**EOG review—WATER/HYDROLOGY**

Use the following words here to fill in the blanks below: **POLARITY HIGH SPECIFIC HEAT DENSITY**

**ADHESION SURFACE TENSION UNIVERSAL SOLVENT CAPILLARY ACTION COHESION 3%**

**VOLUME 70% POLES RIVER BASINS AQUIFERS SALINITY ECOSYSTEMS**

**ESTUARIES UPWELLING NUTRIENTS INTERTIDAL BENTHIC CHEMOSYNTHESIZE 1%**

**NERETIC UPWELLING PHYTOPLANKTON PHOTOSYNTHESIZE HYDROTHERMAL VENTS**

**pH EUTROPHICATION TEMPERATURE TURBIDITY DISSOLVED OXYGEN NITRATES**

**BIO-INDICATORS RUN-OFF EPA PHOSPHATES WATER SHEDS**

On an early sunny morning, you notice some water droplets on a spider web. You are fascinated that it does fall to the ground. Which property holds them there? A \_ \_ \_ \_ \_ \_ \_ . We call it something else when water molecules stick to other water molecules as in round raindrops or long icicles. We call that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ N. Both happen because water molecules act like tiny magnets (with a positive and negative ends), we say water molecules have \_\_\_\_\_\_\_\_\_\_\_\_\_\_Y . So, water can have an almost skin-like surface that bugs can skip on. We call that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Water also climbs up tubes like flower stems, we call that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Because each molecule act like a tiny magnet, when water freezes, its molecules can’t get as close together as they were in liquid water, so ice puffs up and has less \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than liquid water. Its \_\_\_\_\_\_\_\_\_\_\_E increases.

Because water can dissolve almost any substance we say water is the U\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_. Its ability to resist big temperature swings is due to its high s\_\_\_\_\_\_\_\_\_\_h\_\_\_\_\_\_. Water is the reason why Earth’s climate doesn’t get too hot or cold! It covers \_\_\_\_\_% of the planet, even though only \_\_\_\_\_% is freshwater. Two-thirds (2/3rds) of this is not practically useful because it’s locked at the \_\_\_\_\_\_\_\_\_. That leaves only \_\_\_\_\_% of Earth’s water as usable for us, and most of that comes from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the area of land that **drains** around a big river. NC has 17 which can each be broken into smaller \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ As water moves towards the ocean, the water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increases as we reach salt marshes and mangroves we call \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These areas make great nurseries because there is twice the N\_\_\_\_\_\_\_\_\_\_\_\_\_ from two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ colliding.

In the ocean we have 3 zones. One requires animals to survive in both wet and dry conditions we call the \_\_\_\_\_\_\_\_\_\_ zone. The place with the most **density** of ocean animal life is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and includes the coral reefs and kelp forests. Both get plenty of sun for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. But the deep zone (aka \_\_\_\_\_\_\_\_\_\_\_ zone) gets no light, so autotrophs must use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to make food. They find their energy from \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Occasionally, cold, deep water currents bring up all sorts of nutrients from the bottom of the ocean so fish feast. We call that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Regardless, water needs to be healthy. The government agency called \_\_\_\_\_ monitors water quality 7 different ways. Thermal pollution means the \_\_\_\_\_\_\_\_\_\_\_\_ is too high & cooks out precious oxygen so fish can’t breathe. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ also gets too low whenever there is too much \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the water from fertilizer \_\_\_\_\_\_\_\_\_\_\_\_\_ ( a non-point source of pollution). If this happens, the water gets cloudy and has high \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Sensitive creatures called \_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_ can warn us when this water is too dangerous. All this fertilizer in our water can create giant algae blooms we call \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Finally, to see if water gets too acidic (1) or alkaline (bleachy basic 14) we monitor \_\_\_\_(2 letters—d’uh).  
  
**WATER**

* **Water is the UNIVERSAL \_\_\_\_\_\_\_\_\_\_\_\_\_.**

**(Water does the dissolving; it can dissolve almost everything….not just salt, sugar cubes and kool-aid, but battleships and bodies! To increase the concentration of a solution, we \_\_\_\_\_\_\_\_\_\_\_\_\_ the solute or we \_\_\_\_\_\_\_\_\_\_\_\_\_ the solvent)**

* **DENSER STUFF SINKS**

**(We measure density as \_\_\_\_\_\_\_\_\_\_\_\_\_per\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Fresh water ice is \_\_\_\_\_\_\_\_\_\_ dense than salty liquid water. Because the H2O molecule acts like a magnet, it repels when they get colder, that is why water is one of the only pure substances that \_\_\_\_\_\_\_\_\_ when it freezes solid. All freezing and boiling are only \_\_\_\_\_\_\_\_\_\_\_\_\_ changes in that particular state of matter)**

* **MOST FRESHWATER on earth is SOLID ICE (\_\_\_% of Earth’s TOTAL water is fresh, 2/3rd is F \_ \_ \_ \_ \_ . and unusable. Where is this found? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**
* **MOST DRINKING WATER comes from the GROUND! (Less than \_\_\_% of all Earth water)**

**(We find most our drinking water in A\_\_\_\_\_\_\_\_\_\_. This water is cleaner because it is filtered by what? \_\_\_\_\_\_\_\_\_\_)**

**(We use a drop of \_\_\_\_\_\_\_\_\_\_\_\_\_ to help kill deadly microbes in our drinking water (hint: it’s in Group 17))**

* **RIVER BASINS= D\_\_\_\_\_\_\_\_\_\_\_\_\_. Made of tinier W\_\_\_\_\_\_\_\_\_\_ S\_\_\_\_\_\_\_\_\_.**
* **EUTROPHICATION=too much \_\_\_\_\_\_\_\_\_\_ (aka P\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

**(Algae is unicellular photosynthetic microbes that gives us \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to breathe.)**

* **ESTUARIES=Fresh R\_\_\_\_\_\_\_ meets salty O\_\_\_\_\_\_\_\_\_. (B\_\_\_\_\_\_\_\_\_\_ water)**

**2x NUTRIENTS & LIFE!**

**(Which has less salinity: oceans or estuaries?) (If a creature has webbed or paddled appendages, is it considered aquatic or terrestrial?**

* **3 OCEAN ECOSYSTEMS:**
  + **INTERTIDAL ZONE= sandy shorelines and crabs…wet & \_\_\_\_\_\_**
  + **NERITIC ZONE=\_\_\_\_\_\_\_ reefs, \_ \_ \_ \_ forests hold lots of life on continental \_\_\_\_\_\_\_\_\_\_\_\_. Highest C\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of aquatic life here.**
  + **DEEP ZONE=NO LIGHT/hydrothermal vents provide chemosy\_ \_ \_ \_ \_ \_ \_ organisms their own energy source. Most D\_\_\_\_\_\_\_\_\_\_\_ array of life exists here.** 
    - **UPWELLING=COLD H20 UP FROM BELOW…FEEDING FRENZY!**

**(When this cold water is pushed up, it brings all sorts of gooey old \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for fish to eat!)**

* + - **T^ or N^ or P^ then DO**\_\_

**(If Temperature or Turbidity or Phosphates or Nitrates go up, Dissolved Oxygen (DO) goes \_\_\_\_\_\_\_—fish can’t \_\_\_\_\_\_\_\_\_\_\_)**

* + - **2 elements that make water HARD are C\_\_\_\_\_\_\_\_\_ & M\_\_\_\_\_\_\_\_\_\_\_\_**

**(What group do these two elements belong? \_\_\_\_\_\_ How many electrons do they have in their valence (outer) orbiting shell? \_\_\_\_\_)**

* + - **SEVEN (7) ways we measure/monitor WATER HEALTH:**
      1. TURBIDITY - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_unhealthy to drink
      2. pH – perfect water =\_\_\_ , acidic = \_\_\_\_\_\_ , basic = \_\_\_\_\_
      3. DISSOLVED OXYGEN- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      4. BIO-INDICATORS - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      5. NITRATES - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      6. TEMPERATURE - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      7. PHOSPHATES - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - **OCEANS ARE GREAT FOR…** 
      * **moderating our C\_\_\_\_\_\_\_\_\_\_\_(it has high heat capacity)**
      * **making oxygen (O2) with phytoplankton & \_\_\_\_\_\_**
      * **absorbing CO2 from \_\_\_\_\_\_\_\_\_\_\_\_\_!**
* **\_\_\_\_\_\_\_\_\_\_\_ source pollution.**
  + a single underground storage tank
  + a single factory
  + a single waste dump
  + **easy or harder to control?**
* **NON - \_\_\_\_\_\_\_\_\_\_\_\_\_ source pollution.**
  + \_ \_ \_ - off from cars, farms, etc.
  + industries
  + excess animal wastes: N\_\_\_\_\_\_\_\_\_\_

WRITE the ENERGY DISPLAY in the BACK of MY ROOM! KNOW IT!!!!

**RENEWABLE ENERGY NON-RENEWABLE ENERGY**