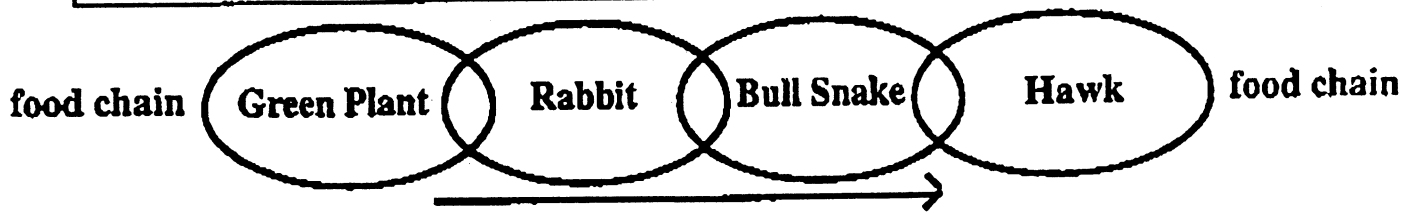


COPE: Energy Pyramid

Directions: Use the passage below to fill out the organizer on the next page.

Important information to be copied into your organizer is in bold print. The letter in front of a term or idea, indicates where on the organizer you should copy the term or idea. You should also answer questions 1-6 based on the reading.



The Energy Pyramid

A community is made up of many populations of organisms. The amount of energy available to a certain population depends on its feeding order in a food chain like the one shown above. Because energy is used at each link of a food chain, less is available to the populations near the end of a chain.

An Energy Pyramid is a diagram that compares the amount of energy available at each position or level in the feeding order. The diagram on your organizer shows an energy pyramid for the same community as the food chain above. **(A) All energy and food in a community can be traced back to the sun.** The first level represents the energy trapped by all the green plants or **(C) producers.** This level is the largest because it is the level with the most energy. Producers have the most energy and the largest populations because they get energy directly from the sun.

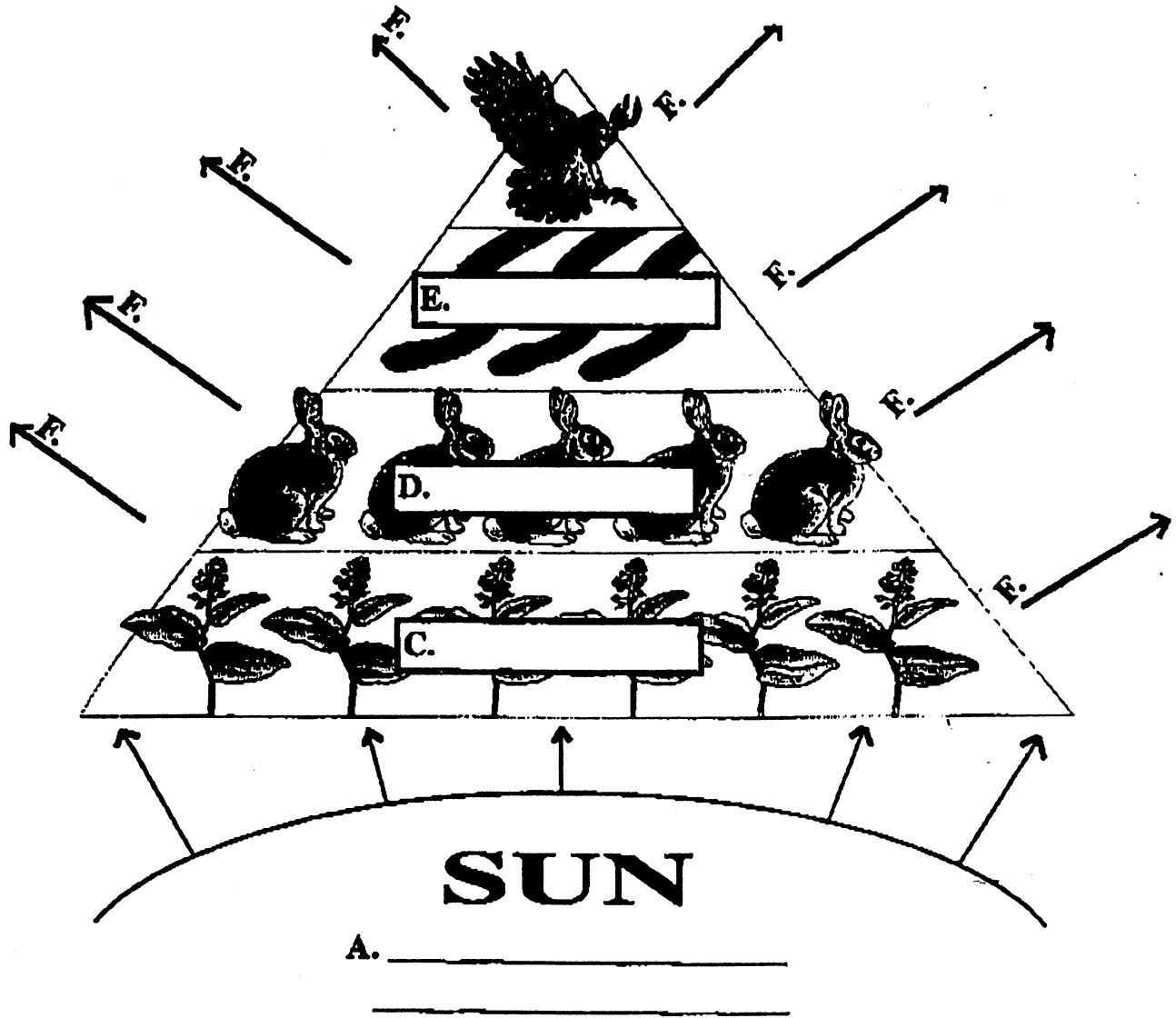
The next level of the pyramid represents the plant eaters or **(D) herbivores.** It is narrower than the first. On your diagram this level is drawn narrower to illustrate that there is less energy available to the rabbits that eat the plants. Less energy is available to the rabbits because the plants have used some energy for their own needs. Herbivories such as rabbits will use much of the remaining energy for their own needs as well.

Because the herbivores also use up energy, the next level is narrower still. The next level represents the meat eaters or **(E) carnivores.** The shape of the pyramid shows that the least amount of energy is available to the hawks-the organisms at the end of this particular food chain.

But what happens to the energy lost from the energy pyramid? You may have learned that matter and energy can not be created or destroyed but can be changed from one form to another. The energy used by living things is converted to heat. For example, mammals must "burn" a lot of food just to keep their bodies warm! They use up more energy to run and carry out other activities. Ultimately, this energy escapes the energy pyramid in the form of **(F) heat.**

Do not underestimate this energy loss. Only 10% of the energy is passed on to the next level. Because of the decreasing energy available, the population of species residing in higher levels of the pyramid is smaller. There just isn't enough energy (food) left to feed any more. As a result, there are many less rabbits than blades of grass. There are less bull snakes than there are rabbits. . and finally, less hawks than there are bull snakes!

COPE: Energy Pyramid



1. What is the source of all food and energy in the ecosystem? _____
2. Why is the food pyramid drawn wide at the bottom and narrow at the top?

3. What percent of the energy is passed on to the next layer of the food pyramid? _____
4. What happens to the other 90%? _____

5. Where are you on the energy pyramid when you eat a salad? _____
6. Where are you on the energy pyramid when you eat a steak? _____

Complete the task on the next page.