

Summer Work for AP Environmental Science

Welcome to AP Environmental Science 2019-20, you will need to come to the Hart Library to check out your textbook. The Library will be available to check out textbooks Wednesday 29th and Thursday 30th of May from 2:45-3:15. If you cannot get the textbook at that time, you will need to contact the Library, not me, to arrange a time to get your textbook. Over the summer, you will be completing work that deals the first new unit that we will be covering in August. **You will be reading three chapters, take notes on all the chapters (hand written not typed), and completing all of the Testing Your Comprehension (TYC's) questions at the end of each chapter.** The TYC's will require you to write out the **question** and then **answer** that question with a complete thought. I will attach a sample of the notes that come from pages 60-61 in the textbook as an example of how to take notes. The work is due the first day of school when we get back. **If you fail to complete the assignments on time, that will cause you to be unprepared for the class, this class must move along at a pace that allows for you to cover all the material.** You will be checking out the Pearson textbook for the summer work and will use this same textbook next fall. Upon your return to Hart in August, we will begin our discussion and work on the first topic, which is **The Living World: Ecosystems**. I can not stress enough the importance of you keeping up with the work assigned and working on it a little bit each day of the summer so that it does not become too much.

Information that you will cover this summer:

Chapter 3	Evolution, Biodiversity, and Population Ecology
Chapter 4	Species Interactions and Community Ecology
Chapter 5	Environmental Systems and Ecosystem Ecology

If you have any questions about the summer work, all you need to do is email me at my Email address jahart@hartdistrict.org and I will respond.

III. Levels of Ecological Organization

1. **Ecology** is the scientific study of the distribution and abundance of organisms, the interactions among organisms, and the relationships between organisms and their environments.
- A. We study ecology at several levels.
1. Life exists in a hierarchy of levels, from atoms, molecules, and cells up through the **biosphere**, which is the cumulative total of living things on Earth and the areas they inhabit.
 2. At the level of the organism, ecology describes the relationships between the organism and its physical environment. In contrast, **population ecology** examines the dynamics of population change and the factors that affect the distribution and abundance of members of a population.
 3. A **community** consists of an assemblage of populations of interacting species. **Community ecology** focuses on patterns of species diversity and on interactions among species, ranging from one-to-one interactions to complex interrelationships involving the entire community.
 4. **Ecosystems** encompass communities and the abiotic (nonliving) material, and forces with which community members interact. **Ecosystem ecology** reveals patterns, such as the flow of energy and nutrients, by studying living and non-living components of systems in conjunction.
- B. Each organism has habitat needs.
1. The specific environment in which an organism lives is its **habitat**.
 2. Each organism thrives in certain habitats and not others, leading to non-random patterns of **habitat use**. Mobile organisms actively select habitats in which to live from among the range of options they encounter, a process called **habitat selection**.
 3. Habitats are scale dependent.
 4. The criteria by which organisms favor some habitats over others can vary greatly.
 5. Habitat use is important in environmental science because the availability and quality of habitat are crucial to an organism's well-being.
- C. Niche and specialization are key concepts in ecology.
1. A species' **niche** reflects its use of resources and its functional role in a community.
 2. Species with narrow breadth, and thus very specific requirements, are said to be **specialists**. Those with broad tolerances, able to use a wide array of resources, are **generalists**.
 3. Specialists succeed over evolutionary time by being extremely good at the things they do, but they are vulnerable when conditions change and threaten the habitat or resource on which they have specialized. Generalists succeed by being able to live in many different places and to withstand variable conditions, but they may not thrive in any one situation as much as a specialist would.