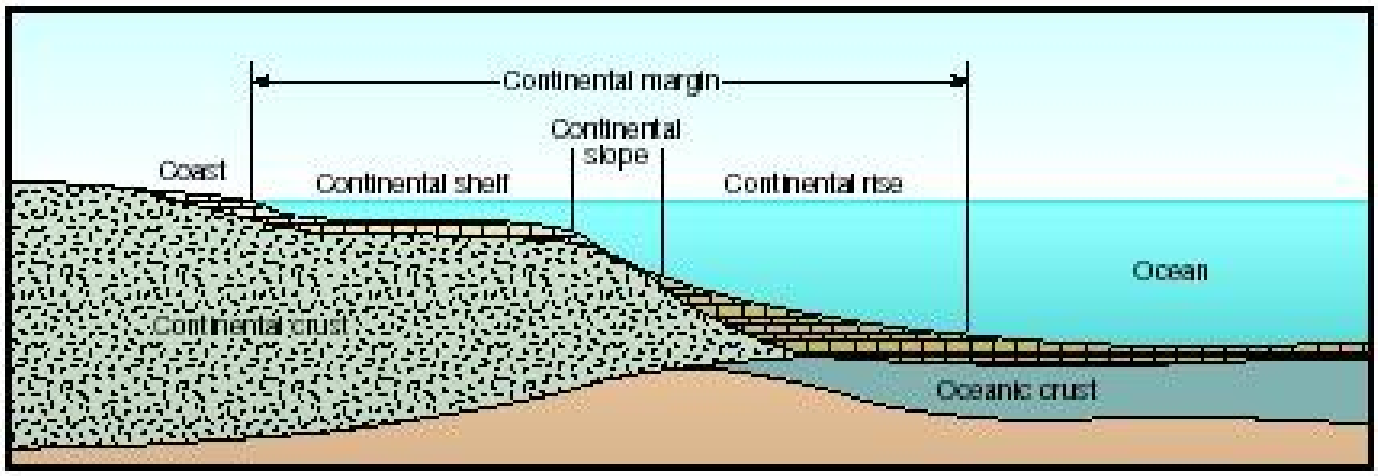
286 TOTAL POINTS

NOTES CH 14 –OCEAN FLOOR FEATURES + SEDIMENTS /68pts NAME _____HR__

_____ - the study of ALL aspects of the ocean
_____ - the study of the ocean's depths and topography
_____ - the study of the shape and landforms of the ocean

1. OCEAN TOPOGRAPHY
    a. Continental _____ - the transition zone between land's edge and the floor of the ocean (all of the downhill tilt) It can be separated into:
        i. Continental _____ - the first _____ slope
            1. Up to 130 _____ deep
            2. _____ completely penetrates
            3. Can be very small up to _____ km wide (80 km average)
            4. Ocean _____ happens here
            5. Has _____ , natural gas, sand, and gravel resources
        ii. Continental _____ – 5-25 degree slope just after the shelf (steeper)
            1. _____km wide
            2. Has submarine _____ - (valley like _____ worn away by turbidity currents)
            3. _____ currents - dense sediment filled water that _____ and transports sediment
        iii. Continental _____ - gentle slope between continental slope and ocean floor
            1. Has many alluvial _____ from submarine canyon sediments
            2. May be _____ of kilometers wide



    b. Ocean Basin _____ - _____ zone from continental rise to the mid ocean ridge which contains:
        i. _____ plains- very flat regions
            1. Sediment buries and "flattens out" the _____ ocean floor
            2. _____ places on earth
        ii. Deep ocean _____ - narrow cracks in the ocean floor
            1. _____ places on earth
            2. Most are found along the margins of the _____ Ocean
            3. Many more than 10,000 _____ deep
            4. _____ Trench- deepest 11,022 meters

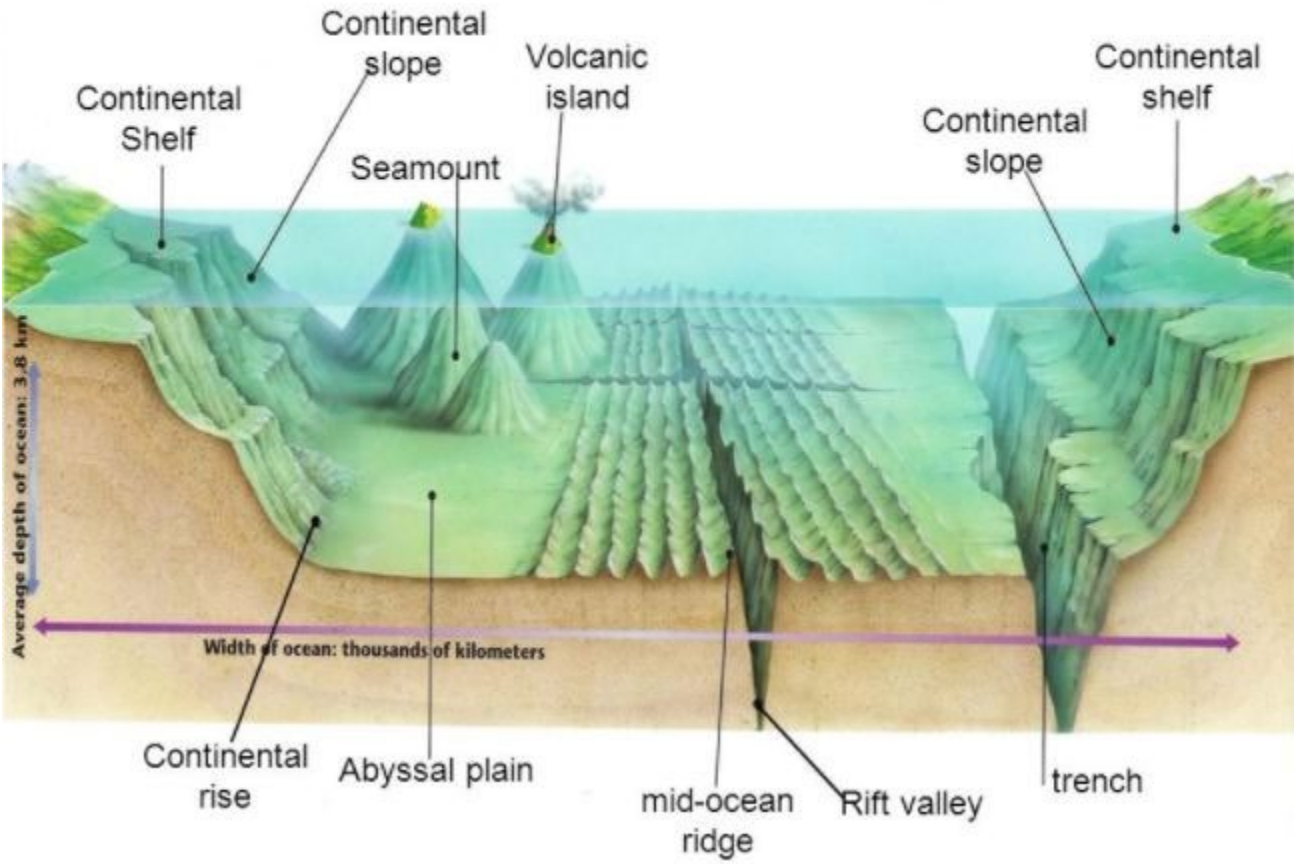
iii. _____ - underwater volcanic _____
   1. Most of Earth's mountains are _____
   2. If they reach the surface they make _____
   3. Deep currents that hit the mountains flow up the sides bringing vital _____ to the surface waters,
   4. Thus creating zones filled with _____ just above the mountain

iv. _____ - volcanic island that _____ flat, then sunk back down underwater

v. Mid Ocean _____ - mountain _____ underwater
   1. _____ km long mountain chain
   2. _____ around earth like baseball seams
   3. Form at _____ boundaries
   4. New ocean _____ forms here

vi. _____ vents - underwater geisers of extremely hot mineral rich water
   1. Called _____ smokers or white smokers
   2. Water is hotter than boiling, but can't due to _____
   3. Ecosystem here is based on _____ performed by _____

The Ocean Floor



2. Seafloor _____ - particles of various sizes that coat and _____ the entire ocean
    a. _____ sediment - sediment from the _____
        i. Eroded _____ on the continents
        ii. Transported to the ocean by _____
        iii. Accumulates rapidly near the _____
        iv. Takes a long time to _____ in the open ocean
    b. _____ Sediments- sediment from _____ things
        i. _____ and _____
        ii. _____ , _____ , _____
        iii. Glass bodies of _____
        iv. _____ and break to bits as they sink
    c. _____ Sediment - minerals that _____ from a chemical reaction

NOTES: OCEAN WATER PROPERTIES CHAPTER 15-1 /56 NAME _____Hr__

I. Ocean water has _____ substances in it
   a. DISSOLVED _____ —the main dissolved gases are N _____, O_____, and CO2_____ dioxide. The ocean is considered a CARBON _____ because it has dissolved _____ more carbon dioxide than what the _____ holds.
      i. Gases can come in from the _____
      ii. Gases can come in from _____ entering the ocean
      iii. Gases can enter by _____ going off under water
      iv. Gases can enter because _____ living in the oceans also release _____
   b. _____ affects the amount of dissolved gases
      i. The colder the water, the _____ gases can dissolve in it
      ii. The _____ the water, the less gases can dissolve in it
   c. Dissolved _____ —water is about 3.5% dissolved solids
      i. Most abundant solids- Cl_____, Na_____, Mg_____, S_____, C_____, K _____
      ii. Source of the solids- solids are brought in by
         1. flowing _____ that empty into the ocean
         2. Volcanic _____
         3. Chemical _____ of _____
         4. Chemical _____ between sea water and new sea _____

II. _____ —measure of the amount of dissolved solids in water
   a. What percent salt does our water have?
      i. _____ = .1% salt
      ii. _____ = 3.5% salt
   b. Factors that change _____
      i. _____ - when water _____, only the water molecule sticks to the ice and the salt is left behind. The ocean is now more _____ (more concentrated with salt)
      ii. _____ - if the evaporation rate is greater than the precipitation rate, the _____ increases. Water is flying up in to the air and the salt stays _____ in the water. The ocean is now more _____ (more salty)

III. Ocean temperature layers
   a. What are the temperature _____ called?
      i. _____ - sea level down to _____ meters- it's all about the same temperature due to mixing, and the sun _____ reach down this far
      ii. _____ - 300 meters down to _____ m- temperature ranges from 22 degrees C down to _____ C.
      iii. _____ zone- 500 m to _____ of ocean- temperature is near _____ but doesn't change much – _____ C to _____ C
   b. How does temperature affect density?
      i. _____ water _____ because it is more dense
      ii. _____ water _____ because it is less dense

NOTES: OCEAN ECOLOGY AND ENERGY TRANSFER 15-2 & 15-3 /122

I. _____- the study of how organisms _____ with each other and the environment

II. What is an ecosystem?

a. _____ – all the _____ and _____ factors in a particular environment

i. **Biotic**- _____

ii. **Abiotic**- _____ -_____ (_____, _____, _____, _____, _____, _____, etc.)

III. What are the _____ (jobs organisms have) in ecosystems?

a. **Primary** _____

i. the _____ source of food in the ecosystem

ii. All other life _____ on primary _____

iii. they have the greatest _____ in the community

iv. the greatest amount of _____ is found in the producers

b. Primary _____

i. get their energy _____ from the primary producers by _____

ii. get their energy _____ by living _____ with them

c. _____ **order** _____

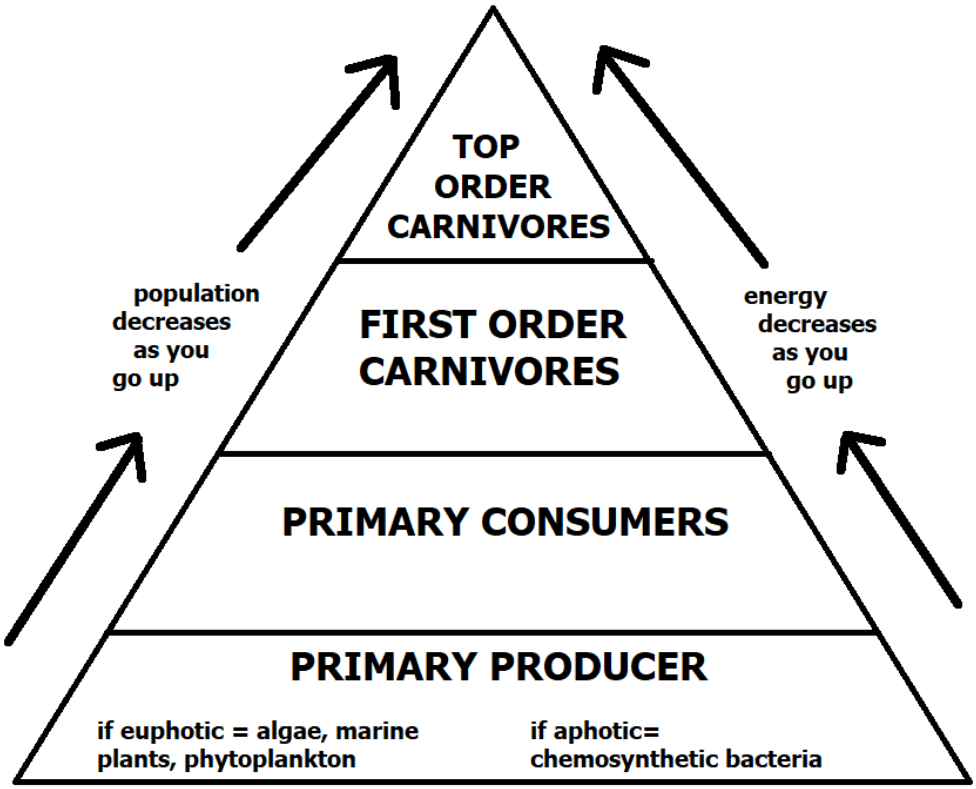
i. prey on the primary consumers and in turn are _____ by other animals

d. _____ **order** _____

i. eat other _____ and _____ but are rarely _____ by other creatures

ii. have the _____ biomass in the community

iii. have the _____ amount of _____ in their tissues



IV. How are marine life zones categorized?

a. By the availability of _____
   i. _____ – top zone
      1. _____ fully penetrates
      2. The presence of sunlight allows for _____
      3. The bottom of the food chain is therefore _____, microscopic organisms that can do photosynthesis.
      4. Zone goes down 100 _____
   ii. _____ – aka "the twilight zone"
      1. Sunlight is very _____
      2. Bright enough to find _____ or prey
      3. No _____
   iii. _____ – bottom zone
      1. No _____ penetrates at all
      2. No _____ is possible
      3. No _____ can grow here
      4. No phytoplankton can grow here, but there is _____, microscopic organisms that are consumers
      5. The bottom of the food chain is _____ **bacteria** – make their own food by processing toxic gasses coming from deep within the earth

b. By the distance from the _____
   i. _____ zone
      1. Covered and uncovered by _____
      2. Place where _____ occur
      3. Constant changes in temperature, _____, and moisture
   ii. _____ zone
      1. Found along gently sloping _____ shelf
      2. "rainforest" of the _____
      3. Very _____
      4. Light reaches to the _____, so lots of photosynthesis
   iii. _____ zone
      1. Open ocean
      2. Reaches _____ depths
      3. Low _____ (minerals that are needed from ocean floor)
      4. Lower _____

c. By the water _____
   i. _____ – open ocean of any depth
      1. Contains animals that _____ or _____ freely
   ii. _____ –any sea bottom, but the _____ in particular
      1. Some parts can be lit if closer to _____
      2. Animals attach to, crawl on, or burrow into ocean _____
      3. _____ of "ocean snow"
   iii. _____ zone – deep ocean floor
      1. No _____
      2. Scavengers of "ocean _____"
      3. _____ near hydrothermal vents

V. What are the Symbiotic _____?

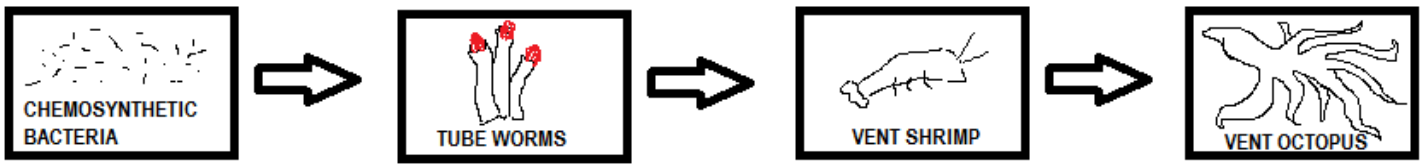
a. _____ **beneficial**- _____ species benefit
b. _____ - 1 species _____, and the other is _____ (or doesn't care)
c. _____ – 1 species _____, but the other is _____

VI. How are marine animals classified? [By how they _____ and where they _____]

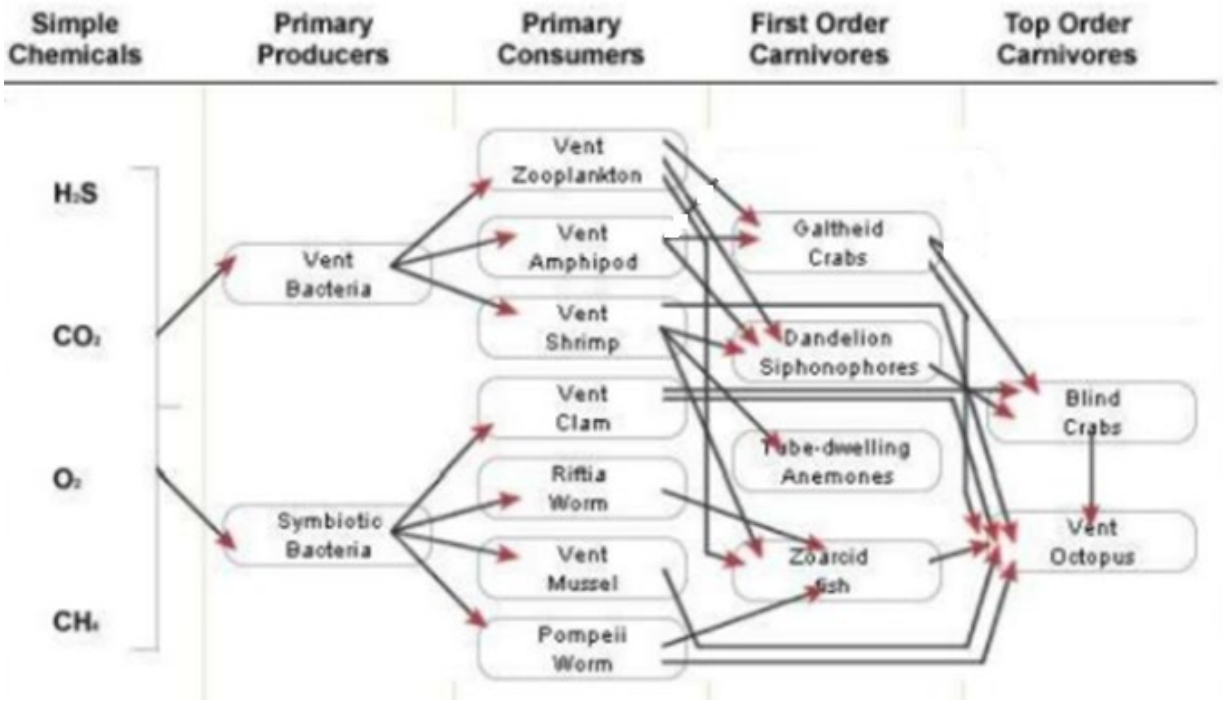
a. _____ – floaters
   iv. _____ - make their own food by _____
   v. _____ - _____ their food (eat phytoplankton)
b. _____ – animals that can _____ (independent of ocean currents)
c. _____ —animals that live on or in the ocean _____

VII. How is energy flow diagramed?

a. _____ _____ - a simple diagram showing how a single chain of organisms pass their _____ into each other



b. _____ _____ - a complex diagram showing the many ways _____ flows between _____

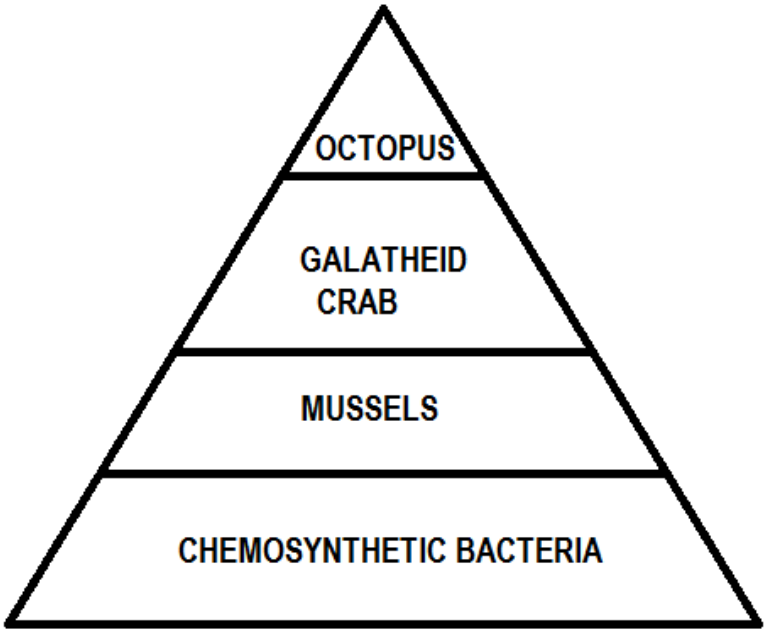


c. _____ _____ - a diagram that shows amounts of _____ and _____ numbers in an ecosystem

vi. The bottom of the pyramid is wide because
   1. the lowest trophic level has the _____ _____
   2. the lowest trophic level has the _____ amount of _____

vii. the pyramid gets thinner as it rises showing
   1. _____ populations
   2. energy _____ with every level jump

viii. the _____ level is smallest because
   1. it has the _____ _____
   2. it has the _____ amount of _____



8th Grade Notes 16-1 /40 Name _____ hr__

OCEAN CURRENTS

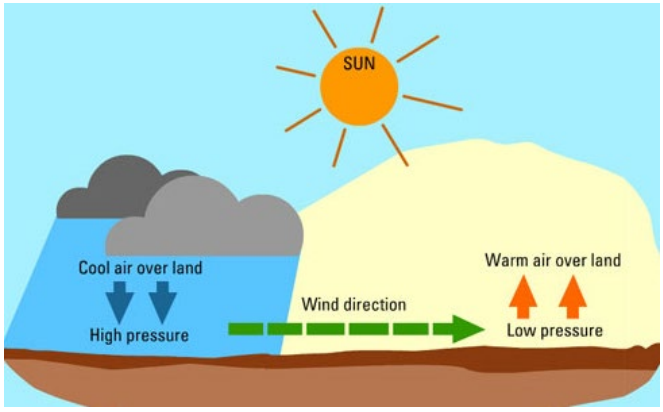
I. Ocean currents = a horizontal _____of water in a well-defined _____

A. _____ **CURRENTS** = a horizontal _____ of ocean water at or near the surface of the ocean.

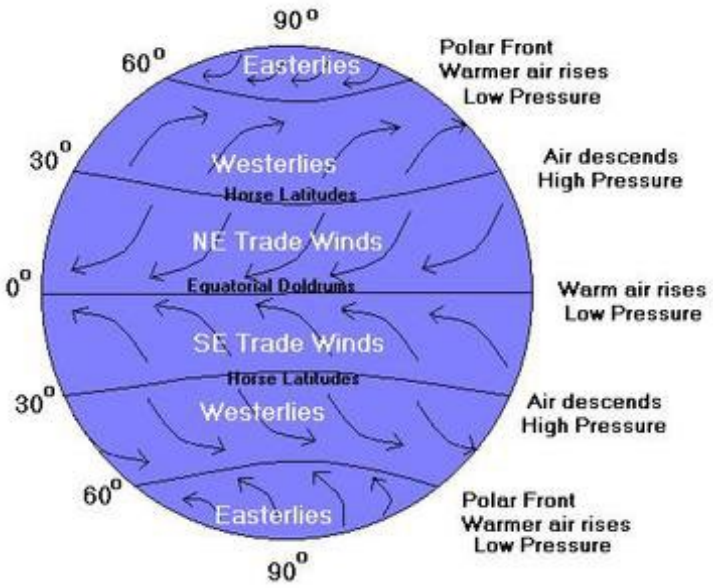
1. Three factors that control surface currents

a) _____ CURRENTS (aka _____)

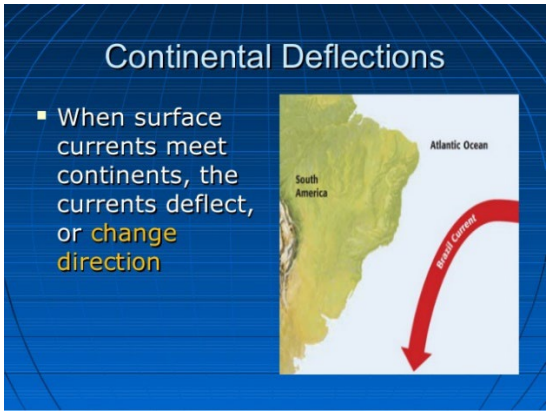
- As air in areas of low pressure _____ and air in areas of high pressure _____, wind is created.
- Air always moves from _____ pressure towards _____pressure.
- The wind's _____ energy is transferred to the ocean surface water as the air flows over it.



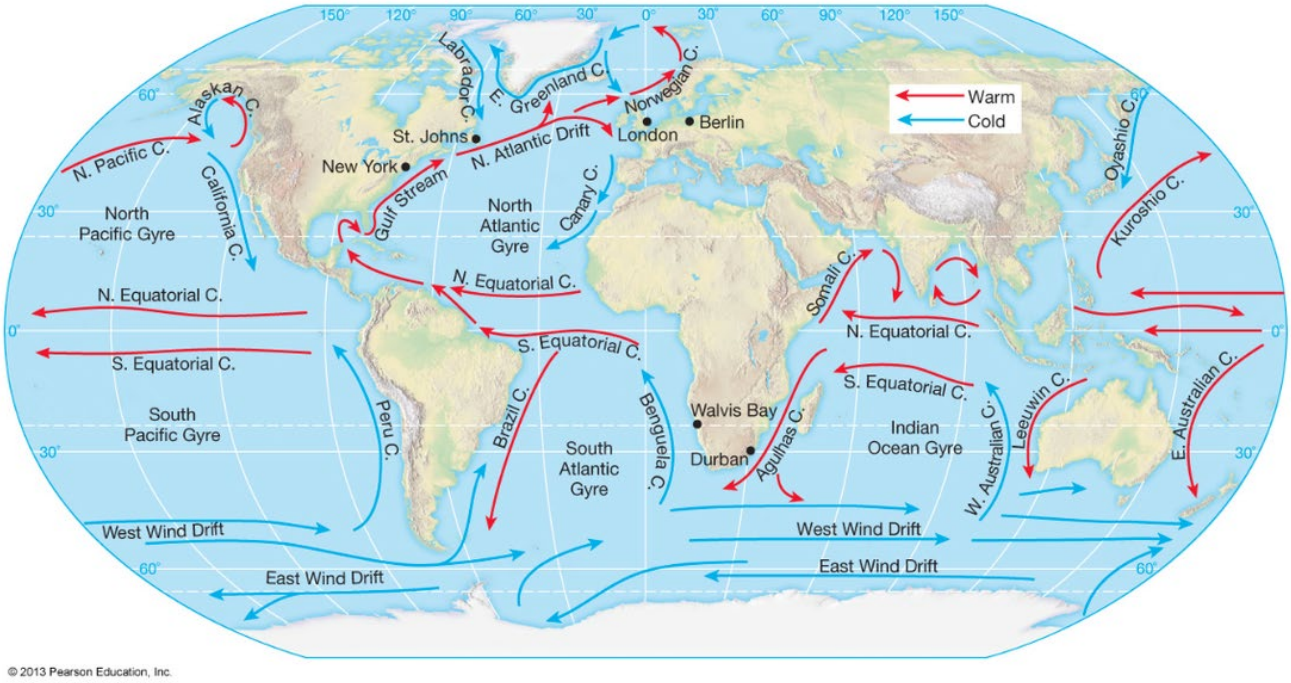
b) EARTH'S _____ (_____ EFFECT) = the _____ path wind or water takes due to Earth's rotation. The Coriolis effect forms the_____winds that drive ocean surface currents.



c) Location of _____



2. Major _____ currents

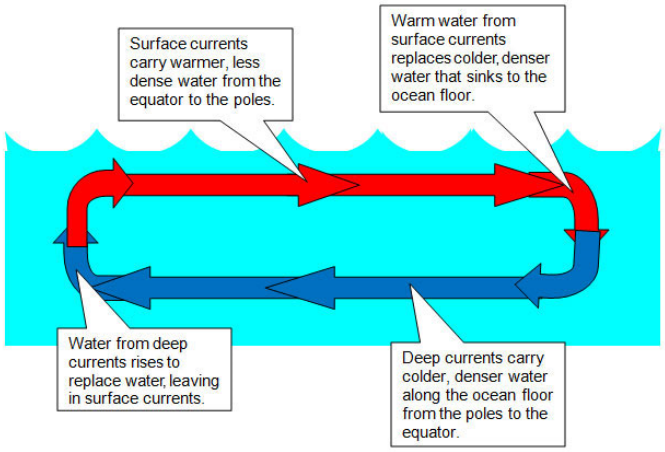


B) _____ currents = a stream-like movement of ocean water far below the surface.

1. Three factors that control deep currents

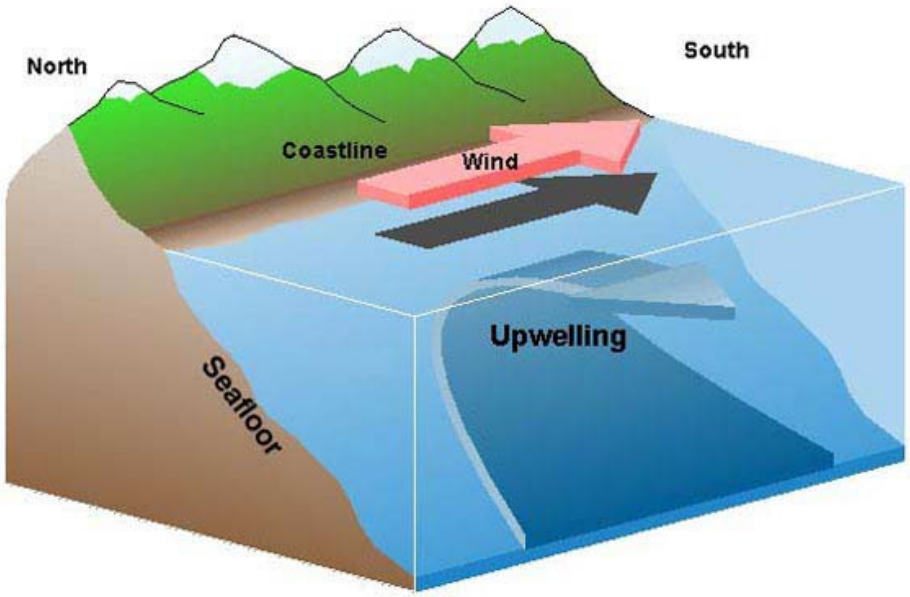
a) _____

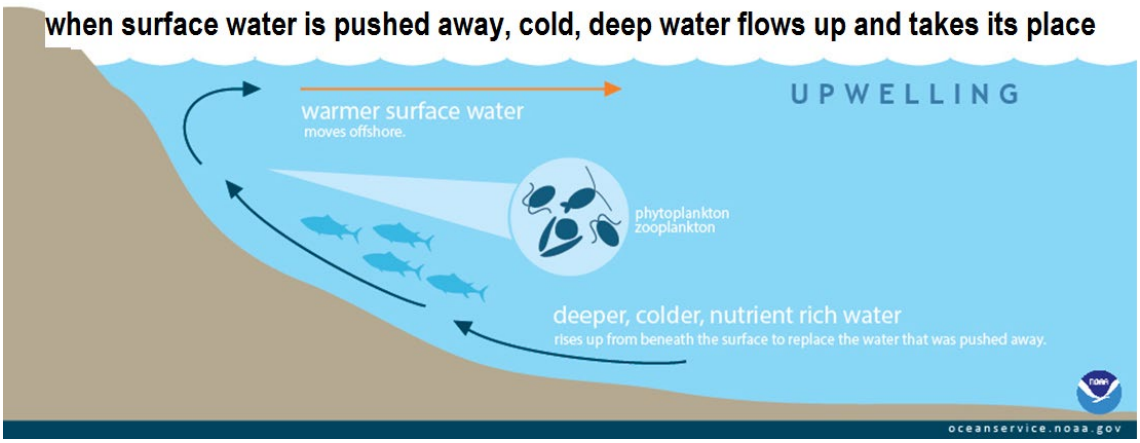
- cold, _____ polar water sinks and flows _____
- _____, less dense equatorial water rises and flows _____
- in general, cold deep water from the _____ flows toward the _____, and
- warm shallow water from the _____ flows toward the _____



b) wind at _____ **-** surface winds can create an _____ – a deep current that flows up to the surface along a coastline. How it works:

1. when wind blows along a _____, it pushes water 90 degrees in the other _____.
2. The water moves away from the _____ and out to sea.
3. Deep, _____ water from below rises up to take its _____.





c) _____– how salty the water is

- water that is more **saline** _____ because it is more _____
- water that is less _____ stays on top because it is _____ dense

C) _____current = a strong current caused by an underwater _____