

Answers from CK-12 Life Science For Middle School Teacher's Edition  
<http://www.ck12.org/saythanks>

Day 70

1. Archaeans are prokaryotes in the Archaea Domain.
2. An extremophile is an organism that lives in extreme conditions.
3. Four types of archaean extremophiles are halophiles, which can survive in very salty water; hyperthermophiles, which can survive at very high temperatures; acidophiles, which can survive in very acidic environments; and alkaliphiles, which can survive in very alkaline, or basic, environments.
4. The cause of your symptoms is likely to be a bacterium. Bacteria cause many human diseases, including food poisoning. Archaeans, in contrast, are not known to cause any human diseases.
5. Methanogens live inside the gut of animals like cows. They benefit the cows by helping them digest tough plant fibers made of cellulose.

Day 71

1. An infectious disease is a disease that is contagious because it is caused by a pathogen.
2. Four types of human pathogens are bacteria, viruses, fungi, and protozoa. Examples may vary. Sample answer: An example of a disease caused by bacteria is tuberculosis. The common cold is caused by viruses. Athlete's foot is a fungal disease. Malaria is caused by protozoa.
3. A vector is an organism that spreads pathogens from one person or animal to another. Human diseases spread by vectors include Lyme disease and malaria.
4. Posters may vary but should show ways that young children can reduce their risk of catching a cold, such as washing their hands often and thoroughly; not touching their eyes, nose, or mouth; and not sharing eating utensils or cups.
5. Sample answer: If people with flu viruses on their hands touch a doorknob, some of the viruses might end up on the surface of the doorknob. When you touch the doorknob, you could pick up the viruses on your hand. Then, if you rub your nose or eyes with your hand, you might transfer viruses that could make you sick with the flu.

Day 72

1. A noninfectious disease is a disease that isn't contagious because it isn't caused by pathogens.
2. A carcinogen is anything in the environment that causes cancer. Two examples of carcinogens are nicotine in tobacco and UV radiation in sunlight.
3. Multiple sclerosis is caused by the immune system attacking the body's nerve cells, which causes progressive weakness and pain.

4. The single best way to reduce your risk of developing lung cancer is to avoid smoke and smoking.
5. Sample answer: An example of an allergen that might trigger seasonal allergic responses is plant pollen. An example of an allergen that might trigger year-round allergic responses is dust mites.
6. Mutations that can lead to cancer usually occur in genes that control the cell cycle. Because of the mutations, abnormal cells are allowed to divide. The cells divide out of control and may form a tumor.
7. Type 1 diabetes is caused by the immune system attacking and destroying insulin-producing cells of the pancreas. As a result, the cells can no longer produce insulin. This type of diabetes usually develops in childhood or adolescence. Type 2 diabetes is much more common than type 1 diabetes. Type 2 diabetes occurs when body cells no longer respond normally to insulin. The pancreas still makes insulin, but the cells of the body can't use it. Being overweight and having high blood pressure increase the chances of developing type 2 diabetes. This type of diabetes usually develops in adulthood.