

LESSON OUTLINE

Lesson #5: Elimination and Hydration: Eliminate Waste and Run Smoothly with Plenty of Water

Lesson Objective: Students learn the importance of elimination and hydration and how they keep our systems running smoothly.

Classroom Lesson Outline

1. **Introduction** (5 min)
 - a. Review
2. **Elimination** (5 minutes)
 - a. The large intestine
 - b. Daily elimination is important to remove waste
 - c. Foods that help elimination
 - i. Fruits
 - ii. Vegetables
 - iii. Whole grains
 - iv. Water
3. **Hydration** (10-12 minutes)
 - a. Important to body
 - i. Body weight is 75% water
 - b. Important to digestion
 - i. System uses 2 gallons of water to digest and eliminate
 - c. Foods as a source of water – activity
 - d. Suggested snack sample
 - i. Water
 - ii. Celery and sugar snap peas – both high in water content
 - e. Drink 8 cups a day
 - i. Activity levels dictate water needs
 - ii. Water, fruit and 100% fruit juice vs. sports drinks
4. **Review game** (10-12 minutes)



Recommended Reading

- Recommended reading: “Sports Drinks: Who Needs Them?”

California State Standards met by grade

3rd grade:

Life sciences

3. Adaptations in physical structure or behavior may improve an organism’s chance for survival. As a basis for understanding this concept:
 - c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.

4th grade:

2. All organisms need energy and matter to live and grow. As a basis for understanding this concept:
 - a. Students know plants are the primary source of matter and energy entering most food chains.

5th grade

Life sciences

2. Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials. As a basis for understanding this concept:
 - c. Students know the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.

SCRIPT

Lesson #5:

Elimination and Hydration: Eliminate Waste and Run Smoothly with Plenty of Water



Docent note: This is the last lesson, so please review and ask questions from Lessons 1 through 4.

Welcome to the last GrowingGreat lesson of the year! Today's lesson is about Elimination and Hydration, but before we begin, let's go back and quickly review some of the things you have learned so far. Back in our first lesson, we learned that our bodies need a combination of 3 categories of fuel to perform at their best.

Question: Who can name the 3 categories?

Answer: Proteins, Fats and Carbohydrates.

In Lesson 2, you learned how to identify a higher-quality food.

Question: Who can fill in the blanks in this statement? A high-quality food is _____ and _____ to the source.

Answer: A high-quality food is whole and close to the source.

We learned about recommended serving sizes in Lesson 3.

Question: Raise your hand if you know the serving size of animal protein – chicken, beef, fish.

Answer: A serving is the size of the palm of your hand.

And in Lesson 4, we learned about digestion.

Question: Who can describe the process of digestion?

Answer: Digestion is the process of breaking down food into smaller and smaller parts so our body can absorb nutrients such as p, f, c and vitamins and minerals.

Question: Who remembers where digestion starts?

Answer: It starts in our brain when we see, think or smell food. The saliva in our mouth and digestive juices in our stomachs start to flow.

We followed the path of digestion from the mouth, down the esophagus into the stomach and to the small intestines. There, with the help of three other organs, the liver, gallbladder and pancreas, our body absorbs nutrients.

We also talked about the importance of chewing food well.

Question: Raise your hand if you've been paying attention to how well you chew your food?

Question: Did anyone ask their parents what phytonutrients and antioxidants are?

 *Docent note: Ask anyone who raises their hand if they were able to stump their parents.*

Remember, the phytonutrients and antioxidants found in fresh fruits and vegetables keep us strong and healthy so our body can fight off disease.

Question: Which colorful fruits and vegetables have you added to your meals?

 *Docent note: Call on a maximum of 3 kids.*

At the end of the last lesson I promised we would continue the path of digestion through elimination. Today's lesson is about why elimination and drinking water play an important role in our overall health.

Your body uses the exact amount of food it needs to fuel and nourish itself. Once the body has absorbed the nutrients from the small intestines, the extra nutrients are then stored for future use. The unused and undigested food is then eliminated.

Elimination is how we get rid of waste from our body. It is when we go to the bathroom. There are many ways to describe this, for today we will simply use the term "solid waste".

Question: Looking at the diagram that we used in the last lesson, who can tell me where food goes after passing through the small intestine?

Answer: The large intestine.

The large intestine is much wider and wraps around the outside of the small intestine.

The final stage of digestion takes place in the large intestine. Here all the undigested parts of your food that are not used are stored until they are eliminated. The purpose of the large intestine is to get rid of waste.

Question: Why do you think eliminating the waste is so important?

Answer: Getting rid of waste is like taking out the trash. We need to clean out our large intestine because it contains the waste our body no longer needs.

Question: What do you feel in your body when you are not properly eliminating all this extra waste?

Answer: Gas pains, stomach aches, bloated tummy, irritability, constipation...

Question: How often should you be eliminating? Each day? Once a week?

Answer: You should go at least once a day and twice is great too. If waste builds up in the large intestine it can be harmful and can create digestive problems as well as disease.

Did you know that eating certain foods actually helps your body to eliminate all its waste?

Question: Who can name some types of foods that help with the process of elimination?

Answer: Fruits and vegetables, whole grains

Question: Does anyone know what we call the part of fruits, vegetables and whole grains that helps us to eliminate our waste?

Answer: Fiber. Fiber is the part of a fruit, vegetable or grain that does not get digested.

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 *Docent note: write on board: Fiber = part of a fruit or vegetable or grain that does not get digested*

Some examples of fiber are the skin on apples, peaches, grapes or potatoes and the outer part of whole grains.

As fiber passes through our digestive system, it cleans the inside of our body by helping to remove waste. Like a broom, the fiber sweeps your large intestine clean, removing all the waste your body doesn't need.

Besides whole foods, we need another nutrient every day to help us eliminate.

Question: Who can guess what this is? I will give you a hint: It is the most important liquid our body uses and needs.

Answer: Water

Water is important because it keeps our body hydrated.

Hydration means your body has all the water it needs to function.

Next to the oxygen we breathe, water is the most important nutrient we need to survive.

If a person was stranded on a deserted island, they could potentially survive eight weeks without food. But without water, this person would not last more than three days.

Your body weight is made up of about 75% water. It is necessary for every system in your body. It makes saliva, helps our cells function so we stay well, is required for proper digestion and elimination and helps us move our muscles.

Your digestive system uses a lot of water to complete its process. Without water you cannot eliminate all the waste.



PROP *Hold up measuring cup, then 1 gallon bottle then both gallon bottles.*

Question: Who wants to guess how much water the digestive system uses – a cup, one gallon or two gallons?

Answer: It takes up to two gallons of water to digest your food each day!

Question: Does this mean we need to drink two gallons of water each day?

Answer: No! We don't want to drink large amounts of water at once. But you do need to replace the water that is lost through activity or used within your body.

Question: Who wants to guess how much water we need to drink each day?

Answer: Many experts recommend eight cups of water per day



PROP *Hold up 1 cup measuring cup.*

That equals about 8 of these measuring cups filled up. They are each 8 ounces.

Question: When is the best time to drink water?

Answer: Between meals. You can start when you wake up and continue throughout the day at breaks, during recess, at lunch, after school and before dinner.

Extra water is processed through the kidneys and turns into a liquid waste called urine. Urine is our body's liquid waste.

Your body gets water from other sources to help it stay hydrated and to keep digestion and elimination running smoothly.

Question: Does anyone want to guess what other sources provide water for the body?

Answer: Foods. Many foods contain water. Your body absorbs and uses the water from the foods you eat.

Let's do an activity that shows different foods that contain a lot of water.

Your activity sheet has a list of foods. Each of these foods contains a different amount of water. Number these foods in the order you think they go from greatest amount of water to least amount of water.



Docent note: use the answer sheet provided in your training packet to review the answers. Call on a few students to hear their answers

So foods such as fruits, vegetables, and whole grains are beneficial in two ways: They help you stay hydrated and they help you eliminate waste, which keeps you clean on the inside.

Many commercials show athletes drinking sports drinks during competition. These drinks are designed for professional athletes who play their sport for a long time and lose a lot of fluid through their sweat. These drinks contain a lot of added ingredients such as sugars, artificial colors and artificial flavors which are not great for our bodies.

For those of us who play shorter games and do not lose as much fluid, water is the best way to hydrate. If you want something with more flavor, try a 100% juice instead of sports drinks.

Sometimes we fall short in the amount of water our body needs and we feel very thirsty.

Question: What word do we use to say your body does not have enough water? In other words, you feel REALLY thirsty?

Answer: Dehydrated.



Docent note: write on board: Dehydrated = body does not have enough water

Question: What are some signs that your body needs water or is dehydrated?

Answer: You may feel thirsty or your mouth may be dry.

Some other signs of being dehydrated are headaches, dizziness, feeling confused, irritability and feeling tired.

When you feel any of these signs, your body has already lost a lot of water. These signs mean you waited too long to drink.

The best time to drink water is before you feel thirsty. You want to keep your body well hydrated all the time by drinking water throughout the day.

For our review today we are going to divide into teams and play a review game called Classroom Feud which is like the TV show Family Feud.



Docent note: Set up direction for Classroom Feud game:

Step #1: Split class into two or three teams and name one person as the “speaker” who answers questions after consulting with their team

Step #2: Name the teams for easier score keeping. To be most efficient with time, assign them their name when the team is created. Suggestions for team names are: fruits, vegetables, whole grains and waters

Step #3: Write team names on the white board and keep score as the game progresses

Step #4: Give each team a flag.

Step #5: Read question. The first team to raise their flag gets to answer the question.

Step #6: If a team answers a question incorrectly, ask the next team the question until someone gets it correctly.

Step #7: Repeat each correct answer so they are reinforced to all students

I am going to ask a question from today’s lesson. You have 5 seconds to decide as a team the correct answer. You receive 1 point for each correct answer. Do not raise your flag until you have the answer.



*Docent note: **Please include these final comments either before the start of the review game or at the conclusion of the game.***

Whole, close-to-the-source foods are truly beneficial for our bodies. They keep our bodies performing at our best all day long. Thank you for another great year with GrowingGreat.

Remember to go over the Grill Me with your parents.

GrowingGreat Classroom Feud Questions

- Q.** Where does food go after it leaves the small intestine but before it leaves our body as solid waste?
A. The large intestine
- Q.** How often should you eliminate waste?
A. At least once a day
- Q.** Name some foods that help with the process of elimination?
A. Any type of fruit, vegetable or whole grain plus water
- Q.** Why is eliminating waste important?
A. Removes pollution, toxins from your body; keeps insides clean; prevents illness
- Q.** Name the part of fruits, vegetables and whole grains that helps us eliminate?
A. Fiber (and water!)
- Q.** How much water does the digestive system use?
A. Two gallons
- Q.** How many cups of water should you try to drink every day?
A. Eight cups
- Q.** What is the word used to describe when we are very thirsty?
A. Dehydration
- Q.** What are some signs of dehydration?
A. Dry mouth, headache, dizzy, tired, confusion, nauseated
- Q.** What types of things would cause us to need more water on certain days?
A. Sports, hot days, illness, extra activities
- Q.** Who are sport drinks designed for?
A. Professional athletes, marathoners or other athletes who lose a lot of fluid in a short period of time and who play their sport for a long time – 3 hours or more
- Q.** Name a food that contains a lot of water.
A. Any juicy fruit – watermelon, melon, grapes, tomato...

Review questions from previous lessons:

- Q.** What makes a food higher in quality?
A. Whole, close to the source and minimally processed
- Q.** Name the 3 categories of fuels we should eat.
A. Proteins, fats and carbohydrates
- Q.** Which is closer to the source: applesauce or apple juice?
A. Apple sauce – juice has the fiber removed
- Q.** How do you estimate a serving size of protein, such as chicken?
A. It should be the size of your palm
- Q.** Name one white and one red fruit or vegetable.
A. White: Banana, cauliflower, parsnip, potato, Jicama, white corn, onion
Red: Strawberry, red bell pepper, raspberries
- Q.** What is the path of digestion?
A. Mouth, down esophagus to stomach to small intestine to large intestine then eliminated