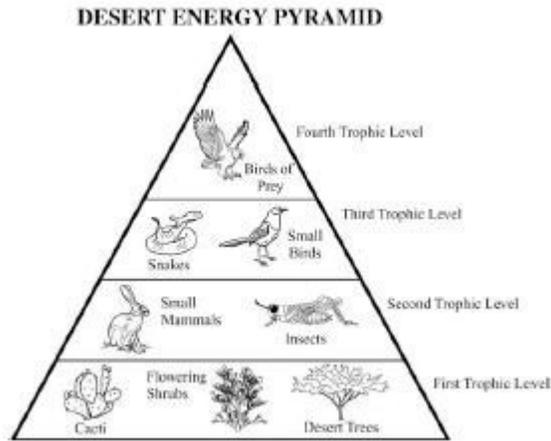


SC.912.L.17.9 – Food Webs and Energy Transfer – Example 1 Answer

A team of ecologists observed feeding patterns of several populations in the desert. The energy pyramid shown below depicts the feeding patterns the ecologist observed.



Which of the following best explains the difference in the amount of available energy in the trophic levels of the desert ecosystem?

- A. There is less energy available in the producers because their tissues are less dense than those at higher trophic levels.**
- B. There is more energy available in the second trophic level because less energy is needed for hunting compared to the higher trophic levels.**
- C. There is more available energy in the birds of prey because they have greater muscle mass for storing energy than organisms in lower trophic levels have.**
- D. There is less available energy in the fourth trophic level because of the loss of energy through metabolism in each of the lower trophic levels.**

Answer

D. There is less available energy in the fourth trophic level because of the loss of energy through metabolism in each of the lower trophic levels.

Each successive trophic level contains about 10% of the available energy from the previous trophic level. The other 90% is lost as heat to the atmosphere through metabolism by the organisms in that level.