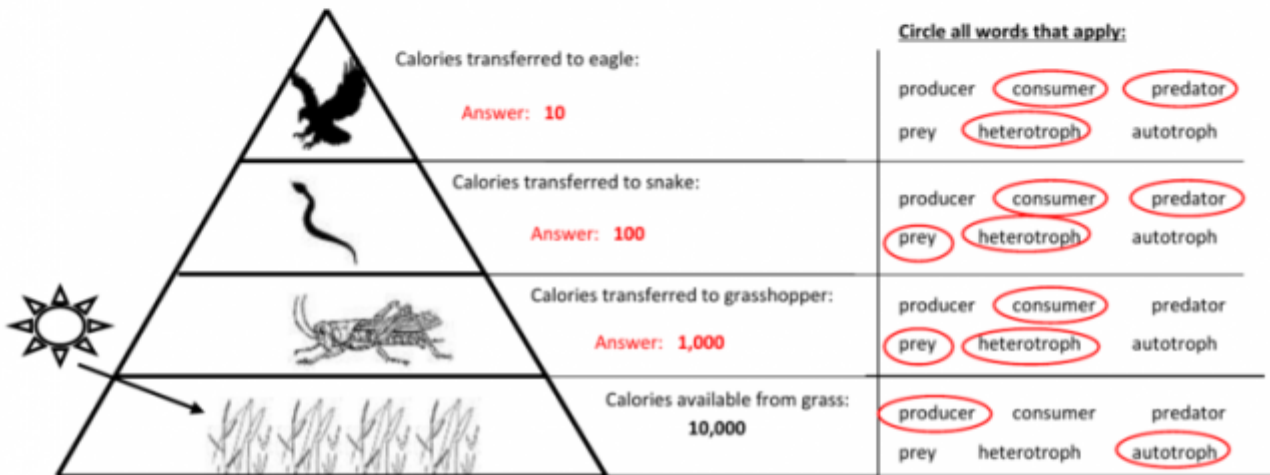


### Energy through Ecosystems Worksheet

The amount of available energy at each trophic (feeding) level decreases as it moves through an ecosystem. As little as 10 percent of the energy at any level is transferred up to the next level.

In the energy pyramid below, calculate the amount of energy that is passed up from one trophic level to the next, assuming only 10% of the energy from the previous level is available for the next level. For each trophic level, circle all the words that apply to identify each organism as either a producer or consumer and as either an autotroph or a heterotroph. If the organism could be considered a predator and/or prey, circle those words also.



#### Questions

1. Assume that the grasshopper in the food pyramid above must eat half its body weight in grass each day. If an average-size grasshopper weighs 2 grams, and 1 blade of grass weighs 0.1grams (one tenth of a gram), how many blades of grass does the grasshopper need to eat each day?

**Answer: 10 blades of grass (=1/2 the weight of a grasshopper, or 1 g)**

2. Assume a snake must eat 5 grasshoppers per day, while an eagle must eat 2 snakes per day. Use this information along with your answer from Question #1 to calculate how many blades of grass are needed to keep an eagle alive for a day?

**Answer: 100 blades of grass (=10 blades/grasshopper x 5 grasshoppers/snake x 2 snakes/eagle)**

3. How many blades of grass are needed to support a family of four eagles for a week?

**Answer: 2800 blades of grass (=100 blades/eagle x 4 eagles x 7 days/week)**