

Read About Food and Energy

DEFINITION OF FOOD

Food is any nutritious substance that people or animals eat to give them energy and building blocks to grow and repair. Our bodies tell us when we need food by feeling hungry. The types of food we eat determine what types of building blocks and energy sources our bodies use.

To better understand food and nutrition....

LET'S BREAK IT DOWN!

The food we eat gives our bodies materials for growth.

Nearly all our food comes from either plants or animals. After it enters our digestive system, our bodies break it down into useful materials that have two uses.

Growth & repair (getting taller, stronger or mending broken bones), and energy to think, stay warm, and move around.



Flamingos are an excellent example of how food is used for growth. Flamingos like to eat algae which has a lot of beta-carotene, a natural chemical that has a red color. The bird's digestive system breaks down the algae, which releases the red chemical. The red chemical then gets deposited in the flamingo's feathers as they grow, giving flamingos a pink color.

If you feed a flamingo food without the natural red chemical, it would not be pink. Even though we are not the color of our food like a flamingo, we are also made up the materials that we have eaten. **You are what you eat!**

The food we eat gives our bodies energy.

Food also provides us with energy to move and stay warm. We can conduct experiments with food to show that it has stored energy by mixing it with an oxidizer and setting it on fire.

An *oxidizer* is a chemical that provides a lot of oxygen to help things release energy. The ability of food to burn shows that it contains stored energy.



The amount of energy and types of nutrients we get is determined by the types of foods we eat. Whole or natural foods contain lots of important nutrients. Unhealthy foods do not.

For example, broccoli contains carbohydrates, calcium, protein, fiber, iron, and vitamins. You need all these things to help you grow. Candy contains just sugar.

Energy from our food comes from the sun!

All the energy we get from food can be traced back to **the sun**.

The sun's energy is transferred to plants, which use it to convert water and carbon dioxide into sugars. That process is called photosynthesis. Plants are then eaten by animals, which are eaten by larger animals.



Through this process, the energy from the sun is transferred from one living thing to another.

For example, a plant captures energy from the sun through photosynthesis, and then the plant is eaten by a caterpillar. The caterpillar gets eaten by a turkey, and we eat the turkey for dinner. The whole process is powered by the sun.

What is (or isn't) food?

For something to qualify as food it must give us building blocks to grow and repair AND energy.

Wood is from trees, which is a plant, but it is not food for humans because we cannot break it down and use it for energy.

Leather is from a cow, which is an animal. It can be used for food, but it wouldn't taste very good.

Vitamins give us building blocks to grow and repair, but they do not give us energy so technically, vitamins are not food.



EXAMPLES OF FOOD AND ENERGY



Hydroponic plants grow without soil by using minerals in the water. This is evidence that plants do not get their energy from the soil. All the energy to make them grow comes from the sun.



Bugs are a delicacy in some countries. Many are high in protein and they can be cooked easily and quickly. Yum...



Vitamins and minerals are not food. They can provide us with building blocks to help us grow but they don't give us any energy.

FOOD AND ENERGY VOCABULARY

Food

Any nutritious substance that people or animals eat in order to give them energy and building blocks to grow and repair.

Energy

It makes things happen. (Or more formally: the ability to do work)

Hunger

The feeling that makes you want to eat. It is actually our bodies telling us that we need food for more energy and building blocks.

Oxidizer

A chemical that provides a lot of oxygen to help things burn.

Digestive System

Made up of the stomach, intestines and other components, it allows us to break down food and absorb nutrients.

Photosynthesis A process by which plants use sunlight to make sugar from carbon dioxide and water.

FOOD AND ENERGY DISCUSSION QUESTIONS

How does your body turn food into energy?

When a person eats food, their digestive system breaks it down into small pieces. Those small pieces are digested and absorbed by the body. Inside the body, food helps us get energy and also to grow and repair.

How is energy transferred from a plant to a person?

Energy is first transferred from the sun to the plant by photosynthesis. Then, the plant is eaten by a person. When this happens, energy is transferred from the plant to a person.

Why is sunlight energy important?

Almost all energy on earth can be traced back to the sun! Photosynthesis in plants converts light energy to chemical energy. Animals and people eat the plants and then the chemical energy in the plant can be used by animals (including humans).

What does food give us?

It gives us energy and building blocks to keep our bodies healthy and functioning properly.

How do plants and animals take in the food they need to survive?

Plants do not ingest the food they need for survival. They must create their food through the process of photosynthesis. Animals ingest, or eat the food they need for energy from sources such as plants or other animals.

How do we know that plants obtain materials needed for growth primarily from air and water.

One piece of evidence is hydroponic plants. They grow without any soil. It uses water, air and sunlight to grow. You can further confirm that a plant requires water, air and sunlight by trying to grow a plant in the dark or without water.
