

2.3 Guided Notes

Objectives

- Define *ecosystem*.
- Identify three factors that control the balance of an ecosystem.
- Summarize how energy is transferred through an ecosystem.
- Describe one way that ecosystems respond to environmental change.

Ecosystems

- _____ is the study of the complex relationships between living things and their nonliving, or abiotic environment.
- **ecosystem** - a community of _____ and their abiotic environment
- An ecosystem may be as large as an ocean or as small as a rotting log. The largest ecosystem is the entire biosphere.
- Organisms that make their own food are called _____. Most producers use energy from the sun to produce their own food.
- _____ are organisms that get their energy by eating other organisms. Consumers may get energy by eating producers or by eating other consumers.
- Some consumers get energy by breaking down dead organisms. These consumers are called _____.
- To remain healthy, an ecosystem needs to have a _____ of producers, consumers, and decomposers.

Balancing Forces in Ecosystems

- Because amounts of _____ and _____ in an ecosystem are limited, the population growth within the ecosystem is limited, too.
- **carrying capacity** the largest population than an environment can _____ at any given time
- Carrying capacity depends on available _____ and on how easily matter and energy. cycle between life-forms and the environment in the ecosystem

Ecological Responses to Change

- In general, ecosystems react to changes in ways that maintain or restore _____ to the ecosystem.
- Environmental change in the form of a sudden disturbance can damage and disrupt _____. However, over time, organisms will migrate back into damaged areas in predictable patterns.
- Ecosystems are resilient and tend to restore a community of organisms to its original state unless the physical environment is _____ altered.

Energy Transfer

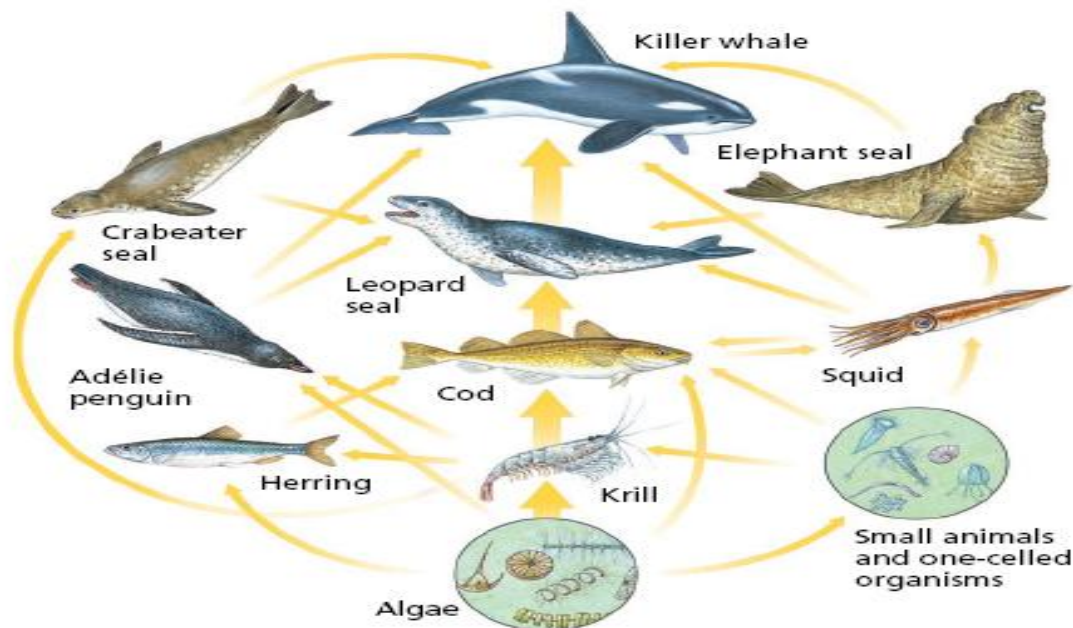
- The ultimate source of energy for almost every ecosystem is the _____.
- Producers, such as plants, capture solar energy by a chemical process called _____. This captured energy then flows through the ecosystem from the producers, to the consumers, and finally to the decomposers.

- As matter and energy cycle through an ecosystem, chemical elements are combined and recombined. Each chemical change results in either the temporary storage of _____ or the _____ of energy.
- An energy _____ is one way to see how energy is lost as it moves through the ecosystem.
- Producers form the base of the pyramid. Consumers that eat the producers are the next level of the pyramid. Animals that eat those consumers form the upper levels of the pyramid.
- As you move up the pyramid, more energy is _____ at each level. Therefore, the least amount of energy is available to organisms at the _____ of the pyramid.

Food Chains and Food Webs

- The _____ in which organisms consume other organisms can be represented by a food chain or by a food web.
- **food web** a diagram that shows the _____ relationships among organisms in an ecosystem

The figure illustrates a food web.



Human Stewardship of the Environment

- All of Earth's systems are _____, and changes in one system may affect the operation of other systems.
- Ecological balances can be disrupted by human activities, such as overconsumption of _____ and _____.
- To help ensure the ongoing health and productivity of the Earth system, many people work to use Earth's resources wisely.

Maps in Action

Concentration of Plant Life on Earth

