PEER Life Science Ecosystems Population Balance Notes Outline

**Why It Matters**

* The first rule of species survival in an ecosystem is that the population must be \_\_\_\_\_\_\_ enough to withstand disease, shortages of \_\_\_\_\_\_ and \_\_\_\_\_\_\_, predators, and the other hazards of living.
* The direct transfer of energy between organisms is called a food \_\_\_\_\_\_\_. When these paths of energy transfer start intertwining and becoming interrelated, they create food \_\_\_\_\_\_.
* Asexual reproduction produces two \_\_\_\_\_\_\_\_\_\_\_ copies of the parent cell.
* Sexual reproduction is advantageous because it increases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which increases the likelihood of organisms adapting to changing ecosystems.
* Human activities have disturbed the balance of many ecosystems. One way we do this is by introducing \_\_\_\_\_\_\_\_\_\_ or non-native species to ecosystems where they fit into a new niche or compete with a native species for an existing one.

**How We Know**

* Most of what we know about ancient populations comes from \_\_\_\_\_\_\_\_\_.
* Name three types of events or information that can be revealed by fossils:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Sources of error in fossil records include that some species do not easily become \_\_\_\_\_\_\_\_\_, distribution of fossils may be \_\_\_\_\_\_\_\_ around the world, and scientists might not have taken \_\_\_\_\_\_\_\_\_ from the right places.
* After natural disasters like forest fires, barren land experiences a \_\_\_\_\_\_\_\_\_\_\_\_ of species being introduced again.
  + Put the following species in order of appearance in ecological succession: small mammals, large mammals, small trees and brush plants, large trees
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Scientists can also tell how populations change over time by studying how \_\_\_\_\_\_\_\_\_ material changes over time.

**What We Know**

* There are many ways to define a species. One way to define whether organisms are of the same species is by whether or not they can produce offspring that can \_\_\_\_\_\_\_\_\_\_\_.
* Many members of the same species make a \_\_\_\_\_\_\_\_\_\_\_\_.
* Populations can be characterized in the following ways
  + \_\_\_\_\_\_\_\_\_ - the number of individuals divided by the area of suitable environment
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - helps determine the growth of a population
  + \_\_\_\_\_\_\_\_\_\_\_ - ratio of males to females in a population
* The vast majority of species that have lived on earth are now \_\_\_\_\_\_\_\_\_.
* Each population in an ecosystem occupies a specific \_\_\_\_\_\_\_. If this niche is disturbed, the size of the population may change.
* A given population of a species has a certain distribution of genes, or gene \_\_\_\_\_\_\_\_\_\_\_\_\_. If these frequencies are changing, the species likely has a high capacity to evolve.
* The gene \_\_\_\_\_\_ refers to all of the genes found within a population.
* \_\_\_\_\_\_\_\_\_\_\_\_ isolation can isolate gene pools. This can lead to two populations of the same species evolving into separate species.
* As a population grows, the chances for evolving new species may also increase because more individuals with specific gene frequencies are able to be acted on by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Unless growth is limited, population growth occurs \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Factors that influence population growth include: \_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_ and \_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Regardless of body mass or numbers in a population, a given mass of \_\_\_\_\_\_\_ will support a given mass of \_\_\_\_\_\_\_\_\_\_. Consequently, if the numbers of prey go down, the numbers of predators go up/down. If the numbers of predators go down, the numbers of prey will go up/down.