

Superhero fitness!

NUTRITION

By Meredith Curtis



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Superhero Health

Superheroes need to stay healthy! After all, they are constantly rescuing people and chasing bad guys. That takes a lot of energy and strong muscles.

To be superhero healthy, you need to drink plenty of water, get fresh air and sunshine each day, exercise, learn to control your emotions, sleep restfully, and eat nutritious food.

In this unit study, we'll talk about nutrition. Nutrition is the food and water our body needs to have energy to run, jump, run and play.

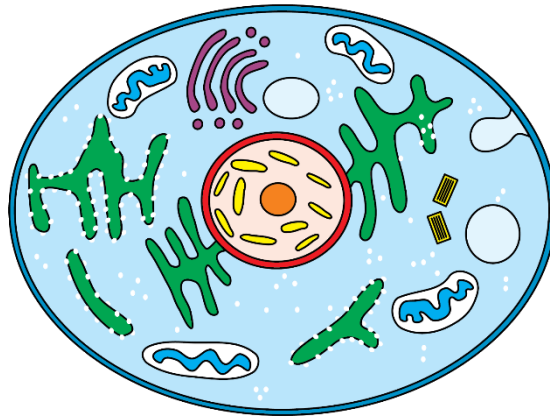
What Happens to the Food and Water we Drink and Eat?

We eat food by chewing and swallowing it. When we swallow our food, it goes down to the stomach and the intestines where the food is turned into very small pieces.

The small pieces of food are proteins, fats, carbohydrates, vitamins, and minerals. These are called **nutrients**.

The nutrients slip through the stomach and intestine to the blood where it travels to all the cells that need it.

Cells



The **smallest unit of life is the cell**. There are over 37 trillion cells in your body. Wow! That's incredible!

The **smallest unit of matter is the atom** and atoms make up molecules.

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Many of our body processes take place in small places like the cells and some of the key players are tiny atoms and molecules.

It is in the tiny cells that our body uses nutrients like proteins, fats, carbohydrates, vitamins, and minerals.

We are going to learn about some of the nutrients our bodies need.

Water

Our bodies need oxygen, water, and nutrients to create energy so we can live and breathe and work.

We get oxygen from the air we breathe. We need to drink and eat water and nutrients.

Every cell in your body has water inside and outside. We need just the right amount of fluid inside and outside each cell. If there is not enough water inside a cell, the cell shrivels and dies. If there is too much water inside a cell, the cell will burst.

Water helps keep the cell at just the right temperature.

Water is a solvent. That means that other substances can be dissolved in water. Water can be used to carry nutrients to different places in our body.

Water is used in food digestion to help move the food along and to allow nutrients to dissolve so they can pass through the intestinal walls into the bloodstream.

Water carries toxic waste outside of your body through urine and sweat. Urine and sweat have water in them.

Your body loses water when you breathe, sweat, and use the bathroom. That means we have to drink more water to replace the water we lose.



When Should You Drink Water?

When your body needs more water, you will feel thirsty.

Whenever you are thirsty, it's important to drink water.

Can I Drink Other Things Beside Water?

Yes.

Even certain foods like watermelon, strawberries, peaches, oranges, cucumbers, lettuce, and soups have a lot of water in them.

Milk, soda, and coffee all contain water, but other things as well.

When you drink coffee, you get water, but also caffeine which causes you to get rid of water so it kind of defeats the purpose.

Soda is full of acid and sugar which are harmful for your teeth. So, yes, you do get water from other liquids, but pure water is your best source of water.

What Happens if I Don't Drink Enough Water?

If your body doesn't get enough water, you can become dehydrated.

When someone is dehydrated, their body desperately needs water. Their mouth feels dry and they might feel dizzy. And, of course, they feel thirsty. If they don't hurry and drink water, things get worse, and they must go to the hospital.

You can tell if you are drinking enough water because your urine will be very light yellow and you will need to use the bathroom a lot.

Food

Our bodies need nutrients like water, carbohydrates, protein, fat, vitamins, and minerals to stay healthy. We've already talk about water.

You may have heard people talk about eating a balanced diet or counting calories.

Today, we will learn about balanced diets and calories.

Balanced Diet

A balanced diet has all the nutrients (carbohydrates, fats, proteins, vitamins, minerals) that we need.

Foods have more than one nutrient. For instance, a carrot has carbohydrates and vitamin A. There is no protein, fat, or calcium in carrots, but there is a tiny bit of vitamin C and iron.

Here's another example. Pretend that you are eating a chicken breast. The chicken breast has protein, fat and B vitamins with a little bit of sodium. There is also a tiny bit of calcium, vitamin A, and iron.

Eat meals that have a wide variety of colors, textures, and shapes. Orange vegetables are often high in vitamin A. Think color when you think of fruits and vegetables—eat a wide variety of colors!

Whole grain bread has a lot more texture to it than squishy white bread. I like to think of my plate as a piece of art. Eat food with texture.



I want my food to be lovely to look at and yummy to taste.

Try to get your vitamins and minerals in the food you eat. Think about nutrients and eating foods with those nutrients. This might cause you to try new foods.



Make healthy choices. When you want something sweet, eat a piece of fruit instead of a piece of cake.

Calories

Calories

We hear about calories all the time. What is a calorie?

A calorie is a measurement of energy.

Just as we measure things in inches or cups or tablespoons, we measure energy for our body in calories.

A calorie is the energy it takes to raise 1 gram of water 1 degree Celsius.

Our bodies need calories, or energy, to digest food, breathe in and out, and keep our heart beating.

On the laziest of lazy days our bodies need 1,000 to 1,400 calories just to keep the heart beating and everything else working. If you are more active, you would need to add at least 600 more calories to your fuel intake.

If we eat a low-calorie diet, we will lose weight.

If you get more calories of energy than your body needs, it stores the extra energy as fat.

For every gram of protein, there are 4 calories of energy. For every gram of carbohydrates, there are 4 calories of energy. But, fat, is the best provider of calories, with 9 calories for every gram of fat.



Try This

Paper Plate Collage

We talked about a balanced diet with a wide variety of colors and textures. Can you create a beautiful, healthy plate of food out in a collage?

You will need:

3 White Paper Plates
Pictures of Healthy Food

Cut out pictures and glue them on to the plate to look like a person's breakfast, lunch, or dinner plate.

1 plate—healthy food with a wide variety of colors and textures
1 plate—unhealthy food for dinner
1 plate—your favorite meal

You can get some ideas from the USDA on the next page.

FRUITS Fuel Up With Fruits at Meals or Snacks

Oranges, pears, berries, watermelon, peaches, raisins, and applesauce (without extra sugar) are just a few of the great choices. Make sure your juice is 100% fruit juice.



VEGETABLES Color Your Plate With Great-Tasting Veggies

Try to eat more dark-green, red, and orange vegetables, and beans and peas.



GRAINS Make at Least Half Your Grains Whole Grains

Choose whole-grain foods, such as whole-wheat bread, oatmeal, whole-wheat tortillas, brown rice, and light popcorn, more often.



PROTEIN Vary Your Protein Foods

Try fish, shellfish, beans, and peas more often. Some tasty ways include a bean burrito, hummus, veggie chili, fish taco, shrimp or tofu stir-fry, or grilled salmon.



DAIRY Get Your Calcium-Rich Foods

Choose fat-free or low-fat milk, yogurt, and cheese at meals or snacks. Dairy foods contain calcium for strong bones and healthy teeth.



Know Your "Sometimes" Foods Look out for foods with added sugars or solid fats.

They fill you up so that you don't have room for the foods that help you eat smart and play hard.

Simple Carbohydrates

Carbohydrates give our bodies energy.

There are two kinds of carbohydrates: simple carbohydrates, and complex carbohydrates. Your body breaks carbohydrates down to glucose, or blood sugar, that the body uses for energy.



Carbohydrates are everywhere! Fruits, vegetables, breads, cereals, grains, milk, dairy products, desserts, and sugary drinks are all carbohydrates.

If you are thinking, running, blinking, sunning, winking, or hugging, you need glucose for energy. Extra glucose is stored in the liver or muscles for later use. Unfortunately, it is also stored in fat, or adipose tissue. Fat is just energy waiting to be used!

Carbohydrates also contain vitamins and minerals our bodies need.

Simple Carbohydrates



Simple Carbohydrates break down quickly to glucose (blood sugar) that your body can use.

Simple carbs include sugars found naturally (fruits, vegetables, milk, dairy products) and foods with sugar added (candy bars, cake, pie, syrup, soda).

Sugar is the simplest form of carbohydrate. Fruit sugar is called **fructose**. Table sugar is **sucrose**. Milk sugar is **lactose**. Blood sugar is **glucose**.



Fructose



Sucrose



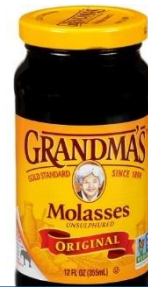
Sucrose



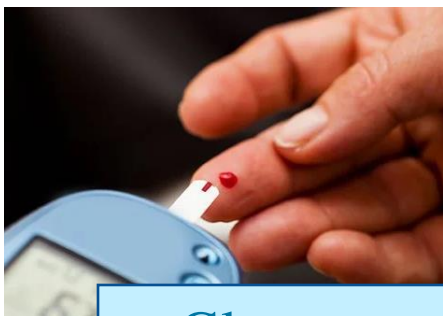
Sucrose



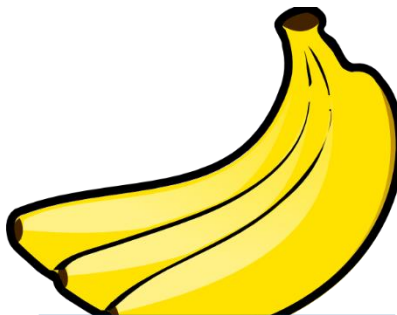
Lactose, Sucrose



Sucrose



Glucose



Fructose



Lactose

Try This

Find the Sugar!

Simple carbohydrates can be found on food labels. Look for these names: brown sugar, corn sweetener, corn syrup, dextrose, fructose, fruit juice concentrate, corn syrup, honey, lactose, maltose, molasses, sucrose, glucose, sugar, and syrup.

Go on a sugar hunt in your kitchen pantry or a grocery store.

You will need:

Several different kinds of food—at least 20 that have a label on the package.

LOW FAT VANILLA FLAVOURED YOGHURT
INGREDIENTS: Skim Milk, Concentrated Skim Milk, Water, Sugar, Cream (From Milk), Thickeners (1422 (From Maize), 1442 (From Maize)), Milk Solids, Gelatine, Flavours, Acidity Regulators (331, 332, 270, 330), Enzyme (Lactase), Live Cultures.
Contains Milk and Milk Products.

INGREDIENTS: ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMIN MONONITRATE [VITAMIN B₁], RIBOFLAVIN [VITAMIN B₂], FOLIC ACID), CORN SYRUP, SUGAR, SOYBEAN AND PALM OIL (WITH TBHQ FOR FRESHNESS), CORN SYRUP SOLIDS, DEXTROSE, HIGH FRUCTOSE CORN SYRUP, FRUCTOSE, GLYCERIN, CONTAINS 2% OR LESS OF COCOA (PROCESSED WITH ALKALI), POLYDEXTROSE, MODIFIED CORN STARCH, SALT, DRIED CREAM, CALCIUM CARBONATE, CORNSTARCH, LEAVENING (BAKING SODA, SODIUM ACID PYROPHOSPHATE, MONOCALCIUM PHOSPHATE, CALCIUM SULFATE), DISTILLED MONOGLYCERIDES, HYDROGENATED PALM KERNEL OIL, SODIUM STEAROYL LACTYLATE, GELATIN, COLOR ADDED, SOY LECITHIN, DATEM, NATURAL AND ARTIFICIAL FLAVOR, VANILLA EXTRACT, CARNAUBA WAX, XANTHAN GUM, VITAMIN A PALMITATE, YELLOW #5 LAKE, RED #40 LAKE, CARAMEL COLOR, NIACINAMIDE, BLUE #2 LAKE, REDUCED IRON, YELLOW #6 LAKE, PYRIDOXINE HYDROCHLORIDE (VITAMIN B₆), RIBOFLAVIN (VITAMIN B₂), THIAMIN HYDROCHLORIDE (VITAMIN B₁), CITRIC ACID, FOLIC ACID, RED #40, YELLOW #5, YELLOW #6, BLUE #2, BLUE #1.

Try to find the following ingredients and next to the ingredient, write the name of food items that contain that ingredient.

Brown Sugar

Fructose

Dextrose

Honey

Corn Sweetener

Fruit Juice Concentrate

Corn Syrup

Lactose

Molasses

Sugar

Sucrose

Syrup

What are your thoughts about all the sugar you found?

Carbohydrate Energy

All carbohydrates are turned into glucose for the body to use for energy.

Simple sugars are turned into blood sugar right away.

Complex carbohydrates take longer for your body to absorb and turn into blood sugar, so they help you to feel fuller and more satisfied.

Complex Carbohydrates

Carbohydrates give our bodies energy.

There are two kinds of carbohydrates: simple carbohydrates, and complex carbohydrates. Your body breaks carbohydrates down to glucose, or blood sugar, that the body uses for energy.

Complex Carbohydrates



Complex Carbohydrates contain starch. Starch must be broken down during digestion so that your body can use it as a source of glucose.

Potatoes, carrots, bread, cereals, rice, beans, peas, and corn all have starch in them.

Whole grains are a great source of fiber and nutrients. Whole grains have lots of nutrients like B-vitamins.

Other complex carbs include legumes (peanuts), beans, corn, carrots, sweet potatoes, pumpkin, potatoes, and nuts.

Carbohydrate Energy

All carbohydrates are turned into glucose for the body to use for energy.

Simple sugars are turned into blood sugar right away.

Complex carbohydrates take longer for your body to absorb and turn into blood sugar, so they help you to feel fuller and more satisfied. Some complex carbohydrates are higher in fiber.

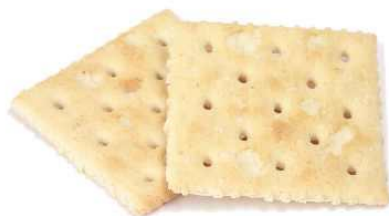
Try This!

Lab: Amylase in Action

Let's watch salivary amylase in action. It is an enzyme in your saliva that helps to break down starch in complex carbohydrates.

You will need:

- 1 Saltine Cracker per Person
- 1 Mirror per Person or can Share
- 1" Cube of Cheese per Person



Put a one-inch piece of the saltine cracker on your tongue, but do not chew it. Leave it there on your tongue and watch what happens. Do you notice any special taste? Try putting a one-inch cube of cheese on your tongue. Did the same thing occur?

Did you see the cracker break down?

Did you taste something sweet while that was happening?

You should have, because the amylase in our saliva breaks down starch (which was in the cracker) into sugar. However, there is no starch in cheese, so nothing unusual should have happened when you put the cheese on our tongue.

The process of breaking down starch is the beginnings of chemical digestion. Pretty cool, huh?

Another interesting thing about salivary glands is that they actually begin working even before you get the food in your mouth. In fact, when you see smell, or sometimes even think about food, your brain tells the salivary glands to start making saliva.

Even more astonishing is that without the moisture of the saliva, your taste buds don't even work at all.

Fats

Fat is like a fluffy blanket that holds in heat, so we don't get cold. Fat cells surround and protect our organs and provide shape to our body.

When we eat fat, it is converted into energy, or fuel, for our bodies. Extra food energy is stored as fat in our bodies. If there is not enough glucose, or blood sugar, for energy, our bodies can use fat for energy.

Fats are part of every cell in your body. They help make up the cell membranes.



Fats help our brains to think!

We get most of the fat our body needs through oil and fats. Fats are solid at room temperature and oils are liquid at room temperature. Some fats, like coconut oil become a solid in a cool or cold room.



The fats we eat build cell walls, make hormones, and protect our nerve cells.

If we don't get enough fat, our hair will be dry and our we won't have much energy.

Because the American diet is so high in fat, we usually have plenty of fat in our diet.

It's important to eat the best kind of fat like olive oil, avocados, and nuts.

Try This!

Research

We talked a little bit about healthy fat, but there is so much to learn. You can check some books out of the library or watch some YouTube videos to learn more about fats.

Find out about:









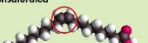







- Saturated Fats
- Polyunsaturated Fats
- Trans Fats

Which is best for you? _____

Why? _____

Which is the worst fat for your body? _____

Why? _____

Types of Fatty Acids	Examples of Sources	Health Impacts and Intake Recommendations
Saturated  <ul style="list-style-type: none">• No double bond• Straight structure• Solid at room temperature	 Beef  Butter  Coconut oil	<ul style="list-style-type: none">• Increase risk of heart disease• Less than 20g of saturated fats per day (for a 2000 kcal diet)
Trans  <ul style="list-style-type: none">• One or more double bonds in trans configuration• Straight structure• Semi-solid/Solid at room temperature	 Margarine  Cream soup with puff pastry  Chicken pie	<ul style="list-style-type: none">• Increase risk of heart disease• Less than 2.2g of trans fats per day (for a 2000 kcal diet)
Monounsaturated  <ul style="list-style-type: none">• One double bond in cis configuration• Bent structure• Liquid at room temperature	 Olive oil  Canola oil  Peanut oil	<ul style="list-style-type: none">• May reduce risk of heart disease• Moderate intake of monounsaturated fats
Polyunsaturated  <ul style="list-style-type: none">• Multiple double bonds in cis configuration• Even more "bent" in structure• Liquid at room temperature	 Soybean oil  Corn oil  Fatty fish	<ul style="list-style-type: none">• May reduce risk of heart disease• Moderate intake of polyunsaturated fats

Protein

Protein

Our bodies need protein so our muscles can work. Whenever you run, jump, pick something up, or write with your pencil, you are using muscles. Those muscles are using protein.

Protein also repairs muscles, cuts, and scrapes. Proteins even help transport nutrients in the blood all over our body. Most importantly it is proteins that do all the work inside your cell: copying genes during cell division, transporting things around the cell, and making new proteins. Proteins are very important inside your body.



We need proteins in every single cell in our bodies. Pregnant women and growing children like you need lots of protein to grow stronger.

Beef, chicken, fish, turkey, lamb, pork, eggs, dairy products, legumes, and nuts are great sources of protein.

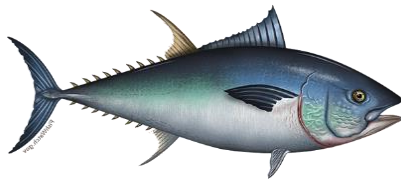
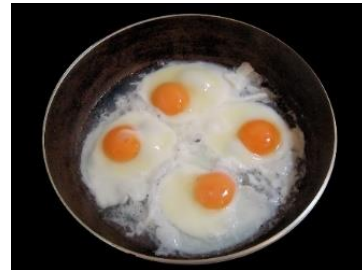
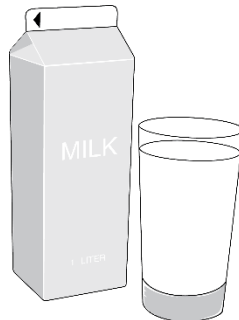
Most Americans get more than enough protein.



Your body does not store protein. So, you do need protein every day.

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Circle all the foods that contain protein to help your muscles grow and work!



Vitamins: Fat-Soluble

Our bodies also need vitamins. Some vitamins are fat-soluble (Vitamin K, E, D, & A) and others are water-soluble (Vitamin C and the B Vitamins).

Fat-soluble vitamins can be stored in your body. If you get a lot of vitamin A one day, your body will store the extra for later when you need it.

Water soluble vitamins have to be eaten every day. If you get a lot one day, the extra goes out in your urine.

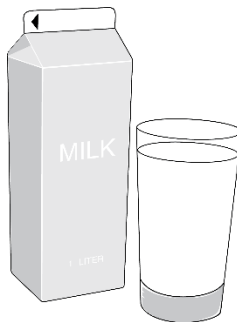


Vitamin A

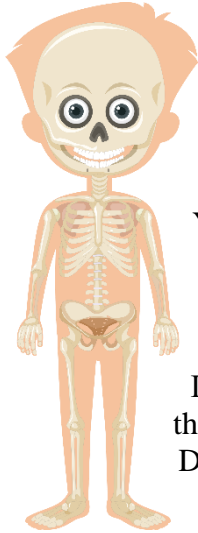
Vitamin A is a fighter! Vitamin A protects your lungs from smoke, keeps your eyes working, and helps your skin stay healthy.

“Eat your carrots, Connor. They help your vision,” his mom always reminds him because carrots have a lot of vitamin A.

Food with vitamin A includes carrots, pumpkin, sweet potatoes, cod liver oil, tuna, milk, red chili peppers, red bell peppers, paprika, butternut squash, mangoes, mustard greens, dried apricots, basil, kale, cantaloupe, peas, turnip greens, tomatoes, spinach, papaya, iceberg lettuce, and romaine lettuce.



Vitamin D



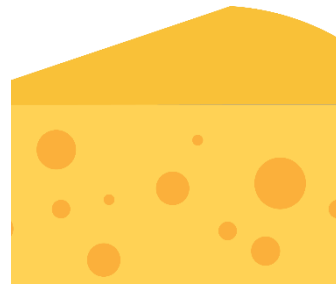
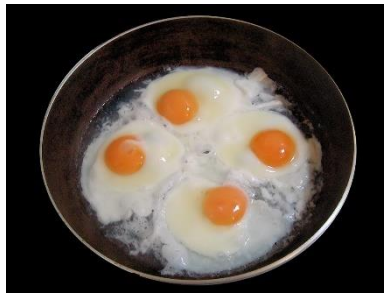
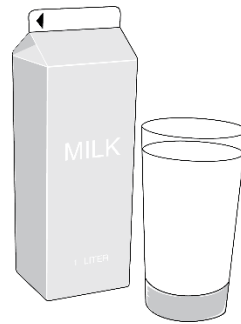
Vitamin D works hard in our bodies building strong bones, teeth, muscles, and lungs.

Vitamin D helps the body absorb calcium, phosphorus, and other important minerals that give us strong healthy bones, nails, skin, hair, and teeth.

Your body makes its own Vitamin D if you get enough sunlight. Yes, it's true!

When are outside in the sun, your skin is absorbing ultraviolet radiation from the sun which hits hydroxycholesterol in their bodies and produces Vitamin D3.

It's very hard to get Vitamin D from food. You get Vitamin D from sunlight. But there are several foods that are fortified with Vitamin D. That means that Vitamin D is added. Milk and cereals often have Vitamin D added. Fatty fish like tuna and salmon, cod liver oil contain Vitamin D. Liver, cheese, and egg yolks also contain very small amounts of Vitamin D.

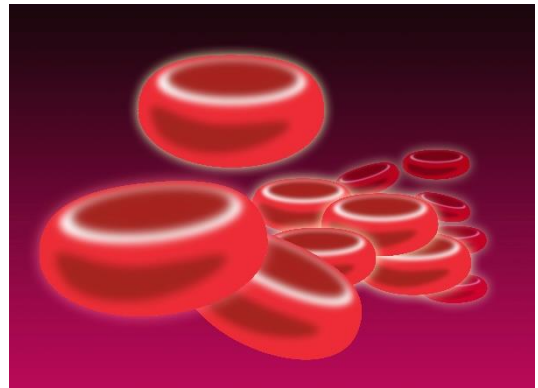


You don't need a lot of sunlight for your body to make vitamin D. A walk around the block each day in a short-sleeved shirt will give your body all the sunshine it needs to make Vitamin D.

Vitamin E

Vitamin E helps create red blood cells, aids the body in using vitamin K, slows down the aging process, and plays a role in healthy skin.

Shrimp, fish, avocados, olives, olive oil, vegetable oils, peanut butter, tomatoes, carrots, kiwifruit, cranberries, collard greens, spinach, almonds, turnip greens, Swiss chard, beet greens, asparagus, broccoli, sunflower seeds, and nuts are great sources of Vitamin E.

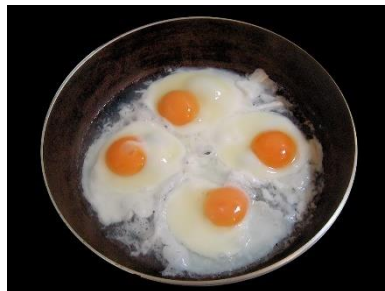
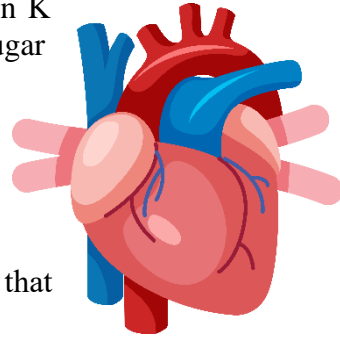


Vitamin K

Vitamin K helps your blood to clot when you cut yourself. Vitamin K protects the heart, helps to build strong bones, and helps to blood sugar insulin levels.

Vitamin K can be found in lamb, duck, dark turkey meat, dark chicken meat, liver, beef, eggs, kale, spinach, turnip greens, collards, Swiss chard, cabbage, Brussels sprouts, and cauliflower.



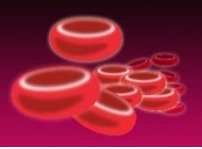
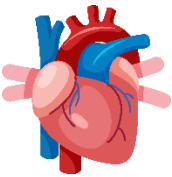
Your body can actually make vitamin K in your large intestine. Isn't that cool?

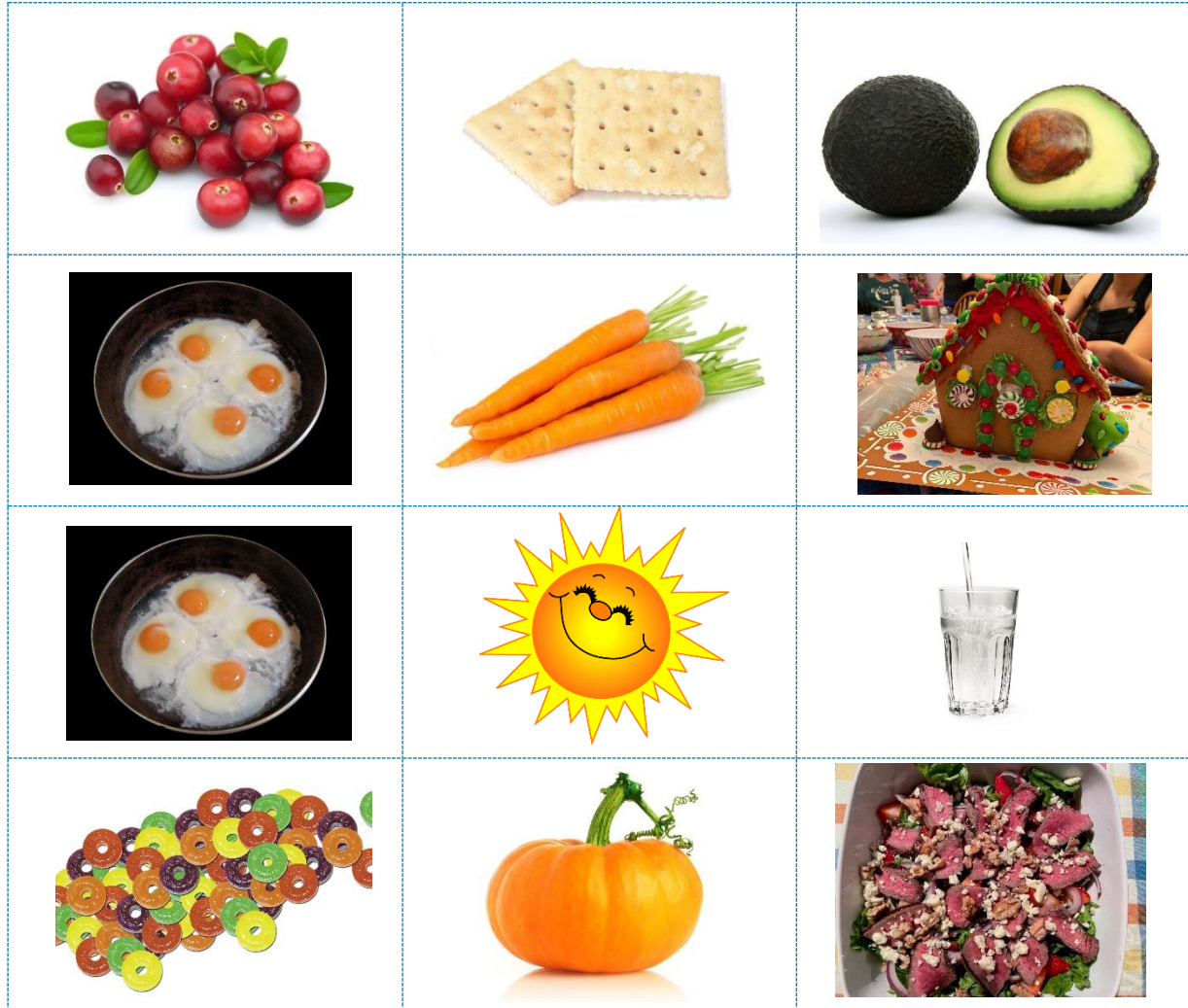


Try This!

Match the Food to Vitamin

We just learned about fat-soluble vitamins we need in our diet. Try to match the food to the vitamin. You can cut out the photos of the foods on the next page.

<p>Vitamin A</p> 		
<p>Vitamin D</p> 		
<p>Vitamin E</p> 		
<p>Vitamin K</p> 		



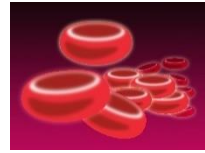
Vitamins: Water-Soluble

Our bodies need vitamins. Some vitamins are fat-soluble (Vitamin K, E, D, & A) and others are water-soluble (Vitamin C and the B Vitamins).

We just learned about the fat-soluble vitamins. Today, we are learning about the water-soluble vitamins. Your body can't store these vitamins for later, so you need them every day.

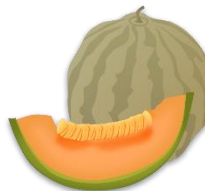
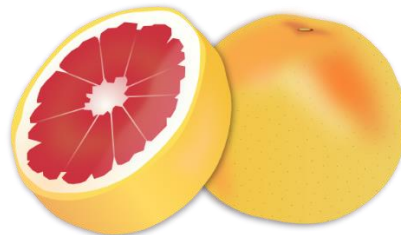
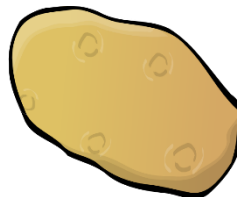


Vitamin C



Vitamin C is an antioxidant and water-soluble so cannot be stored in body. We must get a new supply each day. Vitamin C fights toxins, helps your body fight colds and germs, helps the blood to clot, and helps your skin stay healthy.

Tomatoes, bell peppers, potatoes, broccoli, oranges, grapefruit, lemons, tangerines, papayas, strawberries, pineapple, kiwifruit, cantaloupe, mango, guavas, kale, and chili peppers are great sources of Vitamin C.



Vitamin B Complex Vitamins

The B vitamins are a special group of vitamins that play a role in using carbohydrates, fats, and protein to give the body energy, make red blood cells, and help keep every part of your body healthy.



Vitamin B1—Thiamin

Vitamin B1, or thiamine, is often considered the “anti-stress vitamin”. It helps control the appetite and promotes muscles grow. Thiamine helps the body use carbohydrates, fats, and proteins for energy and growing.

Good sources of thiamine are beef kidneys, liver, nuts, legumes, romaine lettuce, spinach, tomatoes, cabbage, black beans, brown rice, wheat germ, and whole grains.



Vitamin B2—Riboflavin

Vitamin B2, or riboflavin, helps the body use carbohydrates, fats, and proteins to give you energy and fight toxins in your body. Riboflavin helps eyes to see and stay healthy.

Good sources of Riboflavin are cheese, chicken, turkey, fish, milk, yogurt, cheese, spinach, and wheat germ.





Vitamin B3—Niacin

Vitamin B3, or Niacin, stays busy removing toxic chemicals from the body, producing hormones, and helping your body calm down after stressful situations. It also helps the body use fat in a healthy way.

Good sources of Niacin are chicken, pork, turkey, sardines, tuna, green peas, broccoli, and peanuts.



Vitamin B5—Pantothenic Acid)

Pantothenic Acid, or vitamin B5, helps break down fat so your body can use it, builds antibodies to fight germs, and manufacture hormones.

Good sources of Pantothenic Acid are beef, milk, eggs, broccoli, and yeast.





Vitamin B6—Pyridoxine

Pyridoxine, or vitamin B6 helps build DNA, RNA, and antibodies to help your body grow and to fight germs. It also helps your skin stay healthy.

Good sources of Pyridoxine are beef liver, tuna, potatoes, beans, rice, wheat germ, bananas, and avocado.

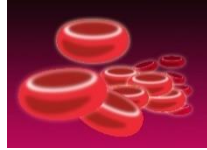


Vitamin B7—Vitamin H—Biotin

Biotin, Vitamin H, or Vitamin B7, helps keep your nails, hair, and skin healthy. It helps the body use the other B vitamins and reduces blood sugar levels.

Good sources of biotin are beef, milk, eggs, broccoli, and yeast.



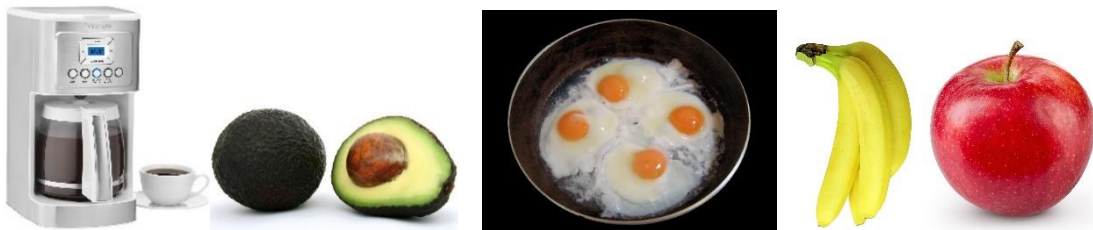


Vitamin B9—Folic Acid

Folic Acid, or vitamin B9, helps make DNA, RNA, and red blood cells. It also helps iron do its job in the body to build red blood cells.



Good sources of folic acid are liver, beans, wheat bran, citrus fruit, bananas, apples, eggs, avocado, coffee, rice, and blueberries.



Try This!

Match the Food to Vitamin

We just learned about water-soluble vitamins we need in our diet. Try to match the food to the vitamin. You can cut out the photos of the foods on the next page.

<p>Vitamin C</p> 		
<p>Vitamin B1 Thiamin</p> 		
<p>Vitamin B2 Riboflavin</p> 		
<p>Vitamin B3 Niacin</p> 		

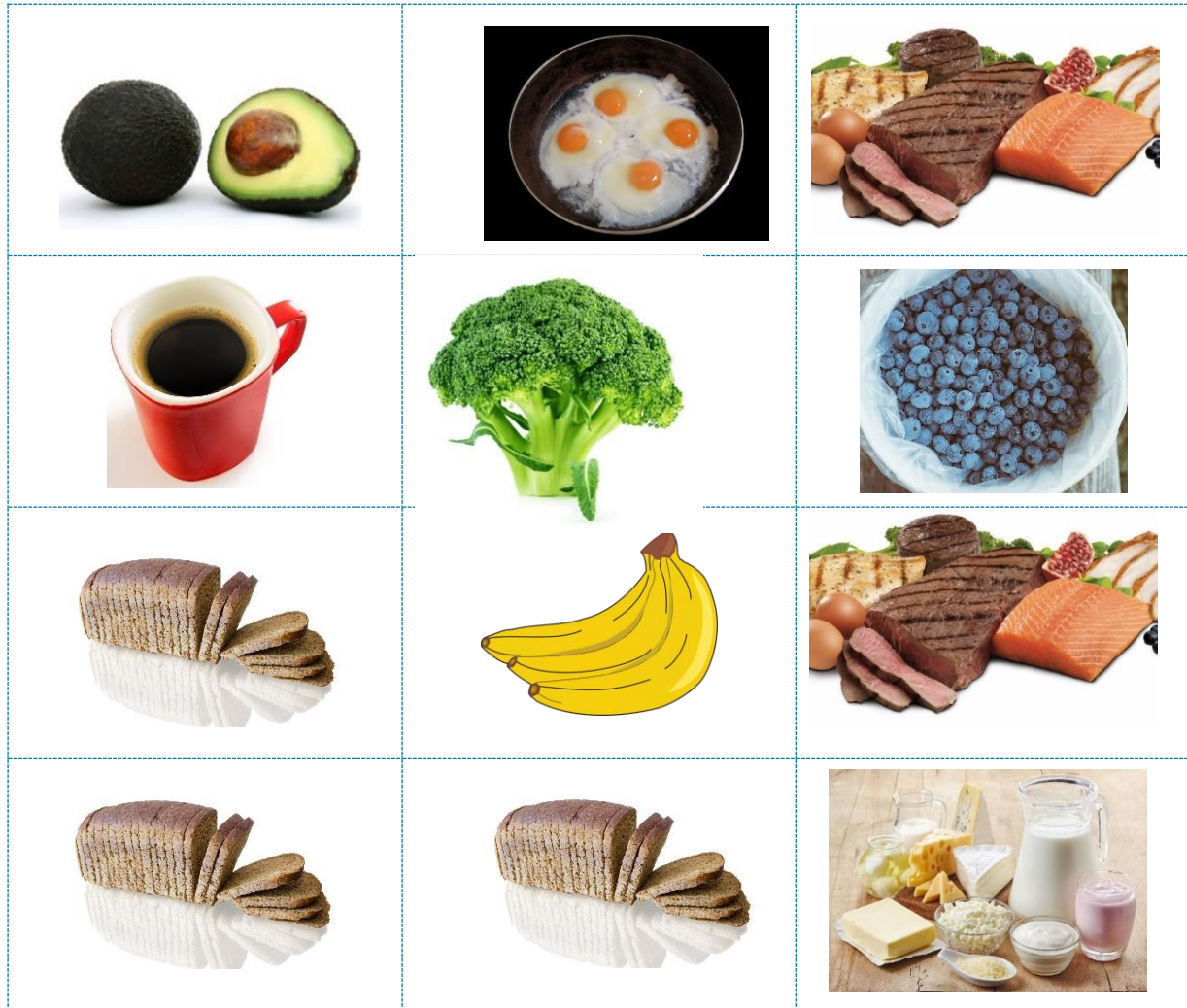


Try This!

Match the Food to Vitamin

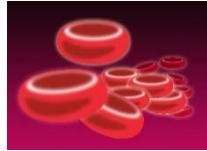
We just learned about water-soluble vitamins we need in our diet. Try to match the food to the vitamin. You can cut out the photos of the foods on the next page.

 <p>Vitamin B5 Pantothenic Acid</p>		
 <p>Vitamin B6 Pyridoxine</p>		
 <p>Vitamin B7 or Vitamin H Biotin</p>		
 <p>Vitamin B9 Folic Acid</p>		



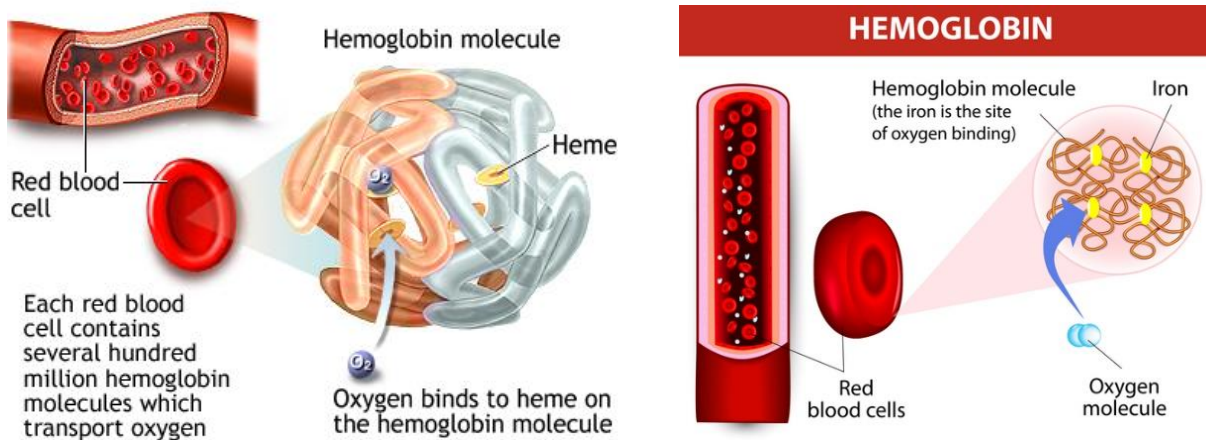
Minerals

Our bodies need nutrients like protein, fat, and carbohydrates. We also need vitamins. Finally, we need minerals. Here are some of the important minerals our body needs.



Iron

Iron is a powerhouse mineral. It is a building block of hemoglobin in the red blood cell and helps keep you strong and healthy. It always plays a role in healthy hair, nails, and skin.

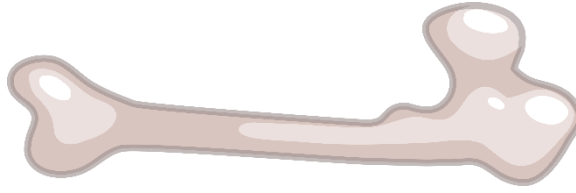


Iron is needed for getting oxygen to every cell in your body. Iron is a building block of the hemoglobin molecule which is the landing site for oxygen molecules. When oxygen hops aboard red blood cells to ride to the cells where they are needed, they sit securely on the hemoglobin molecule.

If there is not enough iron, there won't be enough hemoglobin. If there is not enough hemoglobin, your body will not make enough red blood cells. **Anemia** is when your body doesn't make enough red blood cells. Children with anemia just need to get more iron so their body can make more red blood cells.

Foods that are high in iron include liver, lamb, raisins, blackstrap molasses, quinoa, pumpkin seeds, tomato paste, spinach, prune juice, prunes, raisins, beef, chicken, fish, and eggs.





Calcium

There is a lot of calcium in the human body. Calcium muscles contract, gives energy to the nervous system, grows bones, and strengthens bones.



You can get calcium in dairy products (yogurt, milk, cheese), almonds, sesame seed, cinnamon, broccoli, butternut squash, chia seeds, figs, and collard greens.

YOUR KIDS NEED CALCIUM

Growing Children Need Calcium to Build Strong Bones and Teeth!

Milk and most dairy foods are excellent sources. How much do your children need?

■ The 2010 Dietary Guidelines for Americans recommends 2 cups of milk and milk products for children ages 2 to 3 years and 2.5 cups for 4 and 5 year-olds.

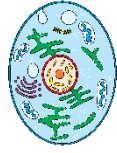
Here are some tasty, calcium-rich options that children tend to enjoy. Use this as a guide to select from throughout the day.*

Milk 1% low-fat, fat-free Both are available lactose-free  1 cup	Natural Cheese Such as Cheddar, Mozzarella or Colby  1 1/2 ounces or 1/3 cup shredded cheese	Yogurt Low-fat or fat-free  1 container (6 ounces)
Macaroni and Cheese Homemade with cheese  1 cup	Give Your Child More Calcium Use milk instead of water when making: ■ Hot chocolate ■ Instant mashed potatoes ■ Scrambled eggs ■ Pancakes ■ Pudding	Processed American Cheese  3 slices
Condensed, Tomato Soup Made with 1 cup milk  2 cups	Oatmeal 1/2 cup dry oats made with 1 cup of milk  1 cup	Grilled Cheese Sandwich Made with Processed American Cheese  1 sandwich made with 3 slices of cheese

*Children's appetites vary from day to day. Some days they may eat less than these amounts, other days they may want more. Offer these amounts and let your child decide how much to eat.
Source: USDA ChooseMyPlate.gov and supertracker.usda.gov/foodappedia.aspx

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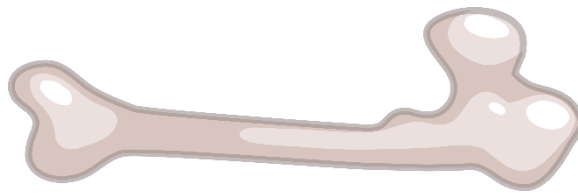




Phosphorus

Phosphorus is inside every single human body cell. Phosphorus is a part of cell membranes, participates in chemical reactions in the body, and helps in energy production.

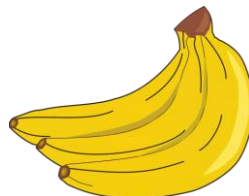
It is easy to get enough phosphorus because it is in so many foods. Many food additives are made with phosphorus too. If you eat food, you will get phosphorus. Meats, dairy products, eggs, and processed foods are rich sources of phosphorus.



Magnesium

Your body needs Magnesium to build bones, create hormones, and burn nutrients for energy. Yet many Americans do not get enough magnesium.

Nuts, seeds, whole grains, and pineapple are great sources of manganese. Boost your magnesium intake with brown rice, peanuts, spinach, whole wheat bread, bananas, avocados, almonds, hazelnuts, walnuts, pecans, pumpkin seeds, raisins, oat bran, cocoa powder, dates, quinoa, lentils, and dairy products (milk, yogurt).

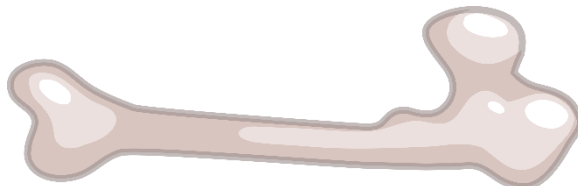




Sulfur

Sulfur strengthens nails, skin, and hair. Sulfur is an ingredient in insulin. Sulfur also helps regulate our blood sugar and helps our blood to clot if we get a cut or scrape.

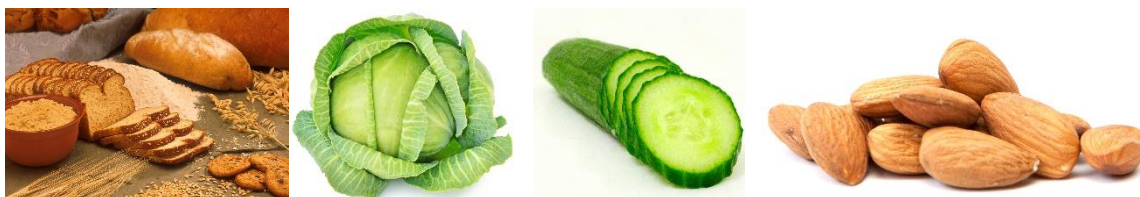
There is no minimum requirement for sulfur that we know of and if you eat meat, chicken, fish, and eggs, you will get plenty of sulfur.



Silicon

Silicon helps build and strengthen bones, skin, hair, and nails. Silicon speeds up healing, especially with a bone fracture.

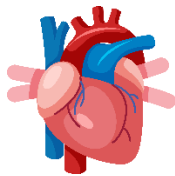
Good sources of silicon include oats, barley, brown rice, plums, cucumbers, beets, cherries, oranges, cabbage, alfalfa, radishes, raisins, apples, peanuts, almonds, millet, and flaxseeds.





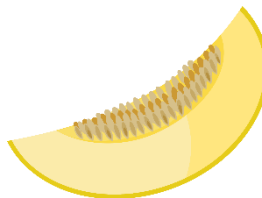
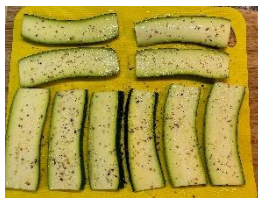
Fluoride

Fluoride prevents cavities and makes teeth stronger. It can help cavities to heal. Small amounts of fluoride help build strong bones and teeth and prevent decay. You can get fluoride in toothpaste.

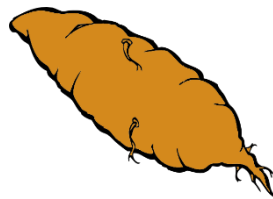
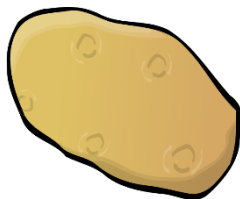
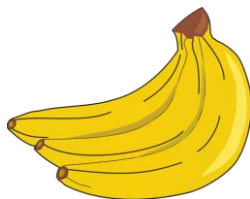


Potassium

Potassium plays a role in muscle contractions that help you run, climb, and hold your pencil. Potassium also helps your heart to beat. It also helps your body make muscles and use up all the sugar you eat.



You can get potassium from bananas, oranges, cantaloupe, honeydew, apricots, grapefruit, raisins, dates, potatoes, lima beans, kidney beans, lentils, sweet potatoes, beets, Swiss chard, peas, zucchini, eggplant, pumpkin, tomato, and cucumbers.





Zinc

Zinc helps your body perform all kinds of chemical reactions inside your cells. Zinc helps insulin to work, getting sugar into the cells that need it. Zinc also plays a role in the immune system, battling germs, toxins, and disease. Zinc helps our bodies to taste and smell. Zinc also works with vitamin A to keep our eyes working.

Beef is a better source of zinc than chicken. Beef, fish, shrimp, oysters, lamb, sesame seeds, pumpkin seeds, and cashews are all good sources of zinc. You can also get zinc in chicken, spinach, asparagus, quinoa, and oats.



Iodine

Iodine is found in seafood, dairy products, and iodized salt. Iodine helps your thyroid gland to remind your body to use the food you eat—that's called metabolism.

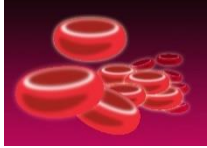

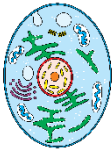


Good sources of iodine are iodized table salt, dairy products, seafood, and eggs.



Try This!

Match the Food to Mineral

We just learned about minerals we need in our diet. Try to match the food to the mineral. You can cut out the photos of the foods on the next page.



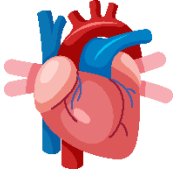


<p>Iron</p> 		
<p>Calcium</p> 		
<p>Phosphorus</p> 		
<p>Iodine</p> 		
<p>Zinc</p> 		

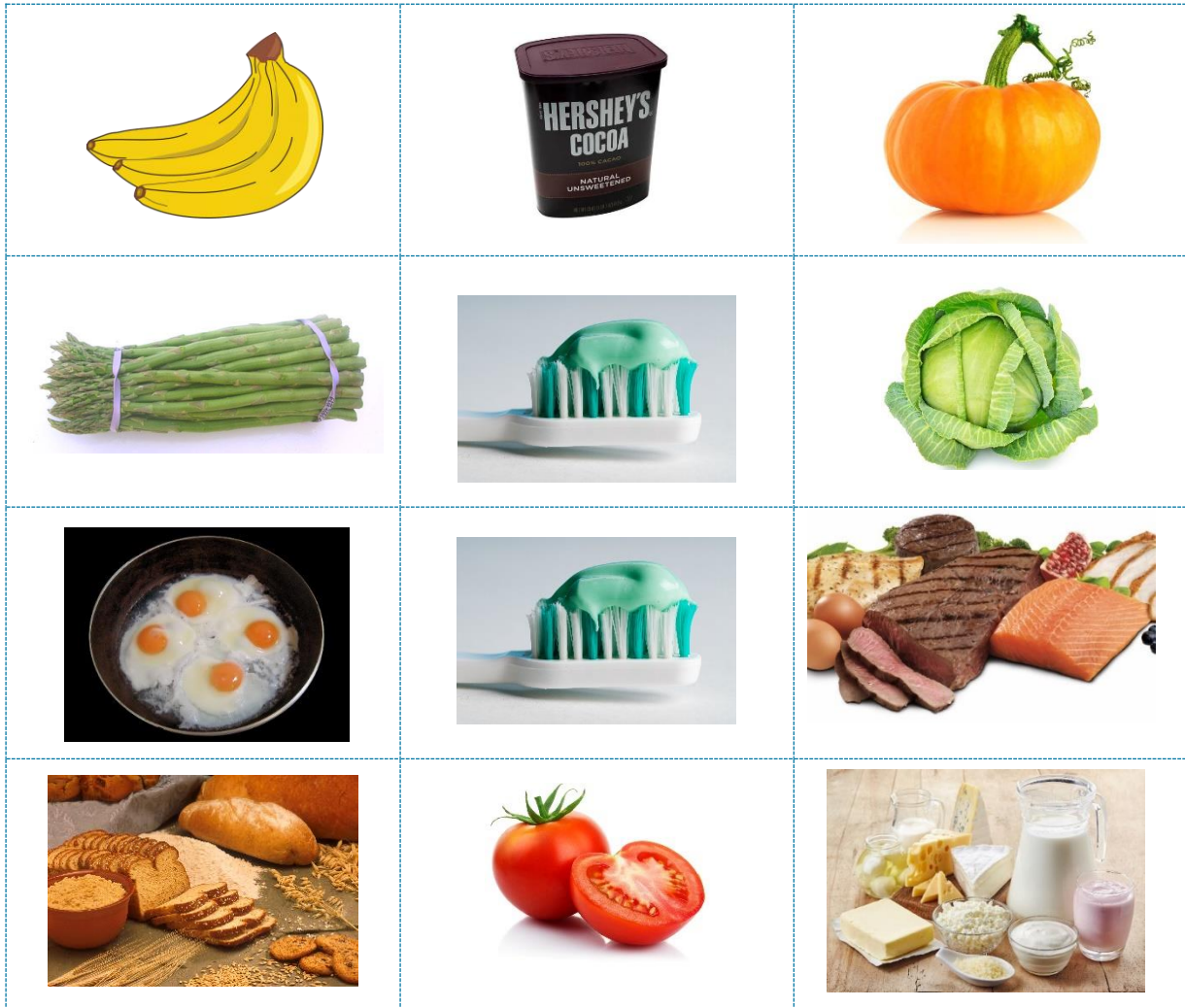


Try This!

Match the Food to Mineral

We just learned about minerals we need in our diet. Try to match the food to the mineral. You can cut out the photos of the foods on the next page.

<p>Silicon</p> 		
<p>Fluoride</p> 		
<p>Potassium</p> 		
<p>Magnesium</p> 		
<p>Sulfur</p> 		



Try This!

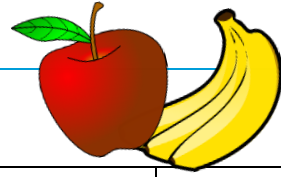
Keep a Food Diary

Keep a food diary for one week. Talk about it with your parents.

Do you think you are getting all your nutrients, vitamins, and minerals?

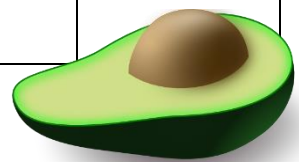
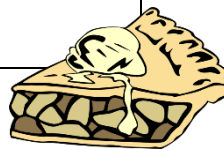
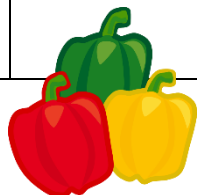
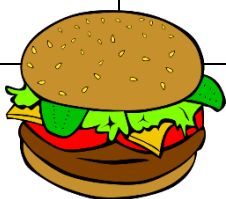
What changes could you make to eat healthier?

Food Diary



Week One

	Breakfast	Lunch	Snack	Dinner	Snack
Sunday					
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					



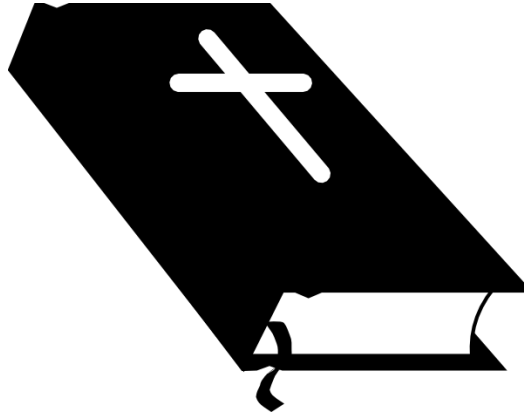
Spiritual Food

Connor gave his heart to Jesus. He wants to grow stronger and closer to God.

Just like Connor needs food to make his body strong, he needs spiritual food to make his spirit strong.

God gave us the Bible to be our spiritual food. Just like we need to eat every day, we need to read the Bible every day. God's Word, the Holy Bible, is a gift from Him so that we can get to know Him and live to glorify Him.

"Therefore, putting aside all malice and all deceit and hypocrisy and envy and all slander, like newborn babies, long for the pure milk of the word, so that by it you may grow in respect to salvation, if you have tasted the kindness of the Lord" (I Peter 2:1-3 NASB).



Memory Work

Memorizing Bible verses and passages helps us to grow closer to the Lord and keeps us from doing things God doesn't like.

"Your Word I have treasured in my heart that I might now sin against you" (Psalm 119:11 NASB).

Prayer

We can talk to God. He understands us and loves us. We can thank Him for all the good things He does for us and ask Him to take care of us and the people we love.

When we tell God about our fears, worries, problems, and struggles, He offers to take care of those things for us and replace our worries and fears with peace.



Enjoying Our Food

One thing I like about food is that it smells and tastes good. That makes it more fun to eat.

Smell



Small molecules of food float in the air and end up in our nose. Inside our nose are millions of tiny little hairs called cilia. The cilia connect to smell sensors that send signals to our brain via the olfactory nerve.

When we sniff, we are moving the molecules further up the nose where there are more cilia.

We can smell over 10,000 smells.

One of the things most people like to smell is food cooking or baking.

What are your favorite food smells?

Taste

Our tongue tastes things with its special taste buds (sensor cells) that determine the type of food and send taste signals to the brain. The tongue can taste bitter, sour, salty, and sweet.

The taste buds work with the sense of smell to give help us experience taste.

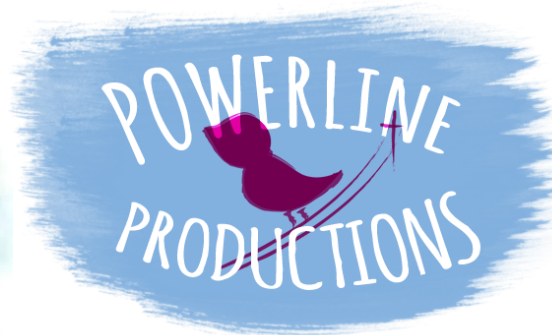
Every time you take a bite of food, the taste buds pick up the taste of salty, sweet, bitter and sour. Then the nose plays a part.



Both the tongue and the nose send signals to the brain and the combination is your sense of taste.

Which foods do you like best?

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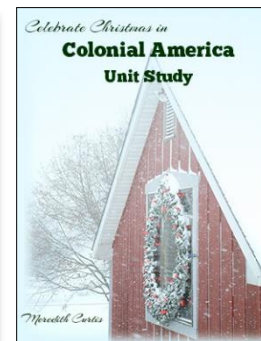
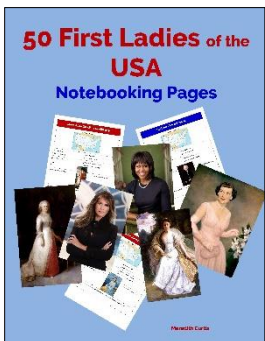
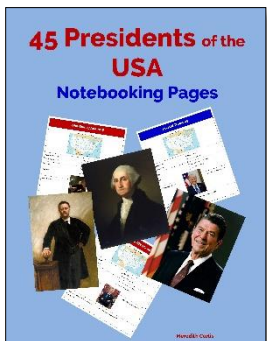
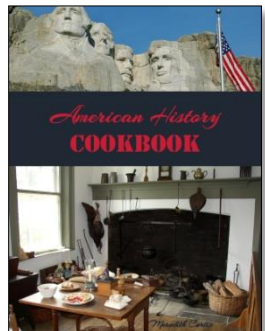
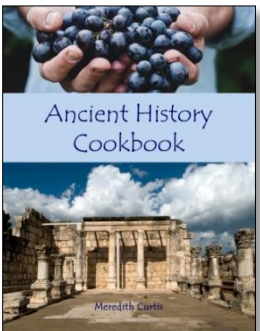
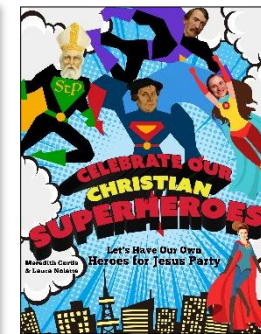
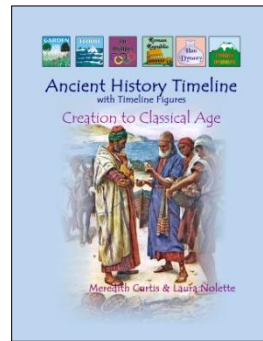
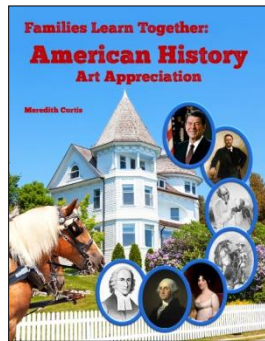
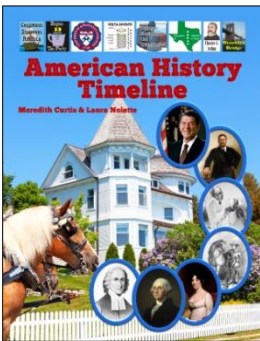
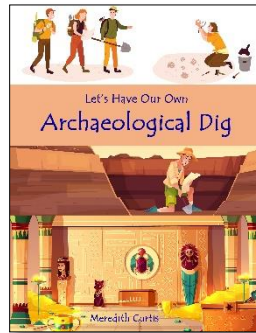
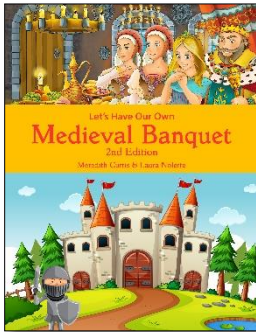
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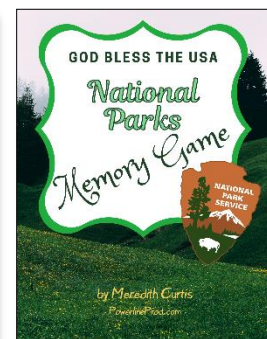
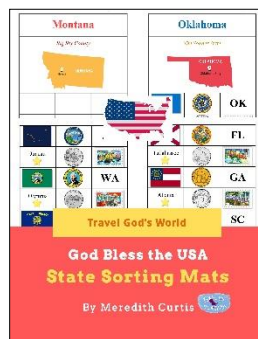
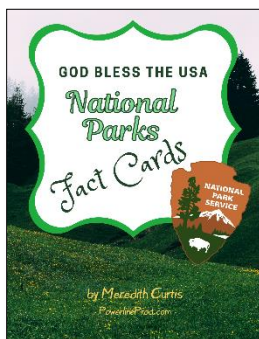
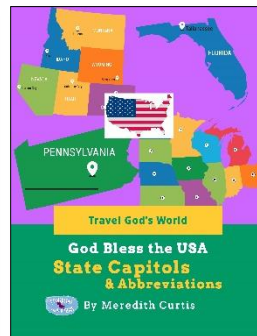
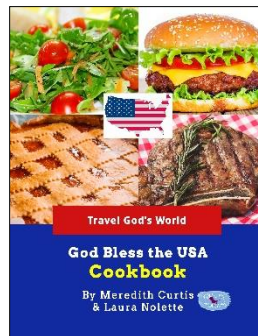
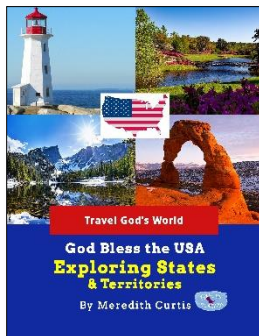
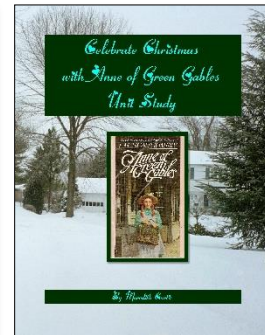
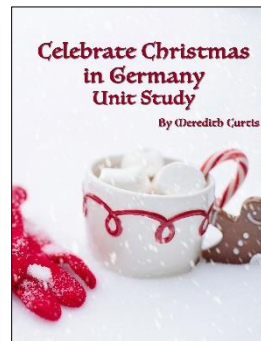
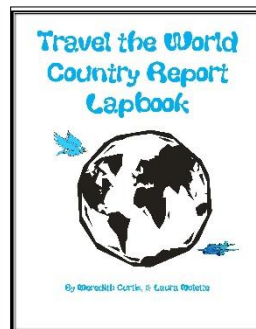
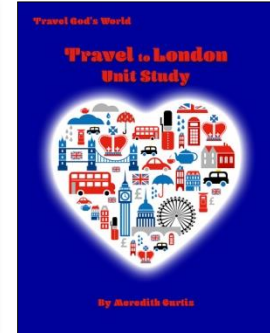
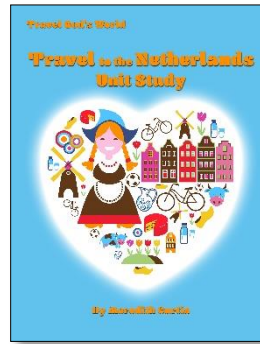
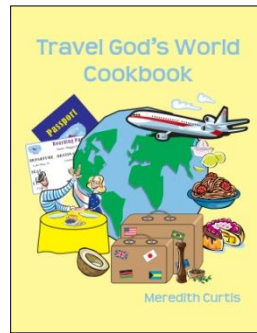
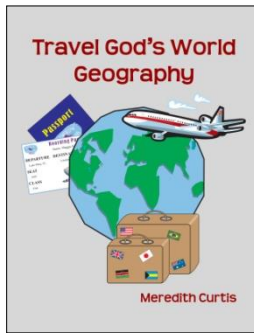
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