ECOLOGY UNIT

*Ecosystem*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the study of interactions that take place between organisms and their environments. Living things are affected by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parts of the environment. Nonliving parts of the environment are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ factors. Some examples of abiotic factors are: 1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; 2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; 3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; 4)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Living organisms in the environment are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ factors. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are organisms that take in energy from their surroundings to make their own food, examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consumers are organisms that eat (consume) other organisms for energy (animals). \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are consumers that eat waste products for energy. Waste products are feces, urine, fallen leaves, dead animals. Some examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_ and some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ecology studies the relationship of organisms and their environment on several levels. The universe is organized.

* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the smallest particle of an element that can exist either alone or in combination. Atoms are made up of protons, neutrons, and electrons. Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consists of two or more atoms held together by chemical bonds. 

Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the smallest unit of life that is classified as a living thing, and are often called the "building blocks of life". 
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a grouping of similar cells from the same origin that together carry out a specific function. Examples:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 

* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organ is a collection of tissues joined in a structural unit to serve a common function.

Examples:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a group of organs that work together to perform a certain task.

Examples:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an individual living thing that can react to stimuli, reproduce, and grow. It can be a virus, bacterium, fungus, plant or an animal.

Examples:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ group of organisms, all of the same species, which interbreed and live in the same area at the same time.



* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ may compete with each other for resources such as food, water, space, mates, etc.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are a group of populations that live in the same area at the same time. A change in one population can cause a change in another population.

      

* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a biological community and the nonliving things in the community’s environment.
* A complex community of plants and animals in a region and a climate is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the global sum of all ecosystems, a self-regulating system.  Example:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the place where an organism lives out its life. Think about the habitat as an organisms address. All the strategies and adaptations a species uses in its environment is called its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Each type of organism occupies its own niche to avoid competition with other types of organisms, think of a niche as its job. Two species can share the same habitat but not the same niche. Example: Ants and bacteria both live in the dirt (habitat) but have different niches. Ants eat dead insects and bacteria eat dead leaves, dead logs, and animal waste. So ants and bacteria don’t compete for resources.

All ecosystems rely upon the input of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the cycling of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (magnesium, potassium, etc). Energy flows from one organism to the next by eating food. Each step in this process is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ provides a continuous influx of energy. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ use sunlight to make food for growth. This process is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, primary producers use light energy to convert carbon dioxide and water into oxygen and carbohydrates such as sugars and starches. 

CO2 + H2O C6H12O6 (Sugar/Glucose)

 

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rely on other organisms for energy and food. Examples of primary producers:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. There are three types of consumers, 1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and 3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. An example of a primary consumers would be an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the primary consumer might eat a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. An example of a secondary consumer would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the secondary consumer might eat an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. An example of a tertiary consumer might be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the tertiary consumer might eat a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows how organisms transfer food energy from the

 sun. 

There are different types of consumers, there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the herbivore eats

plants only. An example of an herbivore would be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Next are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, carnivores eat meat only; an example of a carnivore would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Next are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; omnivores eat both plants and animals; an example of an omnivore would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Next are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, detritivores eat dead organic matter; an example of a detritivore would be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Finally there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, decomposers break down organic matter; an example of a detritivore would be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Large amounts of energy are \_\_\_\_\_\_\_\_\_\_ at each trophic level as it flows through the ecosystem. This \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows how only \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the available energy is passed on from one trophic level to the next. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of heat is lost from one trophic level to the next.



Food Chain Activity

Food Web

SCIENTIFIC METHOD

<http://www.freeclubweb.com/powerpoints/science/scientificmethod.html> (What does a scientist look like?)

How can we determine if something is a fact or an opinion? How can we determine an answer to a problem? The answer is to use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Why do scientists use a “method” to investigate a natural phenomenon?

* The scientific method is a logical organized approach used to solve a problem.
* Others are able to repeat the experiment.
* The scientific method allows us to add to the knowledge and/or support previous knowledge.

What are the different components of an experiment?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientific Method Activity

 Purpose: To build the tallest structure in an identifiable shape

 Materials: Marshmallows and raw spaghetti noodles