ECOLOGY TEST TEST DATE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Vocabulary:
  + Ecology
  + Biotic factor
  + Abiotic factor
  + Population
  + Species
  + Community
  + Ecosystem
  + Biomes
  + Niche
  + Habitat
  + Producer
  + Autotroph
  + Decomposer
  + Consumer (primary, secondary, tertiary)
  + Herbivore
  + Carnivore
  + Omnivore
  + Scavenger
  + Food chain
  + Food web
  + Immigration
  + Emigration
  + Carrying capacity
  + Limiting factor
  + Competition
  + Cooperation
  + Prey
  + Predator
  + Symbiosis
  + Mutualism
  + Commensalism
  + Parasitism
  + Parasite
  + Host
  + Climate
  + Tundra
  + Permafrost
  + Taiga
  + Coniferous trees
  + Desert
  + Grassland
  + Deciduous trees
  + Deciduous forest
  + Tropical rain forest
  + Aquatic ecosystem
  + Wetland
  + Estuary
  + Marine ecosystem (intertidal, neritic, bathyal, abyssal)
  + Salinity
  + Energy
  + Matter
  + Energy pyramid
  + Water cycle
  + Nitrogen cycle
  + Carbon cycle
* All abiotic and biotic factors make up an ecosystem. In an ecosystem, organisms and the environment exchange energy and other resources. The habitat must provide all of the resources that an organism needs to grow and survive. Abiotic and biotic factors influence whether a species can live in a certain place.
* Two populations cannot occupy exactly the same niche. Small differences in habitats, roles, and adaptations can allow similar species to live together in the same ecosystem.
* All living things need a source of chemical energy to survive. The energy from food is the chemical energy in the bonds of food molecules. The food made by producers supplies the energy for other living things in an ecosystem. Most producers use sunlight to make food through photosynthesis.
* Decomposers are nature’s recyclers. They move matter through the ecosystem and make water and nutrients available to other organisms.
* If an organism is eaten or decomposes, the consumer or decomposer takes in the energy stored in the original organism. Only chemical energy that an organism has stored in its tissues is available to consumers.
* The arrows in a food chain represent the flow of energy from the body of the consumed organism to the body of the consumer of that organism.
* Producers form the base of food chains and transfer energy to the primary consumer in the food chain then the secondary consumer consumes the primary consumer, the tertiary consumer eats the secondary consumer and finally, decomposers recycle matter back to the soil.
* All living organisms are connected by global food webs, which include webs that begin on land and webs that begin in the water. Many organisms have feeding relationships that connect the land- and water-based food webs. Removing even one organism can affect many organisms in other ecosystems.
* If new individuals are added to the population, it grows. If individuals are removed from it, it gets smaller.
* The population stays at about the same size if the number of individuals that are added is close to the number of individuals that are removed. Populations increase as individuals are born. Populations decrease as individuals die. The number of births compared to the number of deaths helps determine if a population is increasing or decreasing.
* The amount of resources in an area influences the size of a population. A population may grow or shrink, depending on whether important resources are added to or lost from the environment.
* A population crash occurs when the carrying capacity for a population suddenly drops, such as by natural disasters, harsh weather, or the entry of a new predator.
* Limiting factors can be living or nonliving things in an environment.
* Competition can happen among individuals within a population and among populations. Cooperation helps individuals get resources, which can make populations grow.
* In a predator-prey relationship, one animal eats another animal for energy and nutrients.
* The sizes of predator and prey populations are linked together very closely. If one population grows or shrinks, the other population is affected. As a predator population grows, the prey population may shrink. But if the prey population becomes too small, the predator population will shrink.
* An example of mutualism is the relationship between bees and flowering plants.
* An example of commensalism is how lichens use tree trunks for living space, and the trees are unaffected or barnacles on hermit crabs
* An example of parasitism, ticks or fleas on dog.
* Characteristics that determine type of biome: climate (temperature, precipitation), abiotic factors (soil type, amount of sunlight, and amount of water available)
* Position of a biome on Earth affects its climate. Plants and animals that live in biome have adaptations to its unique conditions.
* **Tundra**: low average temperatures, very little precipitation, found in Arctic and in high mountain regions, permafrost, plants w/ shallow roots, animals w/ thick and may migrate or hibernate
* **Taiga:** low average temperatures, little precipitation but more than tundra, found in Canada and northern Europe and Asia, coniferous trees, migratory birds, some animals change fur color w/ season
* **Desert**: very dry, some get less than 3 inches of precipitation each year, soil is rocky or sandy, hot during the day and cold at night,
* Plants and animals have adaptations that let them conserve water and survive extreme temperatures.
* **Grassland:** has grasses and few trees, moderate precipitation, hot summers, and cold winters, deep nutrient-rich soils. Periodic fires sweep through the grasslands, but grasses and other nonwoody plants are adapted to fire.
* **Deciduous forest:** moderate precipitation, hot summers, and cold winters, deciduous trees, During winter, some animals hibernate, but others are active year-round. Many birds migrate to warmer areas before winter.
* **Tropical rain forests**: are located near Earth’s equator, warm throughout the year, receives more rain than any other biome, soil is acidic and nutrient-poor. dense layers of plants and some of the highest biological diversity on Earth
* The three main types of aquatic ecosystems are freshwater ecosystems, estuaries, and marine ecosystems.
* The major abiotic factors that affect aquatic ecosystems can include water temperature, water depth, amount of light, oxygen level, water pH, salinity, and rate of water flow.
* **Freshwater ecosystems** contain water that has very little salt in it. They are found in lakes, ponds, wetlands, rivers, and streams.
* Lakes and ponds are bodies of water surrounded by land. Some plants grow at the edges of lakes and ponds. Others live underwater or grow leaves that float on the surface.
* Bogs, marshes, and swamps are types of wetlands. Wetlands have high species diversity. Plants in wetlands can live in wet soil.
* Wetlands collect and filter water, removing some pollutants. They protect nearby land and shore from floods and erosion.
* Freshwater ecosystems in streams can have areas of fast-moving and slow-moving water, with organisms adapted to each area.
* **Estuary:** mixture of fresh water and salt water
* Marine ecosystems cover more than 70 percent of Earth’s surface, found in the coastal ocean, open ocean, and deep ocean.
* Coastal oceans include the intertidal zone and the neritic zone.
* **Intertidal zone**: Organisms adapted to changing water depth, wave action, exposure to air, and changing salinity.
* **Neritic zone**: Light reaches the bottom of the it allowing algae and many plants to live there, has Coral reefs and kelp forests
* Open ocean includes **bathyal zone**, has majority of sea life, plankton, Organisms adapted to dark and cold conditions live at greater depths, between ocean surface and 2,000m
* Deep ocean includes the **abyssal zone**, which is the part of the ocean below 2,000 meters, Some species bioluminescence (produce a glowing light to attract mates or prey)
* All organisms need energy and matter to live, grow, and reproduce. The sun is the original source of energy in most ecosystems.
* Producers get matter from soil and air. Consumers get both energy and matter from the foods they eat.
* An organism uses most of the energy it takes in for life processes. Some energy lost as heat and some stored in organism’s body.
* **Energy pyramid:** bottom level consists of producers, has the largest population and the most energy, other levels are consumers.
* Going up the pyramid, there is less energy and fewer organisms at each level. Consumers at highest level have smallest population
* **Water cycle:** Water can enter the atmosphere by evaporation (sun’s heat causes water to change from liquid to vapor), transpiration (Plants release water vapor from their leaves), and respiration (Organisms release water as waste)
* *Condensation*: water vapor cools and returns to liquid. *Preciptation:* water that falls from the atmosphere to the land and oceans
* Bacteria in the soil can change nitrogen gas from the air into forms that plants can use. This process is called *nitrogen fixation*. Plants take in and use fixed nitrogen. Consumers then get the nitrogen they need by eating plants or other organisms. When organisms die, decomposers break down the remains and release a form of nitrogen into the soil that plants can use.
* Finally, certain types of bacteria in the soil can convert nitrogen into a gas, which is returned to the atmosphere.
* Carbon found in food, the atmosphere, water, rocks, soils, organisms, and fossil fuels. During photosynthesis, producers make sugars that contain carbon. During cellular respiration, sugars are broken down to release energy, carbon dioxide, and water.
* Combustion is the burning of materials. The burning of once-living materials releases carbon dioxide, water, heat, and other materials. Decomposition breaks down dead organisms and waste. Decomposers get energy from this material by respiration.
* Decomposition returns carbon dioxide, water, and other nutrients to the environment.