoplankton characters. They have different shapes, colors (green, blue, yellow), and some have eyes and mouths. They are standing on a sandy ocean floor. A speech bubble from one character says 'Hi, I'm a seaweed'.
<p><b>Hydrothermal Vents</b> (8.E.1.2)</p>	<p>Openings in the ocean floor that release heat</p>	 A photograph of hydrothermal vents on the ocean floor. Several dark, rocky structures are visible, with white, mineral-rich superheated water being emitted from them. The surrounding water is dark and contains some small organisms.

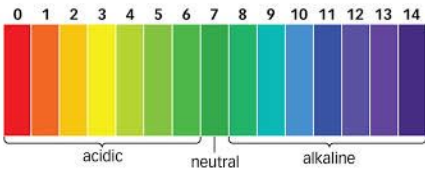

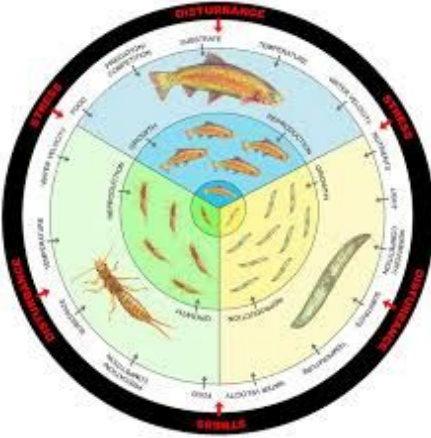
# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Chemosynthesis</b> (8.E.1.2)</p>	<p>Process of using energy stored in chemical bonds instead of sunlight to produce food</p>	
<p><b>Carbonic Acid</b> (8.E.1.2)</p>	<p>A chemical compound with the chemical formula <math>H_2CO_3</math>.</p>	
<p><b>Estuary</b> (8.E.1.2)</p>	<p>A body of water in which freshwater from a river meets and mixes with salt water from the ocean.</p>	
<p><b>Temperature</b> (8.E.1.3)</p>	<p>The degree or intensity of heat present in a substance or object</p>	
<p><b>Dissolved Oxygen</b> (8.E.1.3)</p>	<p>Microscopic bubbles of gaseous oxygen (<math>O_2</math>) mixed in water and available to aquatic organisms for respiration.</p>	


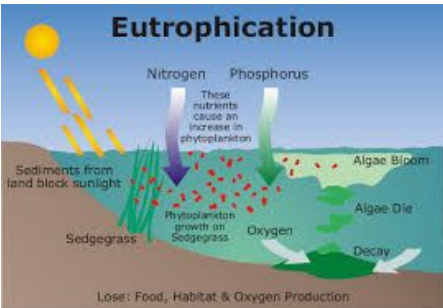
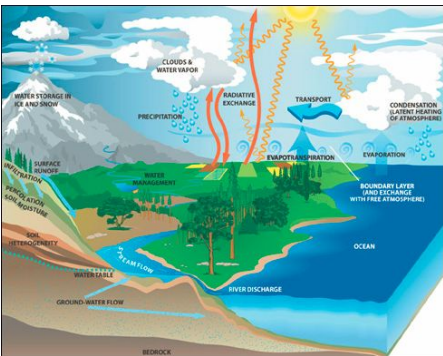
# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>pH</b> (8.E.1.3)</p>	<p>Measure of how acidic or basic a liquid is</p>	
<p><b>Nitrates</b> (8.E.1.3)</p>	<p>Inorganic compounds that can be found in nature and in several foods we eat</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><u>NITRATE</u></p> <chem>[O-][N+](=O)[O-]</chem> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><u>NITRITE</u></p> <chem>[O-]N=O</chem> </div> </div>
<p><b>Phosphates</b> (8.E.1.3)</p>	<p>Important in metabolism and are frequently used in fertilizers</p>	<chem>R-O-P(=O)(OH)OH</chem>
<p><b>Turbidity</b> (8.E.1.3)</p>	<p>A measure of how clear water is</p>	
<p><b>Bioindicators</b> (8.E.1.3)</p>	<p>Organisms used to monitor the health of an ecosystem</p>	

# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Potable Water</b> (8.E.1.3)</p>	<p>Water safe enough for drinking and food preparation</p>	
<p><b>Eutrophication</b> (8.E.1.3)</p>	<p>Rich in organic and mineral nutrients and supporting an abundant plant life which, in the process of decaying, depletes the oxygen supply for animal life.</p>	 <p><b>Eutrophication</b></p> <p>Nitrogen Phosphorus These nutrients cause an increase in phytoplankton</p> <p>Sediments from land block sunlight Sedgegrass Phytoplankton growth on Sedgegrass Algae Bloom Algae Die Oxygen Decay</p> <p>Lose: Food, Habitat &amp; Oxygen Production</p>
<p><b>Hydrologic System</b> (8.E.1.4)</p>	<p>A system of interrelated components, including the processes of precipitation, evaporation, transpiration, infiltration, groundwater flow, streamflow, etc., in addition to those structures and devices that are used to manage the system.</p>	 <p>WATER STORAGE IN ICE AND SNOW SURFACE STORAGE PRECIPITATION WATER MANAGEMENT NON-PETROLEUM WATER TABLE GROUND-WATER FLOW RIVER DISCHARGE OCEAN BOUNDARY LAYER (AND EXCHANGE WITH THE ATMOSPHERE)</p> <p>CLOUDS &amp; WATER VAPOR PRECIPITATION RADIATIVE EXCHANGE TRANSPORT CONDENSATION (LATENT HEATING OF ATMOSPHERE) EMPOSPHATION EMPOSPHATION</p>







# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Arsenic</b> (8.E.1.4)</p>	<p>A poisonous chemical that is used especially to kill insects and weeds</p>	 <p>The diagram illustrates the sources of arsenic in groundwater. It shows a cross-section of the ground with a tree on the surface. Below the surface, there are two layers: a top layer of brown soil and a bottom layer of blue water. An orange oval labeled 'Sources of Arsenic in Our Groundwater:' contains three items: 'Mining Wastes', 'Industrial Wastes', and 'Arsenical Pesticides'. An orange arrow points from this oval down to a yellow oval labeled 'Naturally in geologic conditions' located in the soil layer. A double-headed orange arrow is shown in the water layer, indicating the flow of arsenic into and out of the groundwater.</p>
<p><b>Environmental Protection Agency</b> (8.E.1.4)</p>	<p>Sets and enforces quality standards for wastewater that is released by industry and governments</p>	 <p>The image shows the circular logo of the Environmental Protection Agency (EPA) overlaid on a photograph of industrial smoke or steam rising from a facility. The logo features a green leaf and a blue globe with a sun, surrounded by the text 'ENVIRONMENTAL PROTECTION AGENCY'.</p>
<p><b>Clean Water Act</b> (8.E.1.4)</p>	<p>The protection and propagation of fish, shellfish, and wildlife and recreation in and on the water</p>	 <p>The image shows a 'WARNING POLLUTED WATER' sign posted near a stream. The sign is orange with black text and symbols, including a crossed-out glass and a crossed-out person. It reads: 'WARNING POLLUTED WATER Unsafe for Drinking or Recreational Use' and 'DEPARTMENT OF PUBLIC HEALTH'. In the background, a person in a yellow vest is standing near the stream.</p>
<p><b>Safe Drinking Act</b> (8.E.1.4)</p>	<p>Gives the EPA the power to set standards for the quality of drinking water</p>	 <p>The image shows a pair of hands holding a clear glass filled with murky, brownish water. The water is being poured from a container, and the glass is held at an angle, showing the sediment and discoloration of the water.</p>

# Earth Systems, Structures, & Processes Unit

## 8.E.1

<p><b>Point Source Pollution</b> (8.E.1.4)</p>	<p>Pollution that comes from a single site</p>	<p>3/25/03 hog waste was discovered here by our air patrol. It was not reported by the hog producer as required by law. This is typical.</p> 
<p><b>Non-Point Source Pollution</b> (8.E.1.4)</p>	<p>Pollution that comes from many places or an unidentified source</p>	
<p><b>Stewardship</b> (8.E.1.4)</p>	<p>The responsible planning and management of resources.</p>	
<p><b>Pesticides</b> (8.E.1.4)</p>	<p>Substances meant for attracting and then destroying, or mitigating any pest including weeds and insects</p>	
<p><b>Herbicides</b> (8.E.1.4)</p>	<p>Substances that are toxic to plants and are used to destroy unwanted vegetation.</p>	