

Nutrition ©

<Lesson Plan>

Grade 4

H.E.L.P. for Kids 2008-2009

Teaching Messages:

1. We need water to survive and food to give us energy to survive, to function, and to grow.
2. The basic nutrients, which give us energy, are carbohydrates, proteins, and fats.
3. Vitamins, minerals, and fiber are essential for good health.
4. The digestive system is where foods are broken down, nutrients are taken into our body and wastes are excreted.

Required Materials:

- Laptop and Projector

Recommended Materials for Small Group Activities:

- Examples of foods rich in carbohydrates, proteins, or fats
- Sorry! Nutrition Edition game board
- Sorry! Nutrition Edition flash cards
- Team pieces/runners

Teaching Message #1:

We need water to survive and foods to give us energy to live and grow.

What's more important: food or water?

It is **water**! We can survive longer without food than without water. A person can last several weeks without any food, but will die after only days without water. Water makes up over 70% of our body. It is found in *every* cell we have. All the chemical reactions taking place in our body need water.

What do you think is the longest time we can survive without water?

The longest we can survive without water is 2-12 days depending on other circumstances including temperature.

What do you think is the longest time someone has ever gone without food?

A British prisoner who was on a hunger strike went without food for 65 days!

What happens when we have not eaten in a long time?

We may get hungry, weak, or sick. All the cells in our body need energy to survive and to do work. We get the energy from the foods we eat. Food gives us the **nutrients** we need to make energy. This is why we need to eat and drink to live and stay healthy.

Activity 1 – Exploring Nutrients (12 mins)

For this activity, you will introduce the class to the nutrients we need to survive: carbohydrates, proteins, fats, vitamins, minerals, and fiber. *Inform the students that they will play Sorry! Nutrition Edition, at the end of class to review what kinds of foods optimize the energy output we need to function.*

- 1. Introduce the class to the three nutrients that give us energy: carbohydrates, proteins, and fats.**

Teaching Message #2:

The basic nutrients, which give us energy, are carbohydrates, proteins, and fats.

All cells need energy to live, grow, and do work. We make energy from oxygen and nutrients. We get oxygen from the air we breathe and nutrients from the foods we eat! The nutrients that provide energy are carbohydrates, proteins, and fats.

Carbohydrates are easily digested and are the main food group that active young people need to get energy. Because they are digested quickly, they do not stay in our stomachs for too long. So, we get hungry quickly. This is one of the reasons why it is important to eat foods that stay in the stomach longer such as proteins and fats. Some examples of foods rich in carbohydrates are breads, rice, potatoes, spaghetti, and bagels. Sugar is also a carbohydrate.

Proteins are very important because some are the building blocks of our cells and some help our body do many things such as digest foods and build strong muscles. They also give us energy. Meats, eggs, beans and nuts are all protein-rich foods.

Fats give us up to twice as much energy as carbohydrates or proteins. If we don't use up all of energy we take in, the fat remains in our body. It could not only make us gain excess weight but also make us sick sometimes. Fats stay in our stomach the longest. This is why if you eat lots of potato chips before dinner, you would not have any appetite for dinner. Butter, oil, cakes, ice cream, cheeses, and all kinds of fried foods contain a lot of fat.

1. **Show the class examples of foods that are rich in carbohydrates, proteins, and fats as you introduce each nutrient. Explain the importance of including all of these nutrients in a healthy diet.**

Suggested examples:

Carbohydrates: pasta, whole grain bread, potatoes, rice

Proteins: fish, meats (beef, ham), poultry (chicken, turkey), soybeans, eggs

Fats: butter, margarine, oil, cream (and fried foods), nuts

2. **Introduce the class to three other important parts of nutrition: vitamins, minerals, and fiber.**

Explain the importance of vitamins, minerals, and fiber in maintaining a healthy diet, Draw the three categories on the board, and as you go through each one, ask the class to name some foods that correspond with each.

:

Teaching Message #3:

Vitamins, minerals, and fiber are also important for our health.

Vitamins are important in helping our cells survive, grow, and function. There are many different kinds of vitamins, such as A, B, C, D, and E. Each type does a different job. Vitamin

Vitamin D is produced in our skin when it is exposed to sunlight. It is important because it helps our body absorb *calcium* to build strong bones.

Like vitamins, **minerals** are essential for our health, because they are necessary for cells to carry out certain functions. Milk has a very important mineral in it, *calcium*, which helps us form strong bones. Milk is also a good source of *Vitamin D*. We also need the mineral *iron*, to help us make energy because it carries oxygen. Iron can be found in a lot of foods like meats and some vegetables like spinach.

Fibers help the foods we eat move through our body and also help get rid of some of the fats we do not want. Oatmeal, many cereals, and bran muffins all contain fiber.

Activity 2 – The Digestive System (18 mins)

For this activity, you will show Slide 9 – Slide 14 of the “Nutrition” PowerPoint. Introduce each organ of the digestive system and explain its function. After the students are familiar with the digestive system, review what they have just learned by showing clips from the Magic School Bus episode, “For Lunch.”

Teaching Message #4:

The digestive system is where foods are broken down, nutrients are taken in and wastes are excreted from the body.

All of our cells need energy to live. How do nutrients in food get into our body to provide energy for our cells to live?

Cells are able to use only small and simple chemicals to make energy, such as glucose. Foods that we eat must be broken down and digested to provide such chemicals. To do this, our body has a Digestive System, one of the organ systems. This is where the foods we eat are broken down, nutrients are absorbed, and wastes are excreted.

1. Show Slide 9 – Slide 14 of the “Nutrition PowerPoint”

Point out each organ in the gastrointestinal tract in order and explain its function in helping us break down and digest food and/or absorb nutrients.

Mouth: Digestion begins with the **mouth**, where our teeth chop up the food, and our saliva helps to soften and break down the food.

Esophagus: After we swallow, the food travels from our mouth through a tube called the **esophagus**, where it is squeezed down to the stomach.

Stomach: In the **stomach**, the food mixture is broken down more. The stomach muscles mash up the foods, and chemicals break down the foods further.

Small Intestine: The digested food then goes into the **small intestine**. Some digestive process takes place here as well. The small intestine is about 20 feet long! It is twisted and folded to fit inside our body. This is where the *nutrients* are absorbed into the blood to be delivered very efficiently to the rest of the body.

Large Intestine: From the small intestine, the food travels to the **large intestine**, which is much shorter than the small intestine, about 5 feet long, but is bigger around. Here is where water is absorbed back into our body. The solid wastes are then excreted.

2. Show Part 1 and Part 2 of Magic School Bus Episode “For Lunch”

<<http://www.youtube.com/watch?v=Og9-cikC3a0>> Part 1

<<http://www.youtube.com/watch?v=2vGLRLgcDpc>> Part 2

- Show Part 1 from tracker time 6:42–8:40 (Mouth → Esophagus → Stomach).
- Show Part 2 from tracker time 0:17–end (Stomach → Small Intestine → Large Intestine).

Activity 3 – Sorry! Nutrition Edition (15 mins)

For this activity, you will play *Sorry! Nutrition Edition*, to show the students what kinds of foods optimize the energy output we need to function.

- a) Divide the class right down the center into two teams
- b) Place both Team 1 and Team 2’s player magnets at the start.
- c) Fairly & uniformly, go around each team one by one (alternating teams each turn) and have each player draw a flashcard and read it. Each flashcard will have the picture of a food.
- d) If the student can correctly categorize the food on the card to a nutrient group, either carbohydrate, protein, or fat, his/her team gets to roll a die and move the number of spaces on the die.
- e) Continue until one team moves ahead 50 spaces and reaches “Finish”. That team wins the game.