Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit B Chapter 3 Study Guide

Test Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**TERMS TO KNOW:**

**Biome-** A large-scale ecosystem

**Climate zone-** A region in which yearly patterns of temperature, rainfall, and the amount of sunlight are similar throughout.

**Intertidal zone-**  zone that occurs at the ocean’s edge where waves lap at the shore and tides rise and fall each day

**near-shore zone-** zone that begins beyond the breaking waves and extends until water are about 180 meters deep (~600ft)

**open-ocean zone-** zone that includes most of the ocean waters it is very deep and includes anything below 200m.

**estuary-**  a place where fresh water rivers empties into an ocean.

**FACTS TO KNOW:**

Biomes roughly match up with \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and closeness to large \_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_ help determine climate zones. Earth has 6 types of biomes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. All animals have specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so that they can live in the biome that they do. Example: All plants and animals from the desert have adaptations to conserve water and cope with heat. Multiple factors go into what determines what belongs in an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and what does not. One of these is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it is also determined by factors such as \_\_\_\_\_\_\_\_, which in turn determines what plants can grow and what \_\_\_\_\_\_\_\_\_\_\_ can live there.

* Land Biomes
  + Tropical Rain Forest: Tropical rainforests are located near the equator, they are always warm, and very wet (rains almost every day). The strong sunlight and warm wet \_\_\_\_\_\_\_\_\_\_\_\_ provide ideal growing conditions for about half of all the different kinds of plants on Earth. This \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of plants is one of the characteristics of the rainforest. The rainforest has 3 layers of producers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (tallest trees), second layer or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ( tree branches and leaves), and under the canopy are a few shorter trees and many \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_. Many of the diverse animal life in the rainforest spend their lives in the branches of the canopy. The food webs they form are the most ­\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of all the biomes.
  + Deciduous Forest: Deciduous trees turn \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ before they fall/ shed off every year. This biome occurs where there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_temperature and moderate amounts of rainfall. The sunlight in this area varies depending on the time of year. Season changes cause the plants to have a \_\_\_\_\_\_\_\_\_ cycle of plant growth, the growing season then lasts for approximately \_\_\_\_ months. Several layers of plants can be found, the tallest are trees: \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, form a thin canopy. This canopy allows enough sunlight for plants to grow small trees and shrubs. Under these \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_ grow. The different layers of plants allow for many different habitats for animals.
  + Grasslands: Grasses have long, slender leaves that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water, and spreading, \_\_\_\_\_\_\_\_\_\_\_\_\_roots that take in much of the rain that falls. The temperatures are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, light rainfall, and many different grasses are the dominant plants. The few tees that grow in grasslands are usually found along \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_, where they can get more water.
  + Desert: Desert plants have \_\_\_\_\_\_\_\_\_ stems or leaves that store water. Desert animals come out only at \_\_\_\_\_\_\_\_\_\_\_\_\_, when its cooler. In the desert the sun is always shinning, it doesn’t rain very often, and the soil and air are both very \_\_\_\_\_\_\_. Most deserts are very hot during the day, but temperatures can drop to \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_on winter nights.
  + Taiga: The taiga is a forest of needle-leaved \_\_\_\_\_\_\_\_\_\_\_\_\_ that extends in a broad belt across Eurasia and North America. Winters are too \_\_\_\_\_\_\_\_\_ for deciduous trees to grow except around streams and lakes. Evergreens include \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have adapted to taiga. A waxy covering protects needles from the cold and limits the amount of water loss. They do not lose their needles all at once so that they can then make food year-round. The taiga has \_\_\_\_\_ layers, the trees form an almost solid canopy and the floor is always covered with a thick mat of dead dry needles. Mosses and lichens are usually the only plants that grow below the canopy, either on the forest floor or on the trunks of trees. The diversity of animals changes with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Tundra: The tundra has \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the tundra prevent trees from growing. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a layer of permanently frozen soil just below the surface, is the reason larger plants cannot \_\_\_\_\_\_\_\_\_\_\_ in the tundra. The tundra is a region of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_seasonal changes. The sun is rarely seen in the fall and winter because it is so far from the equator. In the summer the sun shines all the time. The constant light allows the tundra plants to sprout, grow, and bloom in only a few weeks.
  + Comparing Biomes: Starting at the poles, as you move toward the equator, biomes occur in this order: tundra, taiga, deciduous forest, grassland or desert, and tropical rain forest. This happens because of the responding \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ as you move in this direction. Variations in land formations also affect climate. High elevations have local climates that result in taiga on their slops and tundra on their peaks. By the time the air reaches the side of the mountain away from the wind, it is very dry. This dry area is called a \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_. Many of the deserts result from this rain shadow of large \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Water Ecosystems:
  + Life in Water: While there are many different water ecosystems there are three main types: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(oceans and seas), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(streams, rivers, lakes, and ponds), *\_\_\_\_\_\_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* ecosystems (were fresh water and saltwater mix).
  + Salt Water: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: The tide and the churning waves provide a constant supply of oxygen and nutrients that living organisms need. Animals of the intertidal zone include \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_which can live both in water and in moist sand. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Rives that empty into the ocean provide most of the nutrients for this zone. The water is cam in this zone, and the temperatures do not change much. The organisms that live on the bottom rely on a supply of dead organisms floating down because producers can only survive as far down as sun can reach. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: In this zone the water is very deep, but most of the organisms live \_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Freshwater: Freshwater ecosystems include \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and some \_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Freshwater plants include duckweed, waterlilies, cattails, and many different grasses. There are also many kinds of algae. The animals include trout, bass, catfish, frogs, crayfish, and turtles. Water temperature and the speed at which the water moves determine what kinds of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can live there.
  + Estuaries: Estuaries occur where \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ empty into an\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The water contains huge amounts of \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_making them the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ecosystem. \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ swamps are two types of estuaries. All estuaries have changing water conditions: at \_\_\_\_\_\_\_\_\_\_\_\_\_\_ tide, salty ocean water flows into the estuary, and at \_\_\_\_\_\_\_\_\_\_\_\_ tide estuaries are filled with freshwater or they become empty. The water is always fairly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and sunlight easily reaches the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Except for the slow rise and fall of tides, estuary waters are \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Estuaries help prevent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.