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- 1. What is the source of energy for all organisms on Earth?
  - 2. What are the two main ways organisms can obtain energy?
  - 3. What is an autotroph?
  - 4. What are the two main ways to be an autotroph?
  - 5. A certain kind of bacteria makes its own food but does not have access to sunlight.
  - What kind of autotroph is this bacterium?
  - 6. An okapi is a relative of the giraffe. It is found in African rainforests and eats tree leaves. What type of heterotroph is the okapi?

- 7. Hedgehogs are tiny, spiky haired creatures that are a gardener's friend because they eat slugs and other garden pests. What type of heterotroph is the hedgehog?
- 8. Raccoons can eat berries, fish, as well as bits of food thrown away by humans. What type of heterotroph are raccoons?
- 9. Blowfly maggots are always found on dead organisms. What kind of heterotrophs are these maggots?
- 10. Compare AND contrast scavengers and detritivores
- 11. Compare AND contrast detritivores and decomposers



12. Why are detritivores and decomposers important to any ecosystem?

13. What do ecologists use food chains and food webs for?

14. What do the arrows in a food chain or food web represent?

15. What do food chains and food webs typically start with?

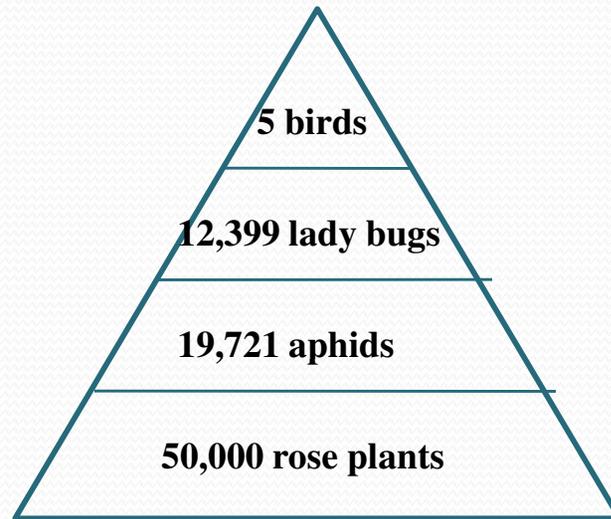
16. What does each organism use a portion of the energy it consumes for?

17. What happens to the rest of the energy an organism consumes?

- 18. Compare AND contrast food chains and food webs.
- 19. What is the purpose of an ecological pyramid?
- 20. What are the 3 kinds of ecological pyramids?
- 21. If an ecologist wanted to model the mass of each trophic level in the Sahara desert, what kind of ecological pyramid would he use?
- 22. If an ecologist wanted to model the amount of energy available at each trophic level in the Brazilian rain forest, what kind of ecological pyramid would he use?
- 23. If an ecologist wanted to model how many organisms there are at each trophic level of the Great Barrier Reef, what kind of ecological pyramid would he use?

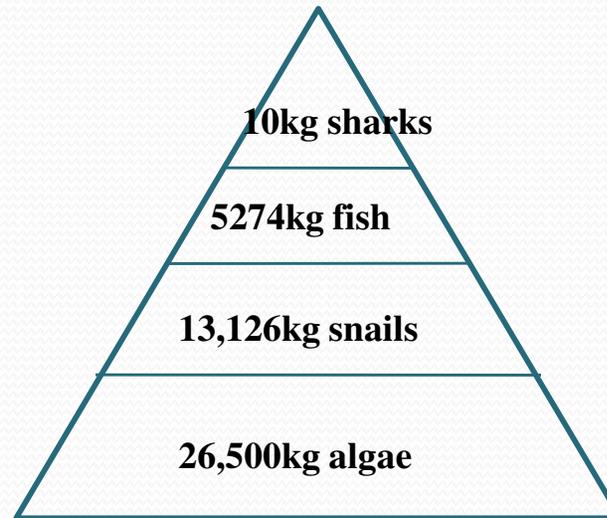
- 24. Why does biomass decrease at each trophic level (meaning from autotroph to herbivore to carnivore etc.)?
- 25. Why do the numbers of organisms decrease at each trophic level?
- 26. What type of organism makes up the first trophic level in all ecosystems, and therefore all food chains and food webs?
- 27. With the exception of autotrophs, where does each trophic level get its energy?
- 28. Where do autotrophs get their energy?

29. This is a pyramid of numbers. Answer the questions relating to this pyramid.



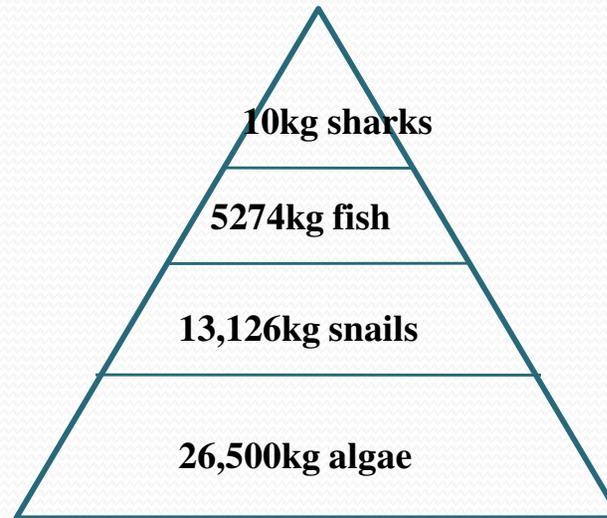
- How many rose plants are needed to support the aphids?
- How many aphids are needed to support the ladybugs?
- How many ladybugs are needed to support the birds?

- 30. This is a pyramid of biomass. Answer the questions relating to this pyramid.



- a. How many kilograms of algae are needed to support the snails?
- b. How many kilograms of snails are needed to support the fish?
- c. How many kilograms of fish are needed to support the sharks?

- 31. Using the trophic levels answer the following questions



- a. What percent of the ecosystem's energy is available in the algae?
- b. What percent of the ecosystem's energy is available in the fish?
- c. What percent of the ecosystem's energy is available in the sharks?