Ecology: Interaction Unit Notes Name:

(DO NOT LOSE)

Ecological systems are organized within each other. The effects on one system will effect them all. All systems are interconnected.

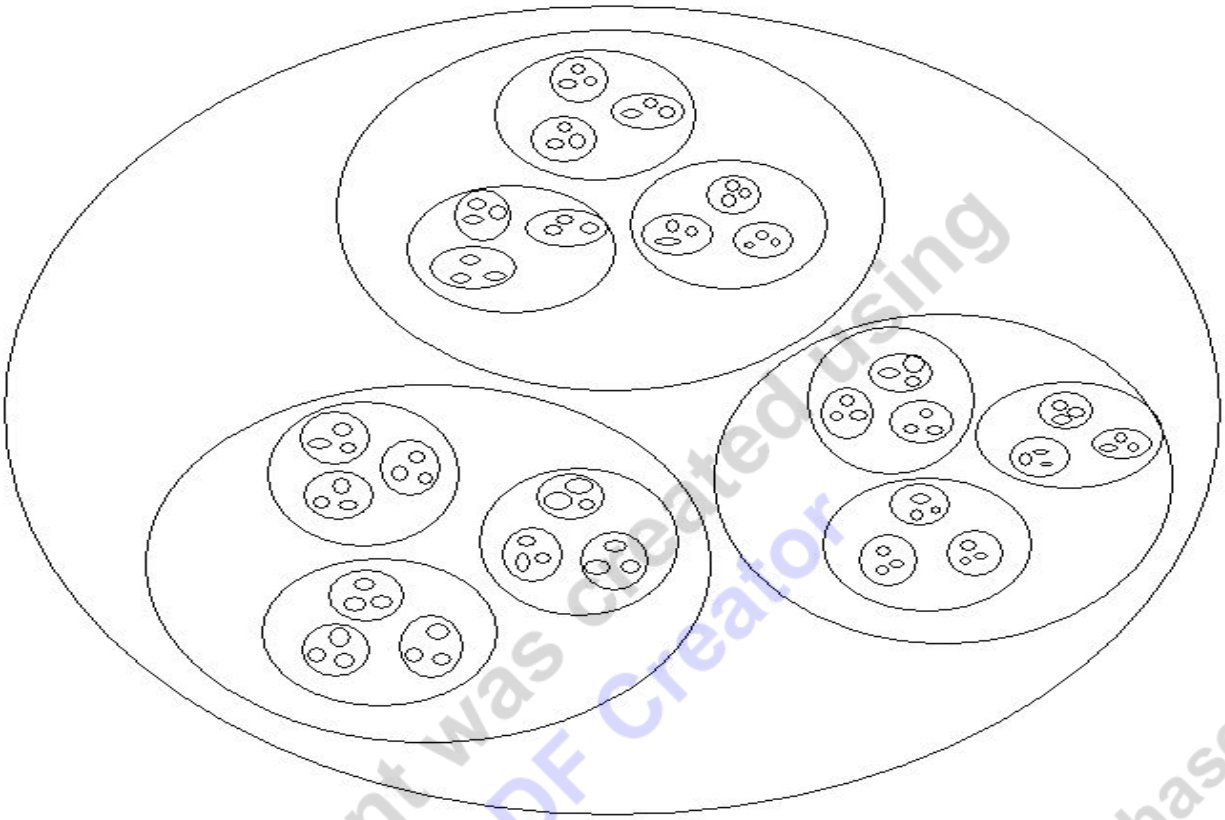
Animals are interconnected in a complex web of life. Changes on one part of the web will effect other parts of the web and the stability of the entire ecosystem.

Matter and energy cycle through the living and nonliving world. Organisms rely on this matter and energy cycling to survive.

Organisms need energy to survive. Energy from the sun flows into and out systems. This energy drives our world and the organisms in it. Energy is lost "not destroyed" when it changes form. Flows Hot to Cold

Ecosystems have a way to balance changes so that up and down fluctuations are part of the natural balance of the whole.

All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.



1 Individual
2 Population
3 Community
4 Biome
5 Biosphere

Individual: Organism with unique _____ and cells

Population: Groups of similar_____who tend to mate with each other in a limited geographic area.

Ecosystem: The relationships of populations with each other and their _____.

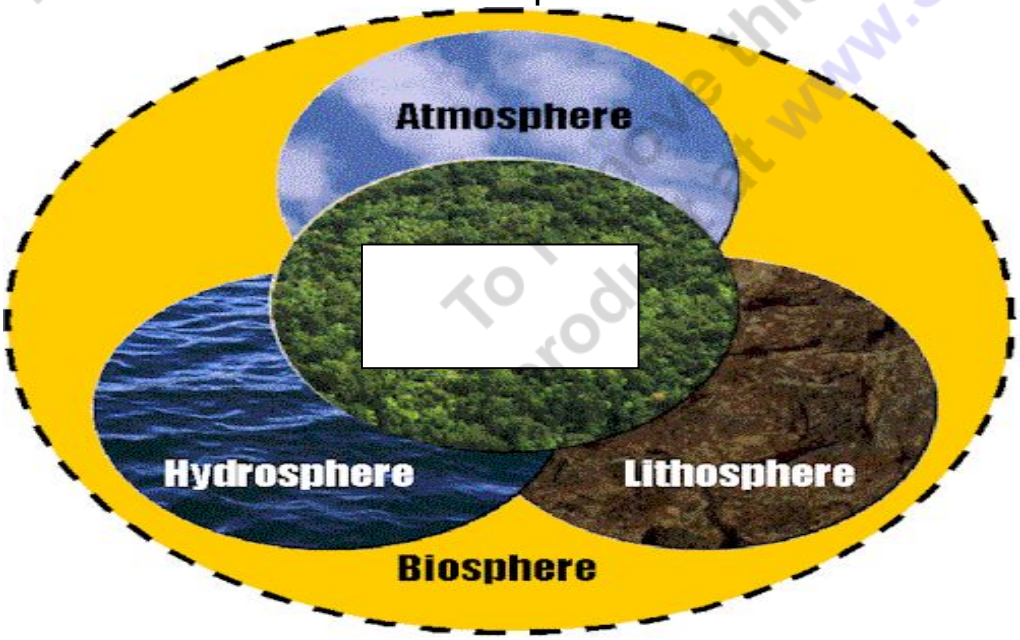
Community: The relationships between groups of _____.

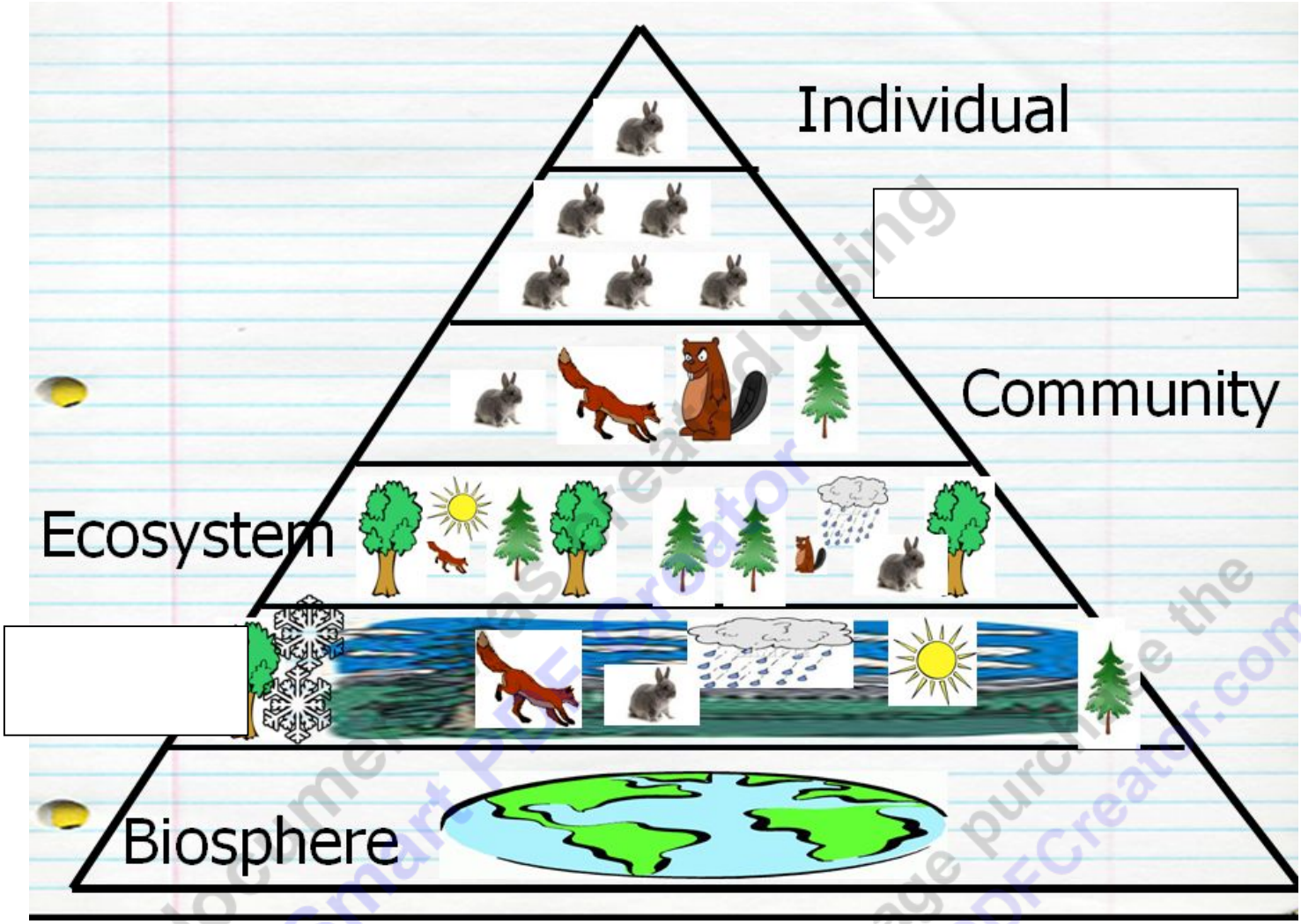
Biome: A regional _____ characterized by distinct types of vegetation, _____. Determined by temperature and _____.

Bio_____: The part of the earth and its atmosphere in which living organisms exist.

Biosphere consists of…

- _____sphere – The surface of the earth and all the ecosystems.
- _____sphere: Below the surface, in the crust and mantle.
- _____sphere: All waters not in atmosphere and lithosphere.
- _____sphere: The area of gases that surround the planet.





Habitat: A place an organism _____.
The needs of an organism are…

- Air.
- _____
- Food.
- _____
- Space.

Ecological N_____: The place or function of a given organism within its ecosystem.

Limiting Factor: A factor that causes a population to _____ in size.

- Density Independent Factors (Non_____)
  - Sunlight
  - _____
  - Temperature
- Density Dependent Factors (_____)
  - Disease
  - _____
  - Predators
  - Competition

Carrying Capacity: The amount of _____ that an area of land will yield.

- Therefore, the number of people that an area of land will support.

Competition: The interaction between _____ or species, in which the _____ of one is lowered by the presence of another.

Four types of competition

- _____specific competition: Over resources between different species.
- _____specific competition: The same species compete for resources.

- Interference competition: fighting / disrupting.
- Exploitative: _____ resources.

- Theory
  - Competitive Exclusion: One thrives, the other goes _____.
    - No two species with the same _____ can coexist.

- Competitive Exclusion Theory: All organisms exist in competition for available _____. Those that create a competitive advantage will flourish at the expense of the less competitive. No _____ organisms can have the same niche. One lives, the other dies.

Most animal interactions

- Competing for the same _____ supply.
- Eating (_____).
- Avoid being eaten (avoiding predation).

Food Web: A complex network of many interconnected _____ _____ and feeding interactions.

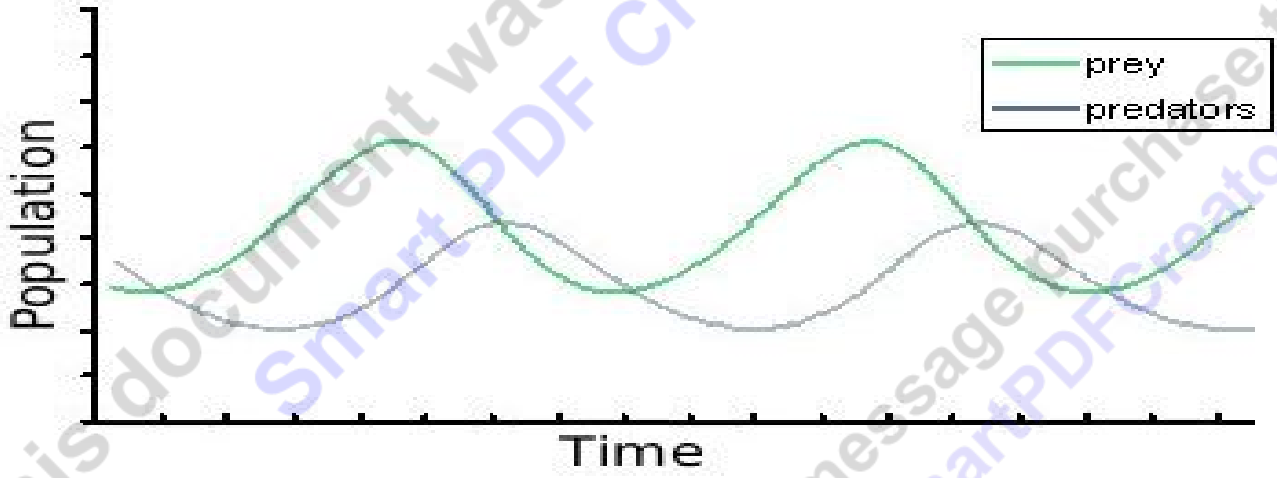
Predator: An organism that lives by _____ on other organisms.

Prey: An animal hunted for _____.

Habitat: The area or environment where an organism or ecological community normally _____.

Gregarious: Tending to form a _____ with others of the same species.

Typical Predator and Prey population graph.



Camouflage: An _____ that allows the animal to blend in with its environment to avoid being detected.

Area of Mini Focus: Population sampling.

Abundance: Measurement of the _____of a species. Can be % cover, density, biomass, frequency.

Relative abundance: The amount of each species. Must sum to 1 or _____%.

Diversity: The _____, or number of kinds of species.

- Counting the number of different species.

Back to Animal Interactions

Mimicry: The _____ of an animal species to another species or to natural objects.

Batesian mimicry: Looking _____ another species that is dangerous or may taste bad. There is a mimic, and the _____.

Mullerian mimicry: Several unrelated species share _____ colors that warn predators that these colors are dangerous or toxic.

Symbiosis: A long term _____ between two or more different species.

Three types of symbiosis

- Parasitism: One organism _____ while the other is _____.
- Mutualism: Both organisms _____.

- Types of mutualisms
  - Trophic mutualism – Both help _____ each other. Usually nutrient related.
  - Cleaning symbiosis – One species gets food and shelter, the other has _____ removed.
  - Defensive mutualisms: One species _____the other and gets some benefits for its help.
  - Dispersive mutualisms: One species receives _____ in exchange for moving the pollen or seeds of its partner.

- Commensalism: One organism benefits and the other doesn't _____, or suffer harm.

New Area of Focus: Plant and Animal Interactions. Still a part of symbiosis.

Coevolution – When _____ or more species influence each other's evolution.

Animals Strategies to eat plants

- Animals have special _____ and mouth parts to eat plants.
- They use _____ farms (leaf cutter ants)

- Four chambered _____ (many herbivores) Uses bacteria to break down plant matter.

Plant defense mechanisms

- _____ in a place difficult to be eaten.
- Repair quickly and let them eat non-essential parts of you.
- Mechanical Defenses - _____ and serrated edges, and sap.
- Chemical Defenses such as _____: Plants become poisonous (nicotine, mustard, caffeine).
- Be extremely hard to _____.
- You have _____ insects, birds, or mammals that attack predators.
  - You feed your friends a bit (mutualism).

New Area of Focus: Exotic Species

Exotic species – A species that have been _____ to an ecosystem that are not endemic to the area. (non-native)

Endemic: Has _____ in the area for a considerable amount of time. (native)

Human activities (_____) have greatly increased the spread of exotic species.

Negative impacts of invasive exotic species.

- Increased _____.
- Increased competition.
- Spread _____.
- Habitat destruction.
- Cause the _____of a native species.
- Damage the economy.
- Damage to _____ health.

Biological control: The _____ introduction of natural enemies by scientists and environment managers as a means to _____and suppress invasive exotic species.

Drawing of Eurasian Milfoil.

PUT THESE NOTES IN YOUR BINDER!
DO NOT LOSE THEM!