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**Explanation:**

Body with jointed legs is a characteristic feature of Kingdom Arthropoda and all the insects belong to this kingdom.

Short Answer Questions

35. Write true (T) or false (F)

- (a) Whittaker proposed five kingdom classification.
- (b) Monera is divided into Archabacteria and Eubacteria.
- (c) Starting from Class, Species comes before the Genus.
- (d) Anabaena belongs to the Kingdom Monera.
- (e) Blue green algae belongs to the kingdom Protista.
- (f) All prokaryotes are classified under Monera.

**Soln:**

Answers

- a- True
- b- True
- c- False
- d- True
- e- False
- f- True

**Explanation:**

c) Taxonomic hierarchy

Species



Genus



Family



Order



Class



Phylum



Kingdom

c) Blue green algae belonged to Kingdom Monera

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15. Amphibians do not have the following

- (a) Three chambered heart
- (b) Gills or lungs
- (c) Scales
- (d) Mucus glands

**Soln:**

Answer is (c) Scales

**Explanation:**

Amphibians have 3 chambered heart. Lungs are present in Adults and Gills are present in tadpoles. Mucus glands are present on the skin of Amphibians.

16. Organisms without nucleus and cell organelles belong to

- (i) fungi
- (ii) protista
- (iii) cyano bacteria
- (iv) archae bacteria

- (a) (i) and (ii)
- (b) (iii) and (iv)
- (c) (i) and (iv)
- (d) (ii) and (iii)

**Soln:**

Answer is (b) (iii) and (iv)

**Explanation:**

Cyanobacteria and archae bacteria are prokaryotes and they do not have well defined nucleus and cell organelles. Fungi and Protista are Eukaryote which possess Cell organelles and nucleus.

17. Which of the following is not a criterion for classification of living organisms?

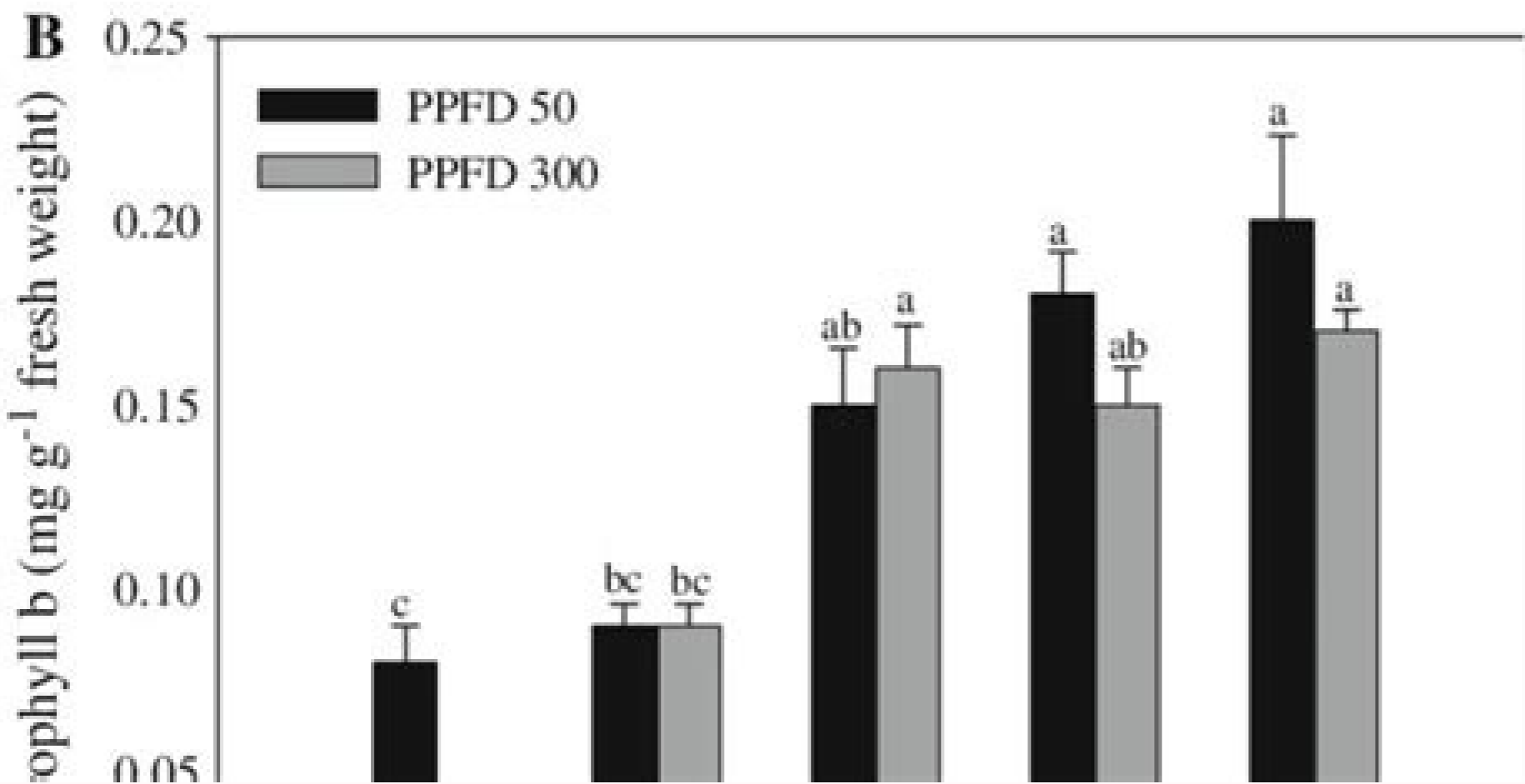
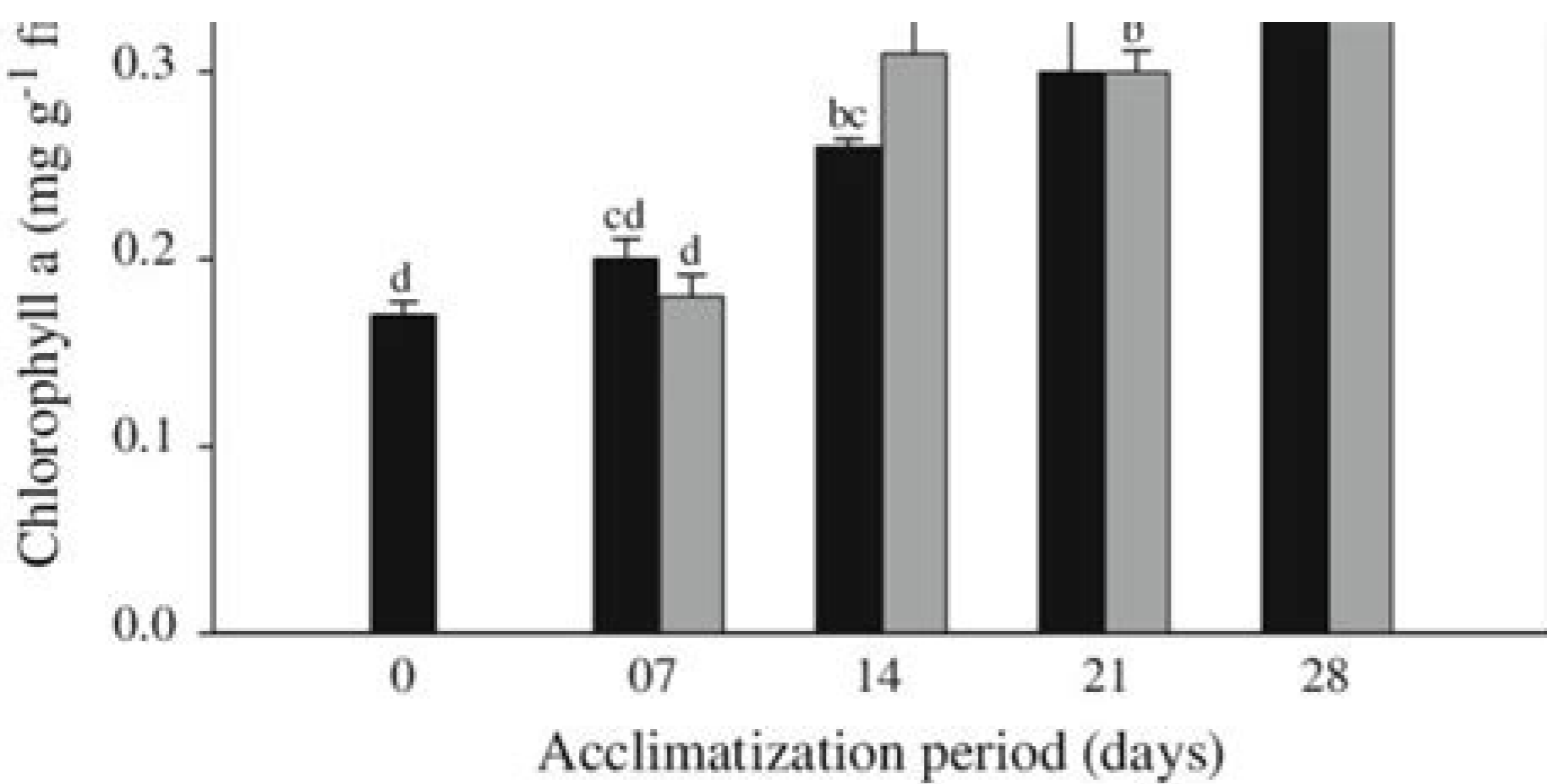
- (a) Body design of the organism
- (b) Ability to produce one's own food
- (c) Membrane bound nucleus and cell organelles
- (d) Height of the plant

**Soln:**

Answer is (d) Height of the plant

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**B**

What are the differences between autotrophic nutrition and heterotrophic nutrition short answer. State one difference between autotrophic and heterotrophic mode of nutrition. Bacteria show both autotrophic and heterotrophic nutrition. Which organism shows both autotrophic and heterotrophic mode of nutrition. State one difference between autotrophic and heterotrophic nutrition. Is autotrophic and heterotrophic nutrition same. State two differences between autotrophic nutrition and heterotrophic nutrition. Name the organisms that shows both autotrophic and heterotrophic mode of nutrition.

Autotrophs are organisms that can produce their own food from the substances available in their surroundings using light (photosynthesis) or chemical energy (chemosynthesis). They are the primary producer and are placed first in the food chain. Produce their own food for energy. There are two types of heterotrophs: Photoheterotroph - These heterotrophs use light for energy but cannot use carbon dioxide as their carbon source. Photosynthesis involves many chemical reactions, but they can be summed up in a single chemical equation:  $6CO_2 + 6H_2O + \text{Light Energy} \rightarrow C_6H_{12}O_6 + 6O_2$ . Heterotrophs survive by feeding on organic matter produced by or available in other organisms. No digestive systems needed! The flow of energy through living organisms begins with photosynthesis. Plants absorb the energy from the sun and turn it into food. It is therefore called chemosynthesis, and is characteristic of the tubeworms shown in Figure below. Technically, the definition on is that autotrophs obtain carbon from inorganic sources like carbon dioxide (CO<sub>2</sub>) while heterotrophs get their reduced carbon from other organisms. Heterotrophs cannot produce organic compounds from inorganic sources and therefore rely on consuming other organisms in the food chain. Other types of heterotrophic nutrition: Saprotrophic nutrition/Parasitic nutrition/Holozoic nutrition Saprotrophic nutrition: The organisms which depend on dead and decaying matter for their food are called saprotrophs, and this type of nutrition is called saprotrophic nutrition. The parasite is harmful to the host in the parasitic type of interaction between two the organism the host get harm while the parasite remains either neutral or benefited as it depends on the host for living. Some of them cause disease to human, plants and animals. (see the "Flow of Energy" concept.) Tubeworms deep in the Galapagos Rift get their energy from chemosynthetic bacteria living within their tissues. Examples are humans, animals etc. However, not only green leaves but in plants which have green parts like green stem etc. The two processes also work together to recycle oxygen in Earth's atmosphere. The word "sapro" means rotten. If you're behind a web filter, please make sure that the domains \*.kastatic.org and \*.kasandbox.org are unblocked. The producers, as autotrophs are also known, begin food chains which feed all life. Though this food chains "ends" with decomposers, do decomposers, in fact, digest matter from each level of the food chain? It also shows how the two processes are related. Which is quantitatively more important to life on earth? Heterotrophs cannot make their own food, so they must eat or absorb it. Carbon dioxide is the main source of carbon for Chemoautotrophs. We all know that to perform a function or to do an activity, we need energy. Describe the flow of energy through a typical food chain (describing "what eats what"), including the original source of that energy and its ultimate form after use. Consumers include all animals and fungi and many protists and bacteria. Food chains will be discussed in the "Food Chains and Food Webs" concept. Example: Dog, Cat etc. The products of one process are the reactants of the other. This required energy we get from food. Describe energy production in photoautotrophs. They may consume autotrophs or other heterotrophs or organic molecules from other organisms. Define autotroph and heterotroph. In this, the organism takes up the food in solid form which absorbed by the body and by the process of egestion unabsorbed food gets out of the body. A much smaller group of autotrophs - mostly bacteria in dark or low-oxygen environments - produce food using the chemical energy stored in inorganic molecules such as hydrogen sulfide, ammonia, or methane. There are two types of nutrition: autotrophic and heterotrophic nutrition. Compare autotrophs to heterotrophs, and describe the relationship between these two groups of organisms. You can sit in the sun for hours and hours. Autotrophs store chemical energy in carbohydrate food molecules they build themselves. while heterotrophs are animals, humans etc. Photosynthesis is the major process in the autotrophs, but this process does not occur in heterotrophs. Autotrophs are the organisms which use inorganic carbon while heterotrophs use organic carbon. Autotrophs make their food at a specific time while heterotrophs do not. The chloroplast is present in autotrophs while it is absent in heterotrophs. The autotrophs can not move from one place to another while heterotrophs can. The autotrophs are generally the member of plant kingdom while the heterotrophs have animal kingdom members. The process in which glucose is broken down and ATP is made is called cellular respiration. Most autotrophs make their "food" through photosynthesis using the energy of the sun. Use this resource to answer the questions that follow. Diffen LLC, n.d. Web. What is a chemoheterotroph? Conclusion the nutrients are the components of food which are necessary for organisms to perform activities. also do photosynthesis. The word "auto" means self. "trophies" means nourishment. This mode of nutrition is used by green plants. The rotten can leaves, twigs, stems etc. Example: fungi. While photosynthesis transforms light energy to chemical energy, this alternate method of making food transfers chemical energy from inorganic to organic molecules. Because most autotrophs transform sunlight to make food, we call the process they use photosynthesis. Almost all other organisms depend absolutely on these three groups for the food they produce. Some of the most recently discovered chemosynthetic bacteria inhabit deep ocean hot water vents or "black smokers." There, they use the energy in gases from the Earth's interior to produce food for a variety of unique heterotrophs: giant tube worms, blind shrimp, giant white crabs, and armored snails. They get their carbon from compounds such as carbohydrates, fatty acids and alcohol. They eat other organisms to get proteins and energy. You will feel warm, but you're not going to absorb any energy. Where does this energy come from? Autotrophs are usually plants; they are also called "self feeders" or "primary producers". Carnivores that eat meat and omnivores that eat all types of organisms are placed next in the trophic level. Living organisms obtain chemical energy in one of two ways. Monotropastrum humile, a myco-heterotroph dependent on fungi throughout its lifetime. Autotrophs produce their own energy by one of the following two methods: Photosynthesis - Photoautotrophs use energy from sun to convert water from the soil and carbon dioxide from the air into glucose. Example of this is a virus living in bacteria, protozoa and lice etc. Chemosynthesis is used to produce food using the chemical energy stored in inorganic molecules. Carnivorous plants like pitcher plant use photosynthesis for energy production but depend on other organisms for other nutrients like nitrogen, potassium and phosphorous. < > In order to continue enjoying our site, we ask that you confirm your identity as a human. All rights reserved. Made with lots of love and caffeine © 2022, Teachoo. By Gk Scientist July 2, 2021 Science The following are the points of difference between Autotrophic and Heterotrophic Nutrition- Name one major difference between a plant and an animal. A food chain shows how energy and matter flow from producers to consumers. Thank you very much for your cooperation. You have to eat to obtain your energy. E.g. Plants, algae, phytoplankton and some bacteria. Only autotrophs can transform that ultimate, solar source into the chemical energy in food that powers life, as shown in Figure below. Ecosystems based on chemosynthesis may seem rare and exotic, but they too illustrate the absolute dependence of heterotrophs on autotrophs for food. This process stores energy from sunlight in the chemical bonds of glucose. There are many differences, but in terms of energy, it all starts with sunlight. Autotrophs, shown in Figure below, store chemical energy in carbohydrate food molecules they build themselves. LICENSED UNDER Example of autotrophs: green plants, phytoplankton and heterotrophs are humans and animals etc. The heterotrophic nutrition further divided into three types: saprophytes which depend on dead and decaying matter. Food cycle between autotrophs and heterotrophs References Wikipedia: Autotroph Wikipedia: Chemoheterotroph Wikipedia: Heterotroph Follow Share Cite Authors Share this comparison: If you read this far, you should follow us: "Autotroph vs Heterotroph." Diffen.com. Photosynthetic autotrophs capture light energy from the sun and absorb carbon dioxide and water from their environment. They make their own food by the process of photosynthesis. Type of organism Energy source Carbon source Photoautotroph Light Carbon dioxide Chemoautotroph Chemicals Carbon dioxide Photoheterotroph Light Carbon from other organisms Chemoheterotroph Other organisms Other organisms A flowchart explaining the various types of trophs Food Chain Autotrophs do not depend on other organism for their food. These components of food as known as nutrients. What or How they eat ? All life requires a constant input of energy. The leaves are the food factories of plants. Heterotrophs show great diversity and may appear far more fascinating than producers. Nutrition is the mode of taking food and utilizing it by the body. By breaking the chemical bonds in glucose, cells release the stored energy and make the ATP they need. 3 May 2022. The organisms on which the other organism lives or depend are known as the host, and the organism who lives on the host is called as a parasite. Matter is recycled, but energy must keep flowing into the system. It changes light energy into chemical energy and also releases oxygen. Chemoheterotroph - Heterotrophs that get their energy by oxidation of preformed organic compounds, i.e. by eating other organisms either dead or alive. Photosynthesis provides over 99 percent of the energy for life on earth. This is apparent from Figure below. What position do autotrophs fill in a food chain? E.g. Bacteria found inside active volcano, hydrothermal vents in sea floor, hot water springs. Photosynthesis is often considered to be the single most important life process on Earth. Autotrophic nutrition: Autotrophic nutrition is defined as the mode of nutrition in which organism make their food by themselves are called autotrophic nutrition. Food provides both the energy to do work and the carbon to build bodies. Herbivores that feed on autotrophs are placed in the second trophic level. Using the light energy, they combine the reactants to produce glucose and oxygen, which is a waste product. Hence, these plants are basically autotrophs. Without photosynthesis, there would be no oxygen in the atmosphere. If you're seeing this message, it means we're having trouble loading external resources on our website. are placed in the upper trophic level in the food chain. The autotrophs are of two types: chemo and photoautotrophs while heterotrophic nutrition is of three types: holozoic, parasitic and saprophytic. The autotrophs do not depend on dead and decaying organisms while heterotrophs depend. The parasitic mode of heterotrophic nutrition harm host while it is not the case in autotrophs. Autotrophs maybe green plants, algae etc. Photosynthesis and cellular respiration are like two sides of the same coin. For this reason, heterotrophs are also known as consumers. The autotrophs are the organism which is independent of another organism for food preparation while heterotrophs are dependent on other organisms for food. Nutrients are necessary for a healthy living. Parasitic nutrition: In this type of nutrition, one organism feeds on other organisms without killing them. Holozoic nutrition The holozoic type of nutrition is a type of heterotrophic nutrition. The food contains vitamins, fats, proteins etc. Specific amounts of each and every nutrient are necessary for every organism and plants as well. Nutrition is defined as the mode of taking nutrients and its utilization in the body of an organism. There are mainly two modes of nutrition: autotrophic and heterotrophic nutrition. The major difference between autotrophs and heterotrophs is the dependency on food. Heterotrophs cannot synthesize their own food and rely on other organisms - both plants and animals - for nutrition. Heterotrophs that depend on autotrophs and other heterotrophs for their energy level are placed next on the food chain. Glucose provides energy to plants and is used to make cellulose which is used to build cell walls. Example: Cuscutta, plasmodium etc. The examples of this type of nutrition are fungi, and many bacteria. The saprophytes convert the complex organic substances into simple substances of the dead and decaying organisms' body and absorb the nutrients. They store the glucose, usually as starch, and they release the oxygen into the atmosphere. Some scientists think that chemosynthesis may support life below the surface of Mars, Jupiter's moon, Europa, and other planets as well. Name and describe the two types of food making processes found among autotrophs. Difference between autotrophic and heterotrophic nutrition The difference between autotrophic and heterotrophic nutrition are as follow: An autotroph is defined as the organism which makes their own food while the heterotrophs are those which depend on another organism for the food. The source of energy in autotrophic nutrition is either sunlight or chemical energy while the heterotrophs have autotrophs as a source of energy. Autotrophs are called producers and are placed at the lowest trophic level in the food chain while heterotrophs are the consumers who may be secondary, tertiary etc. Chemosynthesis - Chemoautotrophs use energy from chemical reactions to make food. Only three groups of organisms - plants, algae, and some bacteria - are capable of this life-giving energy transformation. The chemical reactions are usually between hydrogen sulfide/methane with oxygen. This diagram compares and contrasts photosynthesis and cellular respiration. Give examples of autotrophs and heterotrophs. The parasites are the organism which lives on the host. Together, the two processes store and release energy in living organisms. If plants, algae, and autotrophic bacteria vanished from earth, animals, fungi, and other heterotrophs would soon disappear as well. E.g. animals, fungi, bacteria and almost all pathogens. Heterotrophic nutrition Unlike the autotrophic nutrition, in the heterotrophic mode of nutrition, the organisms depend on the other organisms for the food, and dead and decaying animals. Photosynthetic autotrophs, which make food using the energy in sunlight, include (a) plants, (b) algae, and (c) certain bacteria. Autotroph versus Heterotroph comparison chart Autotroph Heterotroph Produce own food Yes No Food chain level Primary Secondary and tertiary Types Photoautotroph, Chemoautotroph Photoheterotroph, Chemoheterotroph Examples Plants, algae, and some bacteria Herbivores, omnivores, and carnivores Definition An organism that is able to form nutritional organic substances from simple inorganic substances such as carbon dioxide. Autotrophs make food for their own use, but they make enough to support other life as well. Food is chemical energy stored in organic molecules. But heterotrophs are limited by our utter dependence on those autotrophs that originally made our food. E.g. purple non-sulfur bacteria, green-non sulfur bacteria and heliobacteria.

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