Energy and Disease Test Review

1. Describe photosynthesis and write out the equation. What are the reactants and what are the products? How plants and other organisms capture the sunlight for energy and use it to make food. 6H2O + 6 CO2 light energy → C6H12O6 + 6 O2

 Reactants Products

2. Describe cellular respiration and write out the equation. What are the reactants and what are the products? Respiration is when cells obtain energy from glucose. C6H12O6 + 6O2 →6CO2 + 6H2O + energy

3. Describe how photosynthesis and cellular respiration work together? Making sure you discuss what is produced for each that involves energy. Photosynthesis – Plants use carbon dioxide & release oxygen for living organisms use and during cellular respiration, living organisms use the oxygen released by the plants goes through the blood system to give cells oxygen. Cells then release carbon dioxide that is released to the air for use by the plants.

4. How are cellular respiration and fermentation similar and different? List types of fermentation and describe each. Respiration gives energy to the cell as fermentation but respiration used oxygen where fermentation does not. Two types of fermentation are: alcoholic: occurs when yeast and other single celled organisms break down sugars. A byproduct is alcohol. Lactic Acid: Takes place in body. Muscle cells used up oxygen faster than it can be replaced. A product of this process is an acid called Lactic acid. Example: muscles feel weak and sore.

5. Explain how proteins, fats, and carbohydrates are broken down. Carbohydrates are made up of carbon, hydrogen and oxygen. Sugar molecules combine to make carbohydrates. Plants store as starch and organisms eat the starch, breaks down into glucose that cells use to produce energy.

Lipids (fats): Made of carbon, hydrogen and oxygen. Cells store lipids for energy for later use.

Proteins: Made up of amino acid. Structure of cells is made up of proteins. Enzymes perform important functions in the chemical reactions.

6. What is the difference between prokaryote and eukaryote? Prokaryote: single celled organism; Eukaryote: multi celled organism.

7. What are the characteristics for something living? Composed of cells; perform certain chemical process such as growth and digestion; reproduce; Make their own nutrients or ingest nutrients from environment; respond to stimuli such as light and touch.

Fill in the chart located below: (try from memory)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Reproduction, Feed, Survive-Host/No Host** | **Living/Non-living** | **Diseases Caused By** | **Treatment for Diseases** |
| **9. Bacteria** | **No host/ reproduce** | **Living** | **TB/ strep throat** | **Antibiotics** |
| **10. Virus** | **Host** | **Non living** | **Chicken pox, mumps, AIDS** | **vaccines** |
| **11. Parasite** | **Host/ live on or in** | **Living** | **Malaria, tapeworm** | **vaccine** |

12. Describe infectious and noninfectious diseases. List two examples of each.

Infectious diseases are caused by the presence of a living thing in the body. Non-infectious disease: A disease that is not caused by a pathogen.

13. Describe active and passive immunity. Active immunity: That occurs when a person’s own immune system producers antibodies in response to the presence of a pathogen. Passive Immunity: Where antibodies are given to a person rather than produced within the person’s own body.

14. What are the parts of a virus? Describe the function of each part. Parts of a virus: 2 parts: genetic material surrounded by a protein coat. Lock and key. Genetic material is injected into the cell for duplication within the host cell. The lock and key is when the virus is able to open the cell using the right key to get inside. This is like opening the door.

16. What are the different shapes of bacteria? Rod shaped: Spiral shaped, Circle shaped.

17. What disease is caused by body cells that multiply uncontrollably? Cancer

18. Which disease attacks the body’s immunity? AIDS

19. What is an endospore and when is it formed? Small, rounded thick wall resting cell that forms inside a bacteria cell. Contains cells genetic makeup and cytoplasm. Can survive for many years – suitable conditions can grow and survive; meaning in extreme conditions.

20. What is the difference between an active virus and a hidden virus and how do they work within the cell? Active virus is when the virus immediately starts to multiply within the cell and spread out through the blood stream. Hidden virus stays inside the cell before becoming active.

21. What is the difference between a carrier and a vector? Give an example of each. A carrier is an organism that carries the disease but will not get it. Person with TB. Vector: Organisms that carries the disease from one organism to another. Mosquito.

22. What does the saying: Energy In = Energy Out have to do with calories? Must take in the same amount of calories as expend (or use) calories to keep weight even.

23. How can a person prevent themselves or their family from getting sick? Wash hands, eat right, get plenty of rest and exercise.

24. How are vaccines and antibiotics related? They are related in that they both help to defend against pathogens. What is the difference between a vaccine and an antibiotic? Antibiotic counteracts bacteria. Vaccine introduces harmless antigens for the body to make copies for immunity.

25. What are examples of ways that you can affect how the body functions? Through tobacco and alcohol.

26. What is the difference between a pandemic and epidemic? An epidemic spreads rapidly though a region and beyond. A pandemic is a global disease that travels over the world in great numbers.

27. How can the substances you consume affect your body? If you eat more than

28. How do organisms obtain energy from food? Organisms break down the food through the mouth into the stomach to the intestines. Proteins are broken down chemically by pepsin in the stomach into amino acids. Carbohydrates are broken down chemically into sugars which are regulated by the pancreas. Fats are broken down into fatty acids in the small intestines by bile from the liver.

29. How has modern travel impacted the spread of disease? With the advent of planes, diseases are easily spread throughout the world. It is difficult to stop if one does not know they are sick and then gets on a plane and could infect others.

30. List at least two ways we can decrease antibacterial resistance. Do not use antibacterial soap. Do not take antibiotics if not needed.

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