

A Note to Teachers

This lesson introduces the digestive system; the recommended activity for this lesson is **making poop**! That's right, poop. Students use resealable (Ziplock) bags and a pair of sheer tights to learn how crackers are digested! The hands-on, engaging activity helps students reinforce their learning.



We appreciate that everyone may not be comfortable with the poop-making activity. Here are some alternate options:

- **Create a Game:** Students can make a trivia game with information from slide 11 or these resources: National Geographic Kids [The Human Digestive System](#); Kids Health [Digestive System](#)
- **Code** an Ozobot digestive system path: [Coding Connections](#) slides are included at the [end of this slide deck](#)
- **Cut and Paste:** a [Interactive Digestive System Sheet](#) from Twinkl
- **Virtual:** [Gizmo](#) offers a “build your own digestive system”. Note: You need to sign up to access this resource.

A Note to Teachers

*This lesson could require more than **one** period.*



Before the lesson:

- **Decide on your activity:** make poop or use an alternative option from the list provided on the previous slide.
- Preview the two video options on slide 9 and choose the one that best suits your class.
- Gather supplies for your “build your own digestive system” activity. Details and a video are on the next slide.
- We provide an extension discussion to discuss allergies, gluten, and celiac disease as a consideration for your students and pizza customers.

A Note to Teachers

*This lesson could require more than **one** period.*



After the lesson:

- **Minds-On:** Ask students a simple question about the digestive system. If you would like something a little more, check out this [online quiz](#) or [Digestive System Multiple Choice Minds On](#) that could be done as a class.
- Check out the [Career Connections Slides](#) and view the Meet a Poop Doctor video, a fantastic conversation between a gastroenterologist and kids. This optional slide has been added at the [end of this lesson](#).
- Share your experience with Good in Every Grain! Tag us online @GoodinEveryGrain or send images of your in class experiences to web@gfo.ca

A Note to Teachers

Prepare for building a digestive system (hands-on)



Step 1: Educators should pre-watch this activity instruction video

Step 2: Consider the timing of the lesson

Step 3: Gather supplies

- Banana (½ per group)
- Crackers and/or Instant Oatmeal (3-4 per group) *dietary fibre
- Orange juice or vinegar (to represent stomach acid)
- Water
- Large Ziplock plastic bags
- 1 leg cut off a pair of sheer tights or knee high style (i.e., small intestine) ** Dollarama
- Gloves – small size (1 pair per student)
- Scissors
- A tray or large bowl
- 1 paper cup with a 1-cm hole (i.e., large intestine); additional paper cup as a plunger
- Slide 16 with instructions for students



A Note to Teachers

Steps for Making Poop!



1. Place the banana and crackers inside the Ziplock bag (“eat”). Slowly add a little bit of water (“saliva”).
2. Let all the air out and zip the bag shut. Then smash all the ingredients with your hands until no more clumps are present (“chew” your mix).
3. Squeeze the food into one end of the bag – it went from the mouth via the esophagus to the stomach. Add some acid to the mix (orange juice) and continue mashing it.
4. From the stomach, the snack needs to pass into the tights (small intestine). Tilt the bag up slightly and cut a small hole in one corner of the bag. (The corner you’re not tipping the mix toward!) Squeeze the contents of the bag into the cut-off tights while holding everything above the tray/bowl.
5. Squeeze the food through the tights. Keep squeezing to let the liquid run out. (Note that the water is actually absorbed in the large intestines!)
6. Eventually, cut the toe off the tights and squeeze the waste food out into the plastic/paper cup (“large intestine”). Make sure to cut a small (1-cm radius) hole in the bottom of the cup (“anus”).
7. Finally, push the waste food through the bottom of the cup onto the tray (“elimination”).

Expectations



Science - Human Health and Body Systems

B2.1 identify systems of the human body, and describe their basic function

B2.2 describe the basic structure and function of vital organs in various systems in the human body

B2.3 describe interrelationships between human body systems

Inquiry:

A1.2 use a scientific experimentation process and associated skills to conduct investigations

Extension:

B2.4 identify various diseases and medical disorders in humans and the organs and/or body system or systems that they affect



Stage 2 Lesson 1: Digestive System



Learning Goals



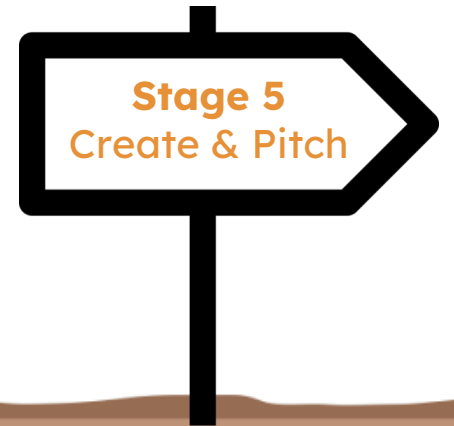
We will be able to...

- Identify and label the human digestive system.
- Describe the basic function of the digestive system.
- Develop an awareness of food allergies and how they may affect the immune system.



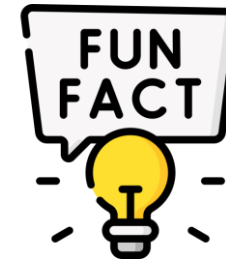
Business Connection

How will this learning help our business?



Minds ON!

When we eat pizza (or anything else), it travels through our digestive system.



**It takes 6-8
hours to
digest pizza!**



Minds ON!

What does the digestive system do?

	Class Vote Tally
A. Breaks down and eliminates waste	
B. Pumps blood throughout the body	
C. Helps you breathe	
D. Helps your arms and legs move	



The Digestive System



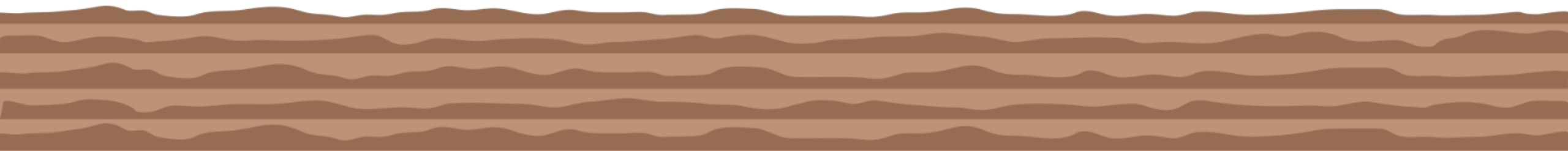
When designing a food product, we must consider where that food is going and who the consumer may be.

Let's learn about the **digestive system**.

The Digestive System

Let's review the video

The digestive system is a hardworking team of [redacted] that [redacted] the food we eat into the [redacted] and [redacted] our bodies need to stay alive and healthy, while carefully removing the [redacted] we don't need.



The Digestive System

Step 1: Mouth

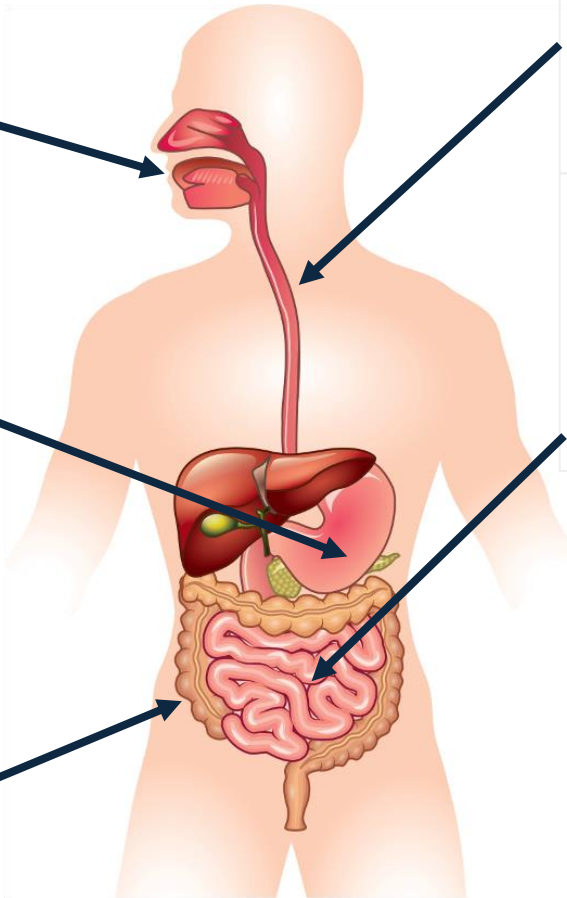
We chew food into small pieces with our teeth. The salivary glands produce saliva, which helps to break down food further.

Step 3: Stomach

Our food enters the stomach and hangs out there for a few hours. The stomach's strong muscular walls contract to churn up the food. It produces acids and enzymes that break down the food into usable nutrients for our bodies.

Step 5: Large Intestine

Anything that has not been digested in the small intestine passes to the large intestine. Here, water and some vitamins are absorbed into the body and any undigested food hardens and passes out of the anus as feces when we go to the toilet.



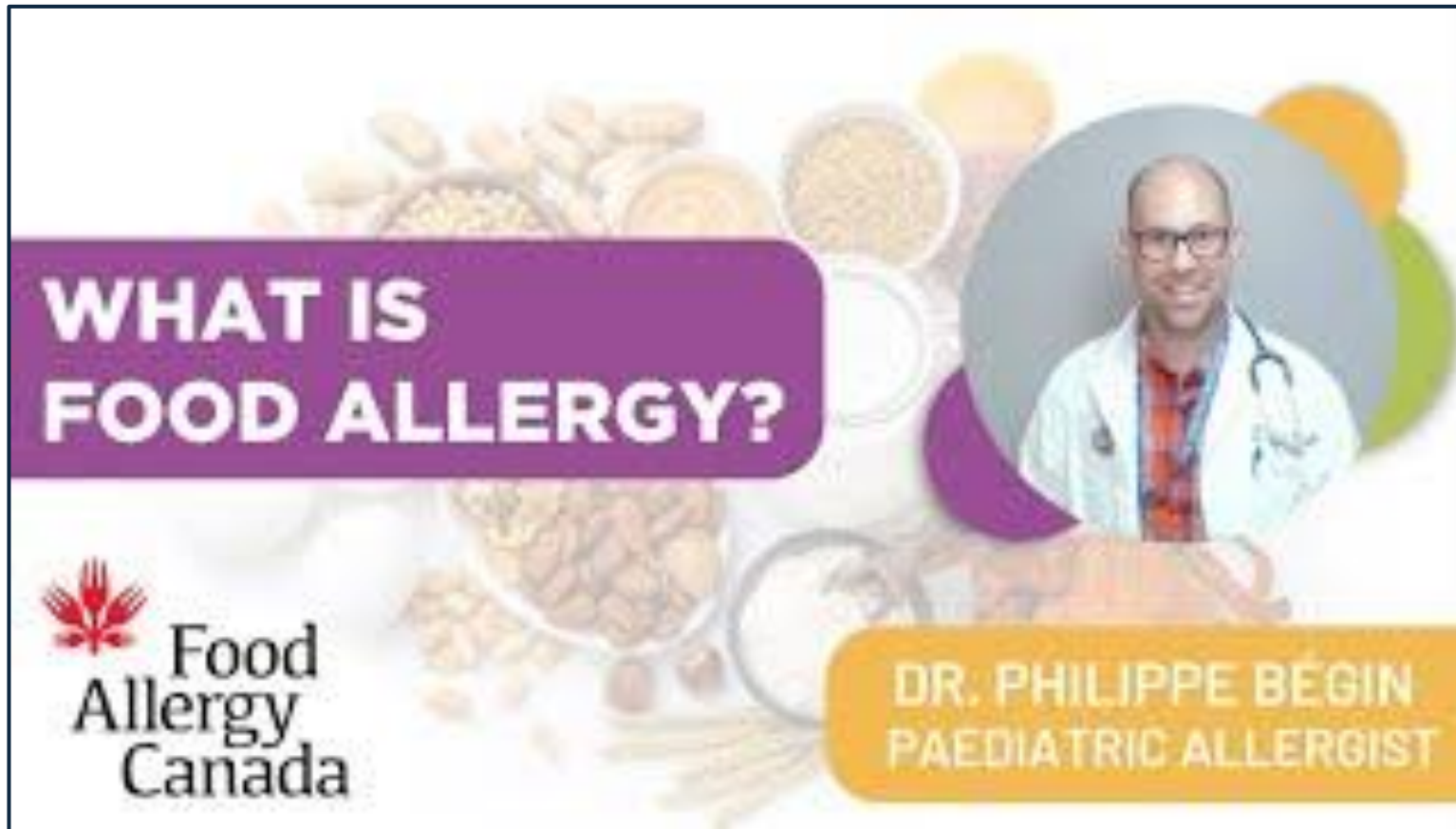
Step 2: Esophagus Once chewed, food is pushed back by our tongues into the esophagus when we swallow. The esophagus is a muscular tube that contracts and pushes food into the stomach.

Step 4: Small intestine The food moves into the small intestine. Most food is digested here. Nutrients are absorbed through the wall of the small intestine and taken back into the body as food is pushed along. Water is also absorbed from the food.

Fun Fact!

The **liver** and the **pancreas** work together with the small intestine to provide chemicals that help break nutrients down into smaller parts!

Extension - What is an Allergy?



What do we need to keep in mind for our pizza business?

Extension - Gluten and Celiac Disease

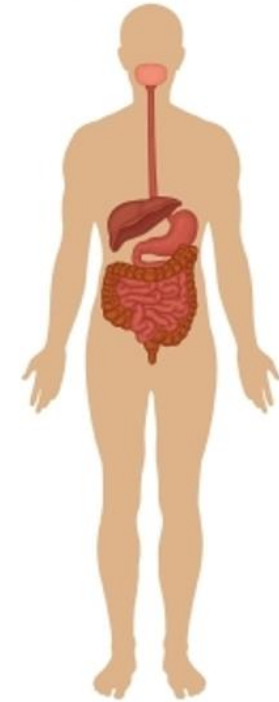


What do we
need to keep
in mind for
our pizza
business?

Action 1: Building the digestive system

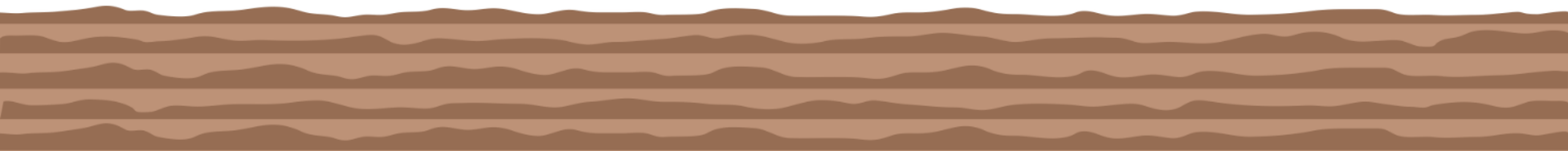
Let's build a digestive system!

We will work in our business groups to build our own digestive systems and see how they work.



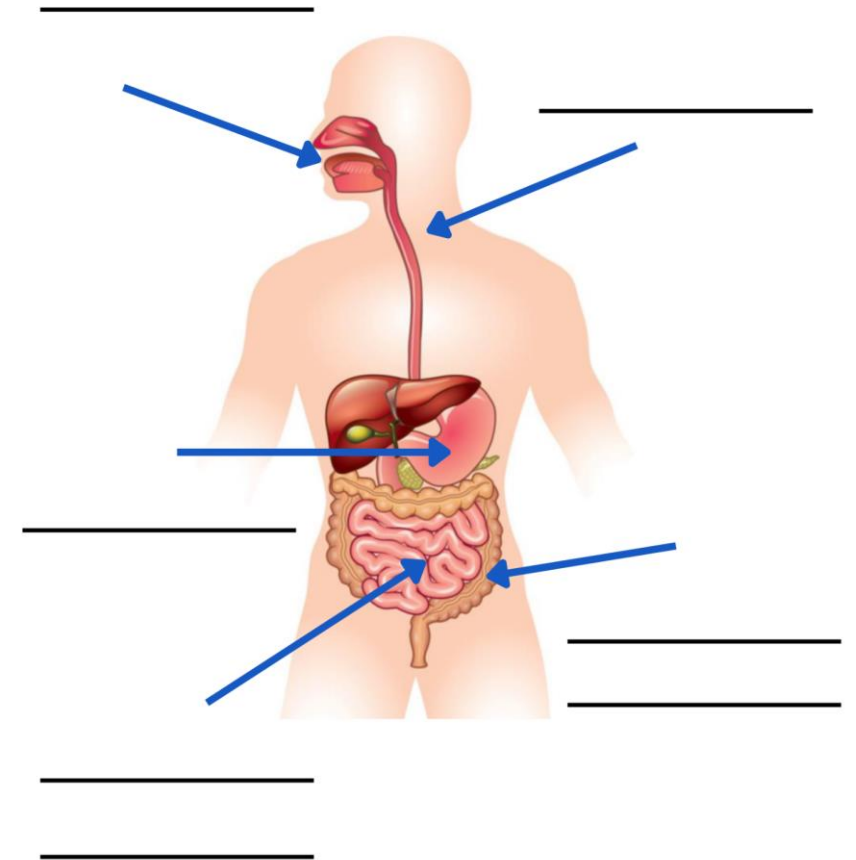
Steps for Making Poop!

1. Place the banana and crackers inside the Ziplock bag (“eat”). Slowly add a little bit of water (“saliva”).
2. Let all the air out and zip the bag shut. Then smash all the ingredients with your hands until no more clumps are present (“chew” your mix).
3. Squeeze the food into one end of the bag – it went from the mouth via the esophagus to the stomach. Add some acid to the mix (orange juice) and continue mashing it.
4. From the stomach, the snack needs to pass into the tights (small intestine). Tilt the bag up slightly and cut a small hole in one corner of the bag. (The corner you’re not tipping the mix toward!) Squeeze the contents of the bag into the cut-off tights while holding everything above the tray/bowl.
5. Squeeze the food through the tights. Keep squeezing to let the liquid run out. (Note that the water is actually absorbed in the large intestines!)
6. Eventually, cut the toe off the tights and squeeze the waste food out into the plastic/paper cup (“large intestine”). Make sure to cut a small (1-cm radius) hole in the bottom of the cup (“anus”).
7. Finally, push the waste food through the bottom of the cup onto the tray (“elimination”).



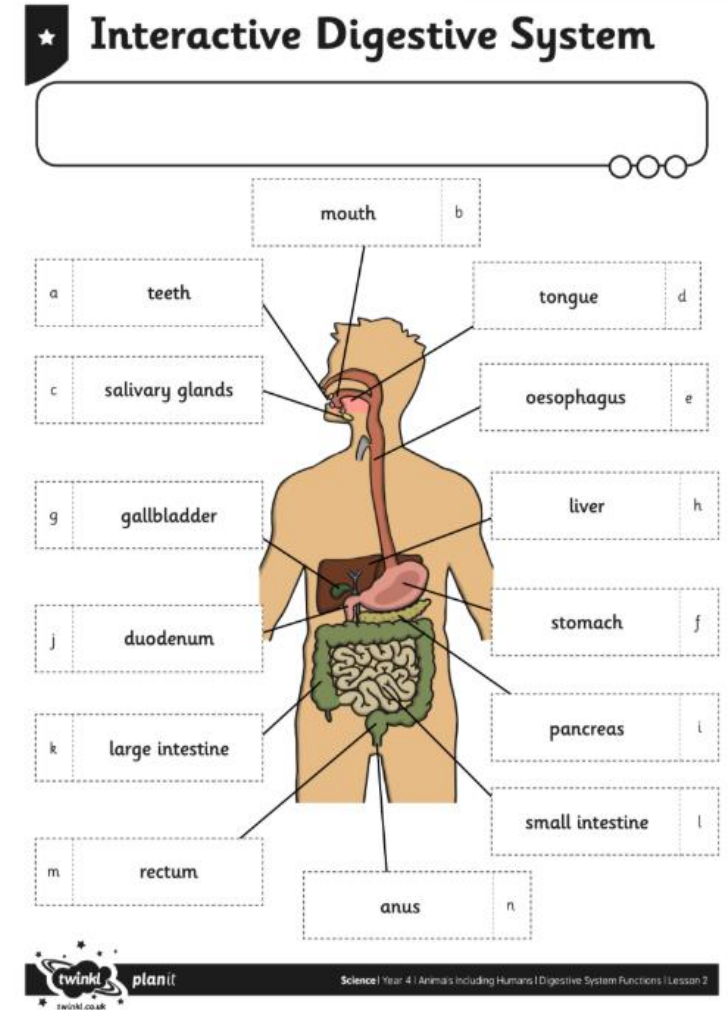
Action 2: Draw and label it!

Show off all the progress you have made in this lesson by drawing the digestive system. Include the names of the organs and functions you have learned.



Action 3: Cut and paste

Show off all the progress you have made in this lesson by correctly cutting and pasting the digestive system parts and functions.



Wrap Up

Now that we understand the role of the digestive system,
what do we need to remember when making our pizza
business?

Write your idea on a sticky note and add it to a **THINGS TO
CONSIDER** chart!



Check In – What's Next?





Career Connections



The Digestive System



What is a gastroenterologist?



Coding Connections



The Digestive System with Ozobot

Materials

- Ozobot(s)
- Markers (Black, Green, Red and Blue)
- White paper (or GOOS paper)



Your Task: Create a model of the digestive system with paths for your Ozobot to follow.

The Ozobot must travel from the **mouth** to the **rectum** and go through the **esophagus**, **stomach**, **large intestine** and **small intestine** on its way out of the body.

BONUS: add salivary glands, liver, gallbladder and a pancreas to your model.