

Chapter 27

Stomach, Intestines and Kidneys



Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

National Science Education Standards covered this week:

The food you eat gets forced down a small tube called the esophagus which ends in the stomach. The stomach is a storage area for food as it preserves the food in a bath of acid.

As the food exits the stomach, it enters the small intestines which act to break down and absorb solid food. Water is absorbed out of this matter as it passes through the large intestine.

During digestion, your blood gets filtered through a pair of small organs called kidneys. Bad chemicals are removed during this time.

Definitions

Stomach	an acid-filled sack that stores your food before digestion
Esophagus	"ee-sof-ah-gus"; a long tube that moves food from your throat into your stomach
Acid	a dangerous chemical inside your stomach that kills any bacteria that may be on the food you eat
Ulcer	a painful hole in a person's stomach
Small intestine	a 20-foot long organ that is filled with villi and is the place where you digest your food
Villi	"vee-lie"; small bumps inside your small intestine that pulls out all of the nutrients from the food you eat
Large intestine	a long organ in your body, attached to the small intestine, that absorbs all of the water out of your food
Kidneys	two small organs in your body that clean out your blood
Human anatomy	"a-nat-o-mee"; the study of the human body

Sample questions to ask your child after completing the weekly reading.

What kind of muscle moves food down your esophagus?

Smooth muscle

How does your stomach keep your food from spoiling?

Your stomach is filled with acid that covers the food you have eaten. This acid can destroy most bacteria that may be growing on your food.

What happens to the "bad stuff" that we eat? How does it get out of our blood?

All blood passes through a "strainer" called the kidneys. This pair of organs filter our blood for any "bad things" that may be in our food.

Answers to worksheet questions:

Page 1:

stomach
esophagus
acid
ulcer
small intestine

villi
large intestine
kidneys
human anatomy

Page 2:

9 - stomach
7 - esophagus
1 - acid
6 - ulcer
5 - small intestine

3 - villi
8 - large intestine
4 - kidneys
2 - human anatomy

Page 3:

"Last week you were a red blood cell. Today, imagine you are a jelly donut. Describe your journey through the body from the mouth to the intestines."

Answers will vary; however the child should describe the appropriate organs that will be encountered: esophagus, stomach, small intestine, and large intestine. They may also describe how they are affected by the villi and kidneys during the process.

Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

Mucus is an important substance in our body.

Mucus can be found as a protective covering for the inside lining of our stomach. It is also a lubricant for our organs. It keeps them from rubbing together which can be very painful. In addition, mucus can be found in our nose (boogers) and the back of our throat (phlegm).

A snotty little activity

Objective:

Children will make a model of mucus.

Materials:

light corn syrup
unflavored gelatin
measuring cup

water
stove/microwave

Procedure:

Heat $\frac{1}{2}$ cup of water until it boils, remove it from the heat and add mix in three envelopes of unflavored gelatin.

Let it sit for a few minutes and stir with a fork. Add enough light corn syrup to make one cup of "mucus."

Stir with a fork and lift out the long strands of goo. As the mucus start to cool, you may need to add a small amount of water.

Have the child collect some dirt from outside (or inside.) You will only need about a pinch. Place a pinch of this dust into your mucus and stir well... Congratulations! You just made a fake booger.

Explanation:

Real mucus has some very important jobs in your body. You can find this stuff everywhere. It sticks to the inside of your stomach and keeps the acid in your stomach from burning a hole through you!!! Mucus also covers the inside of your nose to trap junk that you inhale. When you have too much "stuff" mixed up in your mucus, you either blow your nose to get the mucus out or it can fall out as a booger.

Mucus is made mostly out of sugars and protein...the same thing you used to make your own fake mucus. Those long strings inside your fake snot are long strands of protein. This stuff is not only sticky, but it is also stretchy as well. Protein is why real snot can be stretched out so far.

Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

Most children understand how a strainer works in the kitchen. Our kidneys perform a similar task by filtering our blood every day.

It may be difficult for children to imagine how small the holes would have to be on a strainer to be able to actually filter our blood. In fact, it would not be possible to actually see the holes without the use of a microscope.

How did it get in there?

Objective:

Children will model how kidneys filter their blood.

Materials:

cornstarch

water

two drinking glasses or coffee mugs

sandwich baggie

twist tie (from a bread sack)

iodine

Procedure:

Stir together one teaspoon of cornstarch into 1/8 cup of water.

Put $\frac{3}{4}$ cup of hot water into a clear glass and stir well.

In the other glass, mix together one teaspoon of iodine with $\frac{3}{4}$ cup of water.

Cut off the top of the baggie and pour in $\frac{1}{4}$ cup of the cornstarch mixture and seal the baggie tightly with the twist tie.

Gently place the baggie into the iodine solution. Do not allow the tied end of the baggie to get wet.

Ask the child to make some predictions as to what is going to happen.

Check the baggie every 3 minutes for a total of 15 minutes. You will be looking for a color change...inside the baggie.

Explanation:

In this experiment, the baggie acts as a filter by allowing iodine molecules to flow into the cornstarch mixture very slowly. When iodine comes into contact with cornstarch, they react to make a dark blue chemical.

Your kidneys filter blood in order to get rid of harmful chemicals that are found in your body. Naturally, your kidneys must leave the "good stuff" in your body alone. This "good stuff" would be your red blood cells, white blood cells and a whole bunch of other things as well! When your child notices the dark blue reaction taking place in their baggie, you will want to inform him/her that it is only the iodine that is passing through the baggie. The water is not moving through at all. You don't see the bag swelling up with a whole bunch of water, do you? Nope! Your kidneys are doing this very same thing right now by filtering some things out of your blood.