

The energy that makes cars move is called gasoline, which is a type of chemical energy. All living things in nature also need chemical energy to survive. Chemical energy that powers living organisms is stored and transferred by a substance called ATP. ATP molecules weigh about five times as much as gasoline.

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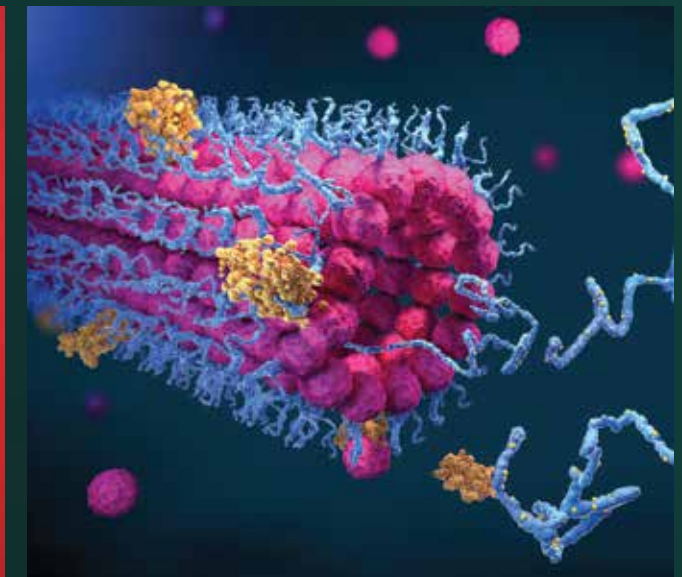


Worksheet

The Wind Blown from a Fan and Our Immune System

Check Problem 01

Enzymes are proteins that play an important role in keeping our body working and healthy. These proteins are sensitive to temperature changes. Enzymes control the speed of chemical reactions inside our body. Most enzymes work best when our body temperature is normal. This is why keeping our body temperature steady is so important for staying alive. What do you think might happen if our body temperature drops below normal?



Check Problem 02

Keeping a stable internal environment in the body is called homeostasis. When people are healthy, it means that their homeostasis is well-maintained. When lots of germs enter the body, body temperature goes up. For example, pneumonia can make breathing difficult because there is not enough oxygen in the body. Normally, our body fluids are slightly alkaline. But if they become acidic, it weakens the immune system, making it easier to get sick. What are some other examples of homeostasis in the human body?



Check Problem 03

The energy we use exists in many forms. An object at a high place has potential energy, while a moving object has kinetic energy. Chemical energy helps living things carry out life activities. When an object's temperature rises, it is because it has absorbed thermal energy. Energy can change from one form to another. Cars turn chemical energy into kinetic energy. How do you think energy changes when a hot air balloon rises?



Check Problem 04

Using hot compresses can speed up blood circulation, which helps with recovery. Cold compresses with ice help reduce inflammation and swelling.

It is important to choose the right kind of compress for the symptoms. If someone hurts their joint from intense exercise, they should avoid warm compresses because it could make inflammation and internal bleeding worse. If someone has a high fever from a cold, would putting a cold towel on their forehead help? Why or why not?



Check Problem 05

Inside our cells are mitochondria, known as the "powerhouses" of the cell. They produce energy in the form of ATP, which has a lot of stored energy. Energy is released when a phosphate group breaks off from ATP. Nutrients absorbed into our body are converted and stored as ATP. ATP acts like a currency that can be used anywhere in the body. What do you think would happen if our body's ATP levels go down?



Check Problem 06

The skin acts as a barrier to keep external germs out of the body. Nose hair filters out dust and bacteria. But sometimes, viruses can get past these defenses and enter the body. Things that trigger immune responses are called antigens.

Bacteria, viruses, micro life forms, parasites, and even transplanted tissues can be recognized as antigens. Food allergies are a type of immune response to certain food molecules. What problems might happen if the immune system is weak?"