Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Ecological Pyramids** – (energy pyramids)

Food chains and food webs show you the \_\_\_\_\_ relationships and transfer of \_\_\_\_\_ between organisms. We know that all food chains and webs begin with the \_\_\_\_\_ (autotrophs) (plants) and show how organisms get their energy from what they eat. Fill in the trophic levels of the food chain to the left below using producers and consumers. To the right, fill in the specific types of producers and consumers.

Another model used is called an ecological pyramid, also known as an energy pyramid. An energy pyramid is used to show the flow of energy and represents different feeding levels within an ecosystem.

?

?

?

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Top ?

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?

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Notice how they are similar to food chains! Each box/level of the pyramid represents the largest populations and therefore the most amount of energy available. The plants (producers) are at the bottom because they have the largest population while the top carnivores (consumers) are at the top to represent that there are less predators than prey. For example, there are more deer than there are wolves.

2 Hawks

25 Birds

260 grasshoppers

3000 blades of grass

Based on the ecological pyramid above:

1. Which population is the largest? \_\_\_\_\_ The smallest? \_\_\_\_\_

2. From where is the most amount of energy available, the top of the pyramid, or at the bottom? Why?

3. How many grasshoppers are needed in order to have enough food for the birds? \_\_\_\_\_ How many birds are needed to have enough food for the hawks? \_\_\_\_\_

4. Which organism is the producer? \_\_\_\_\_ The primary consumer? \_\_\_\_\_ The secondary consumer? \_\_\_\_\_ The tertiary consumer? \_\_\_\_\_

5. Use the words increase or decrease to fill in the blanks.

If the population of grasshoppers were to \_\_\_\_\_ then the population of grass would decrease.

If the hawk was eliminated from the environment, the population of birds would \_\_\_\_\_.

If the population of birds increased, then the population of grasshoppers would \_\_\_\_\_.

6. The existence of a food \_\_\_\_\_ would better protect each trophic level in case a population was wiped out by disease or some other factor.

**ANSWERS**

**Ecological Pyramids** – (energy pyramids)

Food chains and food webs show you the **feeding** relationships and transfer of **energy** between organisms. We know that all food chains and webs begin with the **producers** (autotrophs) (plants) and show how organisms get their energy from what they eat. Fill in the food chain to the left below using producers and consumers. To the right, fill in the specific types of produces and consumers.

Another model used is called an ecological pyramid, also known as an energy pyramid. An energy pyramid is used to show the flow of energy and represents different feeding levels within an ecosystem.

Top carnivores



Carnivores

Herbivores

Producers (autotrophs)

Notice how they are similar to food chains! Each box/level of the pyramid represents the largest populations and therefore the most amount of energy available. The plants (producers) are at the bottom because they have the largest population while the top carnivores (consumers) are at the top to represent that there are less predators than prey. For example, there are more deer than there are wolves.

2 Hawks

25 Birds

260 grasshoppers

3000 blades of grass

Based on the ecological pyramid above:

1. Which population is the largest? **Grass** The smallest? **Hawks**

2. From where is the most amount of energy available, the top of the pyramid, or at the bottom? Why?

**The bottom of the pyramid contains the MOST energy because it supports the other tiers.**

3. How many grasshoppers are needed in order to have enough food for the birds? **260** How many birds are needed to have enough food for the hawks? **25**

4. Which organism is the producer? **Grass** The primary consumer? **Grasshopper** The secondary consumer? **Birds** The tertiary consumer? **hawks**

5. Use the words increase or decrease to fill in the blanks.

If the population of grasshoppers were to **increase** then the population of grass would decrease.

If the hawk was eliminated from the environment, the population of birds would **increase**.

If the population of birds increased, then the population of grasshoppers would **decrease**.

6. The existence of a food **web** would better protect each trophic level in case a population was wiped out by disease or some other factor.