

CLASSROOM ACTIVITIES

STAGE 3 LESSON THREE



Learning Outcomes

- **EN2-HANDW-02** uses digital technologies to create texts
- **EN2-RECOM-01** reads and comprehends texts for wide purposes using knowledge of text structures and language, and by monitoring comprehension



Resources and Preparation

Resources

Video (V)

- Video 10 - [How the digestive system works](#)
- Video 11 - [Journey inside your body to see how digestion works](#)

Worksheets (WS) and PowerPoints (PTT)

- Worksheet 11 - Brochure topics
- Powerpoint 1 - What happens in the body?
- Teacher Information Document (TID)

Materials

- Classroom Poster
- Laptops/computers with internet
- Access to Canva, Powerpoint or Google slides

Preparation

Prior to lesson

- Print out 1 page (topic) per student from WS11

What happens in the body?

This lesson will explore the journey of fruit and vegetables from ingestion to absorption. Students will learn how these foods are broken down and digested, and how vitamins are then absorbed and used by the body to stay healthy. Students create a (digital) brochure about a related topic.

Introduction (10 mins)

Explain to the students that, after exploring the journey of fruit/veg from seed to plant, and then from farm to fork, now they will explore the journey it takes when we eat it and what our body does with it. Brainstorm with the students about what they already know about this. Can they identify any body parts involved in the digestive system? And do they know what the body takes from the fruit/vegetables? (i.e. vitamins and energy).

Activity (80 mins, spread over multiple days if needed)

1. For more information on the digestive system, the class can watch a fun video about it (V10). Or for a more in-depth informative video, you can watch V11. Complete Week 3 on the classroom poster. Use PPT1 if needed.
2. Explain to the students that they will now be divided into groups and make a 1-page brochure. If needed, explain to the students what a brochure is and show how to make one. See an example in the TID.
3. Assign each group one of the 5 topics from WS11 and provide the matching information page to the groups.
5. On the topic page from WS11, the students will find information about their topic and leading questions they will need to find information on. They can use PowerPoint, Canva, Google Slides or even Word and find images on the internet. Alternatively, the brochure can be made on paper/ as a poster.

Conclusion (15 mins)

The brochures can be hung up on the classroom wall and each group of students can tell the class which topic they researched and what their main points were. The other students can ask the group questions about the topic.

Assessment

- For:** Students understand the concepts of digestion, energy and vitamins
- As:** Students make a visually appealing brochure with correct information
- Of:** Students were able to relay information about their topic in a brochure

Differentiation

- Extend:** Students can make an [online quiz](#) about their topic and quiz other students or even the wider school community
- Simplify:** Use PPT1 for a low-level look at digestion, and/or play the fun game from Stage 1 lesson 3.

School/Home Link

Hang the brochures near the canteen, or include the brochures in a 'science fair' and invite the school community.

Duration | 105 minutes

Topic 1: Vitamins

What are vitamins?

Vitamins and minerals are substances that are found in foods we eat. Your body needs them to work properly, so you grow and stay healthy.

Only two vitamins are made in the human body. For the other vitamins, that's where food comes in. Your body is able to get the vitamins it needs from the foods you eat because different foods contain different vitamins. The key is to eat different foods to get a variety of vitamins.

Scientists have identified 13 vitamins: A, eight B vitamins, C, D, E, and K. These vitamins can be come from a healthy diet filled with a variety of foods, including plenty of fruits and vegetables. The digestive system extracts the vitamins and minerals in the digested food, absorbing it into the bloodstream. These nutrients are delivered to the cells, which then absorb the ones they need.

The human body makes vitamins D and K on its own. The body makes vitamin D when the skin is exposed to sunlight. Bacteria in the intestines make vitamin K. Certain vitamins (the B vitamins and vitamin C) dissolve in water. The body stores a small amount of these vitamins but gets rid of most of those it does not use. Other vitamins (A, D, E, and K) do not dissolve in water. The vitamins that the body does not use right away are stored in the body's fat and liver. Getting too much of these vitamins can be dangerous over time.

Each vitamin has a special role to play. For example:

- Vitamin D in milk helps your bones.
- Vitamin A in carrots helps you see at night.
- Vitamin C in oranges helps your body heal if you get a cut.
- B vitamins in whole grains help your body make energy from food.

To research:

- How can we make sure to get enough vitamins?
- Are canned or frozen fruit and vegetables also a good source of vitamins?
- What type/group of foods have very little vitamins?
- What happens if we don't get enough vitamins?

Topic 2: Energy

What is energy from food?

Fruits and vegetables provide energy to your body. When you eat them, they are digested and your body makes energy out of them. The energy allows us to do many activities such as walking, sitting, speaking, playing, etc. Children also need energy to grow! But if an adult breaks their leg, they will also need energy to heal their bone. Or if you get sick, you use energy to fight the virus in your body! That's why you get so tired when you're sick: all the energy is used for making you better.

We can measure the amount of energy you get from your food! The unit of measure is kilojoules, or kj, or calories. You might have seen this on packages of food.

Energy comes from substances present in the food, called macronutrients. You get energy from carbohydrates, protein or fat. Each of these provide your body with different levels of energy.

So not every food gives you the same amount of energy!

This is the energy you get per macronutrient:

- Carbohydrates: 1 gram of carbohydrates gives you 17 kj
- Protein: 1 gram of protein gives you 17 kj
- Fat: 1 gram of fat gives you 38 kj

Foods are not 100% just one of the macronutrients above. They are often combinations and contain many more important nutrients that are also important to eat. Fruits and vegetables have carbohydrates, but they also have a lot of other things that help you grow and stay healthy. For example water, fibre, and vitamins. This makes fruits and vegetables an excellent and healthy source for energy!

To research:

- What type/group of foods give us the most energy? Why is it not good to only eat those type of foods?
- What fruit or vegetable will give you the most energy?
- How much energy should a child your age get from your food every day?
- How does it make you feel when you don't get enough energy from food?

Topic 3: Fibre

What is fibre?

Fibre is a type of carbohydrate found in plants that our digestive tract doesn't break down or absorb like other carbohydrates. It might sound like fibre doesn't play a huge role in your health, but it actually does.

There are two different types of fibre, soluble and insoluble. Both types are found in a variety of different plant foods, and each has its unique health benefits.

Soluble fibre dissolves in water and forms a gel-like substance that can help slow digestion. Soluble fibre is found in foods like oatmeal, nuts, beans, lentils, seeds, and some fruits and vegetables, like apples, blueberries, and brussels sprouts.

Insoluble fibre cannot dissolve in water. Instead, it helps give your stool some form that keeps our digestive system regular. Insoluble fibre is found in foods like wheat, whole-wheat bread, whole-grain products, brown rice, legumes (beans), and vegetables like carrots, cucumbers, and tomatoes.

Because insoluble fibre creates some form in our stools, it helps food move more easily through our digestive tract. This keeps our bowels regular and comfortable!

In addition to the specific benefits above, fibre can help:

- lower inflammation which can prevent disease in our gut (or digestive system)
- slow digestion which helps you not get hungry very quickly after eating
- help keep a healthy weight
- reduce the risk for certain types of cancers, heart disease, and obesity
- increase and improve healthy gut bacteria

To research:

- What type/group of foods give us the most fibre?
- What fruit or vegetable will give you the most fibre?
- How much fibre should a child your age get from your food every day?
- How does it make you feel when you don't get enough fibre from food?

Topic 4: Vitamin C

What is vitamin C?

Vitamin C, also known as ascorbic acid, is a vitamin. It is found in fruits and vegetables. It is one of the water-soluble vitamins.

Without enough vitamin C, a person can get a sickness called scurvy. Lack of vitamin C was a serious health problem on long ocean trips where supplies of fresh fruit were quickly used up. Many people died from scurvy on such trips. Vitamin C was first discovered in 1928. In 1932, it was proved to stop the sickness called scurvy. The fact that fruit was a cure for scurvy was known long before vitamins were known to exist, but it took a little while longer to understand it was vitamin C and how it works in the body.

Most animals make their own vitamin C. Some mammals, like monkeys and humans, cannot. Bats, capybaras and bats also cannot make vitamin C in their body. That means we have to make sure we get vitamin C from our food!

Vitamin C is important for keeping body tissues, such as gums, bones, and blood vessels in good shape. Vitamin C is important in wound healing: it helps you to heal any cut, scrapes and wounds. It also helps the body absorb iron from food. Iron is also important because that helps get oxygen to your cells!

Vitamin C may also help your body fight off infections. If you get a cold, for instance, vitamin C can help shorten the amount of time you are sick.

To research:

- What vegetables will give you the most vitamin C?
- What fruits will give you the most vitamin C?
- How much vitamin C should a child your age get from your food every day?
(can you find how many strawberries you would need to eat in a day to reach that level?)
- What happens if you don't get enough vitamin C from food?

Topic 5: Vitamin B

What is vitamin B?

There's more than one B vitamin. Here's the list: B1, B2, B6, B12, niacin, folic acid, biotin, and pantothenic acid. Whew – that's quite a group!

The B vitamins are important in metabolic (say: meh-tuh-BAH-lik) activity – this means that they help get energy from the food you eat and set it free when your body needs it. So the next time you're running to third base, thank those B vitamins.

This group of vitamins also helps make red blood cells, which carry oxygen throughout your body. Every part of your body needs oxygen to work properly, so these B vitamins have a really important job.

Vitamins B are water-soluble, meaning you can't really have too much in your body (because if there is too much, it will just come out with your pee!). If you don't have enough though, you'll get into trouble. A vitamin B deficiency can make you really tired, unable to sleep, get tingling in your hands and feet, and you might even get some problems with your heart. But don't worry; eating a balanced diet with fruits and vegetables is enough to get enough vitamins!

To research:

- What vegetables will give you the most vitamin B?
- What fruits will give you the most vitamin B?
- How much vitamin B should a child your age get from your food every day?
(can you find how much spinach you would need to eat in a day to reach that level?)
- What happens if you don't get enough vitamin B from food?