EOG Science Review Guide

**Hydrology**

Describe the following properties of water. **Adhesion, cohesion, surface tension, polarity, universal solvent density, buoyancy and specific heat.**

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?
The tendency of water molecules to stick together is known as \_\_\_\_\_\_\_\_\_\_.
What causes the tightness across the surface of water? \_\_\_\_\_\_\_\_\_\_\_\_\_
What property allows water to rise up in a narrow tube? \_\_\_\_\_\_\_\_\_\_
The following is the property that states that a water molecule has both a positive and negative end is known as \_\_\_\_\_\_\_\_\_\_\_\_.

Water’s ability to dissolve almost any substance is known as \_\_\_\_\_\_\_\_\_\_.
The amount of matter in a given space is known as \_\_\_\_\_\_\_\_\_\_ or D= M/V.
The force that pushes up on an object that floats in water. Sometimes heavy objects will float in water because of the amount of water displace is greater that it weight. This is known as \_\_\_\_\_\_\_\_\_\_.
The amount of heat needed to increase the temperature of a certain amount of a substance by 1 degree is called \_\_\_\_\_\_\_\_\_\_ .
Most of water’s unique properties results from the fact that water molecules are \_\_\_\_\_\_\_\_\_\_
Illustrate and label a water molecule.
In a group of water molecules, hydrogen bonds form between \_\_\_\_\_\_\_\_\_\_\_.
What do cohesion and surface tension have in common with reference to water?

An object is dropped in a beaker containing a liquid. The object drops to the bottom of the beaker. Therefore, the object is \_\_\_\_\_.

Explain why water is known as the universal solvent.

Explain why ice floats in water using the term buoyant force.
Why is water a unique substance?

Describe and explain all parts of the water cycle.

Explain why most of the water cycle takes place over the ocean?
At what temperature do water vapor molecules begin to change back to the liquid state?
Amount of water the covers the Earth’s surface**:**
Of all the water the amount that is salt water:

Amount of freshwater**: \_\_\_\_\_%**
The amount of frozen water: \_\_\_\_\_%
The amount of available freshwater \_\_\_\_\_%
Most of our freshwater is used for \_\_\_\_\_\_\_\_\_\_.
Water beneath the Earth’s surface is called \_\_\_\_\_\_\_\_\_\_.
Explain the process of how water gets underground.
Label and illustrate the groundwater layer.

Layer or materials that water cannot pass through: \_\_\_\_\_\_\_\_\_\_
Materials water can pass through are called \_\_\_\_\_\_\_\_\_\_
The underground layer of water is called: \_\_\_\_\_\_\_\_\_\_
The top level of water in the aquifer is called
Water can be pumped for an aquifer using **an \_\_\_\_\_\_\_\_\_\_\_**
When the well water is under pressure and flows automatically without pumping the well is called an \_\_\_\_\_\_\_\_\_\_\_
Location of where the water table is above the surface is called **a \_\_\_\_\_\_\_\_\_\_\_\_**
What can happen when too much water is taken from a well**?**
What is the difference between a well and a spring? Give details.

The high land or ridges on both side of a drainage basin / watershed is called a \_\_\_\_\_\_\_\_\_
What is a watershed (drainage basin)?

The rising and sinking of warm and cold water and nutrients in a lake is called \_\_\_\_\_\_\_\_\_\_
When excess nutrients enters a lake or pond it can it can force out animals life and increase plant life such as algae, etc. and eventually change from water to a land ecosystem**. This is known as \_\_\_\_\_\_\_\_\_\_\_\_\_.**
A structure that holds back and controls the flow of water in a river or stream is called \_\_\_\_\_\_\_\_\_\_
A system that collects and treats waste water for a city or municipality is called a \_\_\_\_\_\_\_\_\_\_
A system that collects waste water for homes in rural areas is called a \_\_\_\_\_\_\_\_\_\_
Most of the drinking water in NC comes from \_\_\_\_\_\_\_\_\_\_
The major marine (ocean) ecosystems are: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
An area where rivers meets ocean and the water is neither completely fresh nor salt water (the water is called brackish) is called
The movement of water and nutrients from deep within the ocean to the surface is called \_\_\_\_\_\_\_\_\_\_
Ocean water contains salt and other minerals which makes it \_\_\_\_\_\_\_\_\_\_
The measurement of the amount of salt in water is called \_\_\_\_\_\_\_\_\_\_
Gases such as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (CO2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(O2)** are dissolved in ocean and river, etc. water and is used by organisms just like on the land.
As the water temperature increased the amount of \_\_\_\_\_\_\_\_\_\_ decreases
Where is the ocean the hottest? \_\_\_\_\_\_\_\_\_\_

How can an aquatic and terrestrial food chain overlap? \_\_\_\_\_\_\_\_\_\_
The driving energy for most food web comes from **\_\_\_\_\_\_\_**, except **deep ocean** food webs. They get energy **from \_\_\_\_\_\_ coming** from volcanic vents on the ocean floor.
Organism that makes its own food are known as \_\_\_\_\_\_\_\_\_\_\_\_\_-or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
Organisms that eat producer or other organisms that eat the producers are called \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_.
Organisms that recycle dead matter for reuse is called \_\_\_\_\_\_\_\_\_\_
Organisms that eat only plants: \_\_\_\_\_\_\_\_\_\_
Organisms that eat on animals: \_\_\_\_\_\_\_\_\_\_
Organisms that eat both plants and animals: \_\_\_\_\_\_\_\_\_\_
In a food chain the energy is transferred from \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ levels of an ecological pyramid.

The health of water and its suitability for use by living is a called \_\_\_\_\_\_\_\_\_\_\_\_
Identify all possible water quality indicators. **temperature, turbidity, dissolved oxygen, acidity/alkalinity, nutrient level(phosphates and nitrates)**
**\_\_\_\_\_\_\_\_\_\_-**depends on the depth of the water, the season, etc. Temps > 35 degrees C can be harmful to life.
**\_\_\_\_\_\_\_\_\_\_-**the muddiness of the water, often a result of algae of sediment runoff; > 25NTU for salt water and > 50 NTU for freshwater
**\_\_\_\_\_\_\_\_\_\_** – the amount of oxygen dissolved in the water which is necessary for aquatic life; < 5 ppm is harmful.
**\_\_\_\_\_\_\_\_\_\_** - measured in pH; is the amount of acid or base in the water; high pH in water usually have high amount of growth. <5 or >9 is harmful
**\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_** – causes plants and algae to grow; leads to eutrophication; nitrate > 1ppm and phosphate > .003 ppm will increase eutrophication.

The existence of foreign substances in water making it unsuitable for living organisms is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-
Pollution from a known location is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Pollution that cannot be pinpointed to a specific location is called \_\_\_\_\_\_\_\_\_\_

**Chemistry**

Which matter is made of chemicals? \_\_\_\_\_\_\_\_\_\_\_
The parts of an atom are as follows\_\_\_\_\_\_\_\_\_\_\_ **(+) and \_\_\_\_\_\_\_\_\_\_ ( n) in the nucleus and \_\_\_\_\_\_\_\_\_\_\_ (-) in the electron cloud.**
The atomic number tells **how many \_\_\_\_\_\_\_\_\_\_** are in the nucleus of an atom.
The atomic number of elements **increases by \_\_\_\_\_ across the table from left to right**.
**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is equal to the number of proton and neutron in the nucleus of an atom.

The periodic table is a **map of the \_\_\_\_\_\_\_\_\_\_**.
The rows in the table are called **\_\_\_\_\_\_\_\_\_\_** and the columns are called **\_\_\_\_\_\_\_\_\_\_**.
Elements in **group 1, \_\_\_\_\_\_\_\_\_\_\_** **are the most reactive metals** and elements in **\_\_\_\_\_\_\_\_\_\_\_\_, are to most reactive nonmetals**. Elements in groups **2 and 16 are also reactive,** but less than the previous groups.
Elements in **groups 3 – 12 are called \_\_\_\_\_\_\_\_\_\_ metals** and are in the middle of the table. Elements in this family are often used in everyday products such as **copper, titanium, aluminum, silver, etc.**
Elements in **group 17 are called \_\_\_\_\_\_\_\_\_** and are sometimes **used to kill \_\_\_\_\_\_\_\_\_\_**.
Elements in **\_\_\_\_\_\_\_\_\_\_, the noble gases, are very stable and do not react** with anything. The three main groups of elements in the table are **\_\_\_\_\_\_\_\_\_\_, non metals and \_\_\_\_\_\_\_\_\_\_.**
Metals, nonmetals, and metalloids all have different coding in the table.
\_\_\_\_\_\_\_\_\_\_ are generally **shiny, malleable, ductile, good conductors of heat and electricity, magnetic.**
\_\_\_\_\_\_\_\_\_\_ are generally **dull, brittle and poor conductor of heat and electricity**.
Metalloids make good semiconductors and have some properties of both \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_.
**Most elements** are metals and are **\_\_\_\_\_\_\_\_\_\_ at room temperature**.

Two or more different elements combined to form \_\_\_\_\_\_\_\_\_\_.
The properties of compounds are different from the elements that make them.
Atoms combined in predictable ways to form compounds. **For example water is made of \_\_\_\_\_\_\_\_\_ hydrogen atoms and \_\_\_\_\_\_\_\_\_\_\_ oxygen atom with a ratio of 2:1.**
The chemical symbols used to represent the atoms of the elements and their ratio is called a **\_\_\_\_\_\_\_\_\_\_\_; Example, H2O**.
A number written to the right of the symbols and slightly below it represent the number of atoms of that element is called a **\_\_\_\_\_\_\_\_\_\_.** **For example the 2 in the formula for water H2O.**
The same elements can make up different compounds. Hydrogen peroxide (**H2O2) and** water (**H2O).**

The electrons in the outer shell of an element are called the **valence electrons**.
An element is said to be stable when the **valence shell is filled with electrons, for example the 1st shell must have 2, the 2nd 8, and the 3rd 8, to be filled.**
Where do chemical bonds form between elements? **The valence electron shell when it is not filled.**
There are three types of chemical bonds**: ionic bonds, covalent bonds and metallic bonds.**
The attraction between elements that gain or lose and electron forms **ionic bonds.**
A pair of shared atoms between two elements is called a **covalent bond.**
The equal sharing of an electron allows electrons to move easily and give metals its flexibility. This is called **metallic bonding.**

A change in the appearance of a substance such as shape, state of matter, etc is a **\_\_\_\_\_\_\_\_\_\_. For example melting ice or breaking glass.**
Most elements have the following physical properties and should be considered when using elements in technological design: **melting point, boiling point, solubility, density, conductivity and specific heat.**
A change in the chemical composition of a substance to form a new substance is a **\_\_\_\_\_\_\_\_\_\_. For example spoiled milk or burning paper**.
A new substance is created by breaking old bond and forming new bond during a **\_\_\_\_\_\_\_\_\_\_ reaction.**
In a chemical reaction there **are \_\_\_\_\_\_\_\_\_\_** (substances before the chemical reactions) and **\_\_\_\_\_\_\_\_\_\_\_(s)** (substances after the chemical reaction).
The law that states that the amount of matter that enters chemical reactions in its reactants must come out in its products is known as the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

Which equation is **NOT** balanced?

Cl2 + 3KNi → 2KCl + Ni2

2Na + MgF2 → 2NaF + Mg

3Fe + 4H2O →Fe3O4 + 4H2

The following are evidences that a chemical reaction have occurred: **Color change, Formation of a precipitate, Gas production, Temperature change**
**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** substance changes color for example normally iron is gray but when it rust is turns brown.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** a solid product may form mixing to liquid together.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** when a chemical reaction produces bubbling like when mixing baking soda and vinegar.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** another indicator is when energy is either released or absorbed because of the reaction.

There are three types of chemical reactions: **synthesis, decomposition and combustion (oxidation).**
**\_\_\_\_\_\_\_\_\_\_** – combing two simple reactants into a more complex product. For example Na + Cl → NaCl.
**\_\_\_\_\_\_\_\_\_\_** – breaks down complex reactants into simple products. For example, 2H2O → 2H2 + O2.
**\_\_\_\_\_\_\_\_\_\_**– a reaction in which one reactant is always oxygen. For example, CH4 + 2O2 → CO2 + 2H2O

The rate of a chemical reaction can vary based on the following conditions: **concentration, surface area, temperature and catalysts.**
**\_\_\_\_\_\_\_\_\_\_** – a high concentration of a reactant means that there are large numbers of particles that can collide and react.
**\_\_\_\_\_\_\_\_\_\_** – the smaller the pieces of materials in a reactant the greater amount of surface area is exposed for reaction.
**\_\_\_\_\_\_\_\_\_\_** – the higher the temperature the faster the particle moves and can collide quicker to cause the reaction.
**\_\_\_\_\_\_\_\_\_\_**– a substance that increase the rate of reaction but is not consumer by the reaction. It remains the same after the reaction. For example, digestive enzyme speeds up the reaction of digesting food but remains there to continually assist in digestion.

Sometimes energy is released and sometimes it is absorbed in a chemical reaction.
**\_\_\_\_\_\_\_\_\_\_ reaction** is a reaction in which energy is released. The resulting product will feel warm to the touch.
**\_\_\_\_\_\_\_\_\_\_ reaction** is a reaction in which energy is absorb from the surrounding environment. The resulting product will feel cold to the touch.

**Earth’s History**

The center of earth is made of metal, not rocks because metal is more \_\_\_\_\_\_\_\_\_\_ than rocks and it sinks.

Many \_\_\_\_\_\_\_\_\_were discovered of organisms that lived millions of years ago. Many of those organisms are now extinct.

In undisturbed sedimentary rock layers the oldest layer is on the \_\_\_\_\_\_\_\_\_\_. This is known as the \_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_.
Volcanic igneous intrusion, faulting or a crack in the rock layers and erosion called \_\_\_\_\_\_\_\_\_\_ can cause disturbance to layers.

A fault is always \_\_\_\_\_\_\_\_\_\_ than the layers that it cuts through. So are igneous intrusions.

The heating and cooling of magma in the mantle (Asthenosphere) creates a \_\_\_\_\_\_\_\_\_\_ current which causes the tectonic plates to move. This convection current can be compared to a pot of \_\_\_\_\_\_\_\_\_\_ water.

The units of the geological time scale from largest to smallest are \_\_\_\_\_, era, period, and \_\_\_\_\_\_.

Before multicellular life was the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eon.

When multicellular organisms thrived: \_\_\_\_\_\_\_\_\_\_\_ era, followed by the \_\_\_\_\_\_\_\_\_\_\_\_\_ era with the dinosaurs, and finally our current era, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**\_\_\_\_\_\_\_\_\_\_** are organisms that was widespread and lived for a short period which are used to determine the actual age of sedimentary rocks layers.

The geological time scale is broken into divisions based on fossils evidence and major \_\_\_\_\_\_\_\_\_\_ events.

The six types of fossils are: **Cast, mold, trace, preserved, petrified, carbonized**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The imprint of a once living thing in a rock

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The 3-D impression of a once living thing made of sedimentary rock

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ When the tissues of a once living thing has been replaced with rock-like minerals

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A well preserved tissue that is contained in tar, ice, or amber

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The film left over from a once living thing in which only the carbon outline remains

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Any evidence of a living thing that shows past activity

Humans are very effective at causing changes such as destroying natural habitats thereby increasing the rate of \_\_\_\_\_\_\_\_ of many organisms.

\_\_\_\_\_\_\_\_\_\_ intrusions occur when magma moves up into layers of sedimentary rocks. Sometimes a new intrusion can occur within an existing intrusion.

Fossils of a fern-like tropical plant (Glossopteris) were found on all continents and were used to support the theory of \_\_\_\_\_\_\_\_\_\_.

The position of Earth’s oceans is always changing. Currently, the **\_\_\_\_\_\_\_\_\_\_ Ocean is getting bigger and the Pacific Ocean is closing up**. Eventually fossils of ocean-dwelling organisms will be discovered on the newly created continent where the Pacific Ocean currently exists.

**\_\_\_\_\_\_\_\_\_\_** are used to analyze changes in Earth’s atmosphere over time because they contain air from different periods in Earth’s history.

**Similar fossils of plants and animals** were found in both South \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ indicate that the two landmass were once join together.

**New \_\_\_\_\_\_\_\_\_\_** is forming on the sea floor and the sea floor is spreading but the planet is not getting any bigger because the **old crust is melting (subduction)** at the same rate that the new crust is being created. We know the pole the earth switch places because of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the ocean floor.

**\_\_\_\_\_\_\_\_\_\_** is a process that wears rocks down into individual sediments which can become a part of the soil near the rocks. **\_\_\_\_\_\_\_\_\_\_\_ weathering** is caused by the water, wind, gravity, and animals. **\_\_\_\_\_\_\_\_\_\_ weathering** is cause by chemicals damage to the rocks.

Sea level can change as a result of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When this occurs it can change the land area near the coast, expands the continental shelf to include the coastline and contaminate nearby freshwater seas and rivers with saltwater.

The Asthenosphere can impact Earth’s climate because the \_\_\_\_\_\_\_\_\_\_ currents there causes the plates to move. The movement causes volcanic activity that releases greenhouse gases, such as **Carbon Dioxide**. The gases blanket the Earth and trap the energy from the sun in the atmosphere, causing it to get \_\_\_\_\_\_\_\_\_\_\_\_.

**Evidence that the continents were once joined include**: \_\_\_\_\_\_\_ of the same organisms found on different continents, tropical plant fossils found in non-tropical regions, and the same type of \_\_\_\_\_\_\_\_\_\_ found on different continents.

**\_\_\_\_\_\_\_\_\_\_** occurs when an older, denser plate sinks below another plate.

**Increased levels of carbon dioxide** in the atmosphere will result in a **\_\_\_\_\_\_\_\_\_\_ climate**.

The **Hawaiian Islands** were formed by a tectonic plate moving over a **\_\_\_\_\_\_\_\_\_\_\_\_**.

**\_\_\_\_\_\_\_\_\_\_** ice caps increase **sea level.**

The idea that Earth is always changing and has always been changing and the same forces of change at work today were at work in the past is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**\_\_\_\_\_\_\_\_\_\_ boundaries** create **mid-ocean ridges** in the ocean and a **rift valley** on land.

**\_\_\_\_\_\_\_\_\_\_ boundaries** can create **mountains**.

**\_\_\_\_\_\_\_\_\_\_ current** in the Earth’s Asthenosphere is the **driving force** of plate tectonics.

The **\_\_\_\_\_\_\_\_\_\_** is located in the **upper part of the mantle**.

Plates are made up of a layer that rests on top of the Asthenosphere called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Denser** materials will **\_\_\_\_\_\_\_\_\_\_** to the bottom and less dense materials \_\_\_\_\_\_\_\_\_\_ to the top.

Scientists currently believe the Earth formed when particles collided and fused together to form a ball of molten rock.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the process of cutting down trees in a forest) is a human factor that affects climate (Trees process Carbon Dioxide into Oxygen, less trees = more Carbon Dioxide)

Sedimentary rock can be used to find the \_\_\_\_\_\_\_\_\_ age of a fossil (By using index fossils)

Carbon 14 dating **(radioactive dating)** can be used to find the \_\_\_\_\_\_\_\_\_\_\_ age of a fossil.

Species become \_\_\_\_\_\_\_\_\_\_ because they cannot adapt to changes.

A convergent oceanic – continental boundary occurs when the two plates collide together (**\_\_\_\_\_\_\_\_\_\_ zone**)

When two plates collide, the plate with the **\_\_\_\_\_\_\_\_\_\_ density** will sink (or become **subducted)**

A system that uses underwater sound waves to measure distance and locate objects is known as \_\_\_\_\_\_\_\_\_.

**Microbiology**

**Cell Theory:** 1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**A(n) \_\_\_\_\_\_\_\_\_\_cell** has no nucleus and is singled celled organisms.

A(n) \_\_\_\_\_\_\_\_\_\_ cell has a nucleus and is usually multicellular organisms.

Cell  \_\_\_\_\_\_\_  \_\_\_\_\_\_\_  organ systems  \_\_\_\_\_\_\_\_\_

**Cell organelles** are cell membrane, cell wall, cytoplasm, nucleus, chromosome, ribosome, endoplasmic reticulum, Golgi bodies, vacuole, lysosome, mitochondria, chloroplast, and chlorophyll.

**\_\_\_\_\_\_\_\_\_\_** - controls movement in and out of the cell
**\_\_\_\_\_\_\_\_\_\_** – supports and protests the plant cell
**\_\_\_\_\_\_\_\_\_\_**– gel-like material inside the membrane that separates the organelles.
**\_\_\_\_\_\_\_\_\_\_**– directs cell activities and contains DNA.
**\_\_\_\_\_\_\_\_\_\_**– made up of DNA and contains the traits and characteristics of an organism
**\_\_\_\_\_\_\_\_\_\_**– where proteins are made and used to make cell parts
**Endoplasmic reticulum** – provide transportation of in the cell
**Golgi bodies (apparatus)** – packages protein in the cell
**\_\_\_\_\_\_\_\_\_\_**– location of storage, digestion and waste disposal; stores water.
**Lysosome** – responsible for breaking down molecules in the cell
**\_\_\_\_\_\_\_\_\_\_** – produces energy for stored fat and carbohydrates and releases it to the cell. It is the organelle responsible for making energy.
**\_\_\_\_\_\_\_\_\_\_** – capture light energy and use water and carbon dioxide to water food (glucose)
**Chlorophyll** – green chemical in plants that facilitates photosynthesis

Photosynthesis Equation = Sunlight (energy) + \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ 🡪\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_

Cellular Respiration Equation = \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ 🡪 Energy + \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Differences between plant and animal cells: only plant cells have \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_; plant cell also have a large vacuole.

**Animal-like plankton are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and plant like plankton are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Passive transport** – movement of materials from high concentration to low concentration without using any energy. The cell accomplishes this through diffusion and osmosis (diffusion when water is used).
**Active Transport** – requires energy to move material from low concentration to high concentration in the cell.
**Homeostasis** – when the cell membrane maintain stability in the cell.
**\_\_\_\_\_\_\_\_\_\_**– the process through which plant make glucose (food) using sunlight and water.
**\_\_\_\_\_\_\_\_\_\_** – the process through which a cell break down glucose into energy (ATP) to be used by the cell.
**\_\_\_\_\_\_\_\_\_\_** – the process by which the cell divides into two identical cells
**\_\_\_\_\_\_\_\_\_\_** – process where sex cells divides
**\_\_\_\_\_\_\_\_\_\_** – are single-celled organisms such as paramecium, euglena, volvox and amoeba.

Prokaryotic single-celled organism, reproduces **quickly** through binary fission: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Non-living microorganism that cannot reproduce on its own, reproduced by infecting a host cell: \_\_\_\_\_\_\_\_\_\_

Name the four organisms that can cause an infectious disease: \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_

What are some ways diseases can be spread: \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_ are used to prevent **virus** by increasing the \_\_\_\_\_\_\_\_\_\_ in your own body to fight the disease; whereas \_\_\_\_\_\_\_\_\_\_\_\_ are used to control **bacteria**l growth or infections

Using Hand Sanitizer dozens of times per day can lead to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which is when a bacteria is not killed and adapts for survival. The bacteria then may pass on those traits to other bacteria through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The local spread of a disease is a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ whereas a global spread of disease is known as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Evolution and Life**

The **theory of evolution** states that variations among members of a species result in a higher probability that the species will undergo the process of adaptation.

A fossil record that shows the change in a organism over time are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fossils.

Animals must \_\_\_\_\_\_\_\_\_\_ for limited resources (food, shelter, water, and space) soon after birth. Those who are best \_\_\_\_\_\_\_\_\_\_\_\_to their environment will survive the competition.

When a species of animals is divided or separated it is known as \_\_\_\_\_\_\_\_\_\_, and the diversity of the species increases. Animals adapt to new their surroundings in order to survive.

After many generations of isolation, \_\_\_\_\_\_\_\_\_\_ occurs; when a new species that is different from the original has emerged.

No two zebras have the same pattern of stripes, this is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within a species.

A trait (such as eye color or hair color) that can be identified by physical means is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The genes that makes up this trait and other non-visible traits are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Additional evidence that all living things evolved from a common ancestor includes: **DNA evidence, Homologous Structures, Vestigial Organs, Mutations**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Similar features existing between different species

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A shrunken or unused structure that is still evident in an organism

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Comparing the similar genes of organisms

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A genetic change in an organism that, if beneficial over generations becomes dominant, and if detrimental,

fades away

A non-living factor in an ecosystem is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and a living (or once living) factor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A single group of species that lives together is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which when they, multiple groups of different species becomes a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and multiples of those combine together to form a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_ populations are clustered around resources, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ populations are evenly spread out to maximize resources, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ populations are scattered and not concerned about resources.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a linear path of energy transfer; multiples of these can form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A ecological pyramid consists of several \_\_\_\_\_\_\_\_\_\_ layers. The largest group and most energy is found on the bottom layer which are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The organisms that eat the bottom layer have \_\_\_\_\_ energy and are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The organisms at the top of the pyramid have the \_\_\_\_\_\_\_ energy and need the \_\_\_\_\_\_\_\_\_ energy and can be called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.