

# ORGAMITES®

IT'S WHAT'S INSIDE THAT COUNTS

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THE MIGHTY EDUCATION PROGRAM

## TOOLKIT 1: MIGHTY ME

LESSON PRESENTATION NOTES



IN PARTNERSHIP WITH



# LESSON PRESENTATION SLIDES

## EXPRESS VERSION and FULL VERSION

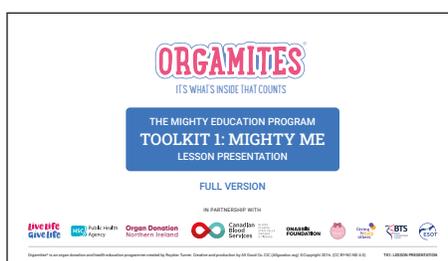
	<p><b>Let's get to know our organs!</b></p> <p>Organs are the different working parts that do all of us.</p> <p>Can you guess the mighty organs you have?</p>	<p><b>Did you guess right?</b></p> <p>There are around 400 people on the organ transplant waiting list in the UK each year. Without the organs that we have, we wouldn't be able to live.</p> <p><b>78</b></p>	<p><b>They are our vital organs</b></p> <ol style="list-style-type: none"> <li>1. Brain</li> <li>2. Heart</li> <li>3. Lungs</li> <li>4. Kidney</li> <li>5. Small Bowel</li> </ol>	<p><b>Did you know?</b></p> <p>There are about 400 people on the organ transplant waiting list in the UK each year. Without the organs that we have, we wouldn't be able to live.</p>	<p><b>They're called the mighty organs (also known as the Orgamites)</b></p> <p>The mighty organs are:</p> <ol style="list-style-type: none"> <li>1. Brain</li> <li>2. Heart</li> <li>3. Lungs</li> <li>4. Kidney</li> <li>5. Small Bowel (not small intestine)</li> <li>6. Pancreas</li> </ol>
<p><b>These are the organs most needed for organ donation and transplantation.</b></p> <p>This means that if a person's mighty organs aren't working well, they can be replaced with new ones from another person (called an organ donor).</p> <p>The operation that makes this possible is called an organ transplant.</p>	<p><b>Did you know?</b></p> <p>There are around 400 people on the organ transplant waiting list in the UK each year. Without the organs that we have, we wouldn't be able to live.</p>	<p><b>Let's meet our mighty organs...</b></p>	<p><b>Meet Captain Marrow</b></p> <p>He's the right in the middle of your brain. Your brain is the most important part of your body. Without it, you wouldn't be able to think, feel or move.</p>	<p><b>Meet Heart</b></p> <p>Whether you're awake or asleep, your heart is always working hard to pump blood to every part of your body.</p>	<p><b>Meet the Lungs</b></p> <p>They take the oxygen you breathe in and send it to every part of your body. They also get rid of the carbon dioxide that you breathe out.</p>
<p><b>Meet Small Bowel</b></p> <p>It's a long, thin, tube-like organ that helps you digest your food. It's about 6 meters long and is made up of many small parts called villi.</p>	<p><b>Meet Pancreas</b></p> <p>This organ helps you digest your food. It's about 10 centimeters long and is made up of many small parts called islets.</p>	<p><b>Meet Liver</b></p> <p>As one of the largest organs in your body, the liver has many jobs to do. It helps you digest your food, stores energy, and filters out toxins from your blood.</p>	<p><b>Meet Kidney</b></p> <p>Each kidney filters out the waste out of your blood. They also help you control your blood pressure and produce hormones.</p>	<p><b>Meet Eye</b></p> <p>Like a camera, your eyes help you see the world around you. They also help you control your blood pressure and produce hormones.</p>	<p><b>Let's do a quick recap!</b></p> <ol style="list-style-type: none"> <li>1. Can you name your vital organs?</li> <li>2. Can you name your mighty organs?</li> <li>3. Why might someone choose to donate their organs?</li> <li>4. Why might someone choose not to donate their organs?</li> <li>5. Why is it important to talk with your family about your donation wishes?</li> </ol>
<p><b>So what have we learnt today?</b></p> <p>We are all made up of many parts called organs.</p> <p>Some of our organs are called our vital organs.</p> <p>Some of our organs are called our mighty organs.</p> <p>Some of our organs are called our Orgamites.</p>	<p><b>What next?</b></p> <ol style="list-style-type: none"> <li>1. Show the conversation that shows organ donation.</li> <li>2. Make the Mighty Phrase.</li> <li>3. Make the Mighty Card.</li> <li>4. Make the Mighty Book.</li> </ol>	<p><b>ORGAMITES</b></p> <p>Our world's greatest organ donors are the Orgamites. They are the most important parts of your body. Without them, you wouldn't be able to live.</p>	<p><b>IT'S WHAT'S INSIDE THAT COUNTS!</b></p>	<p><b>ORGAMITES</b></p> <p>For more health, happiness and organ donation, visit us at <a href="http://AllGoodCo.org">AllGoodCo.org</a></p>	<p><b>ORGAMITES</b></p> <p>For more health, happiness and organ donation, visit us at <a href="http://AllGoodCo.org">AllGoodCo.org</a></p>
	<p><b>Let's get to know our organs!</b></p> <p>Organs are the different working parts that do all of us.</p>	<p><b>Can you guess how many organs you have?</b></p> <p><b>?</b></p>	<p><b>Did you guess right? How many can you name?</b></p> <p><b>78</b></p>	<p><b>There are five organs we really can't live without.</b></p> <p><b>5</b></p>	<p><b>They are our vital organs</b></p> <ol style="list-style-type: none"> <li>1. Brain</li> <li>2. Heart</li> <li>3. Lungs</li> <li>4. Kidney</li> <li>5. Small Bowel</li> </ol>
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<p><b>Where is Captain Marrow?</b></p> <p>He's in the middle of your brain. Your brain is the most important part of your body. Without it, you wouldn't be able to think, feel or move.</p>	<p><b>Did you know?</b></p> <p>Whether you're awake or asleep, your heart is always working hard to pump blood to every part of your body.</p>	<p><b>Meet Heart</b></p> <p>Whether you're awake or asleep, your heart is always working hard to pump blood to every part of your body.</p>	<p><b>Where is Heart?</b></p> <p>It's in the middle of your chest. Your heart is the most important part of your body. Without it, you wouldn't be able to think, feel or move.</p>	<p><b>Did you know?</b></p> <p>Whether you're awake or asleep, your heart is always working hard to pump blood to every part of your body.</p>	<p><b>Meet the Lungs</b></p> <p>They take the oxygen you breathe in and send it to every part of your body. They also get rid of the carbon dioxide that you breathe out.</p>
<p><b>Where are the Lungs?</b></p> <p>They are on either side of your chest. They take the oxygen you breathe in and send it to every part of your body. They also get rid of the carbon dioxide that you breathe out.</p>	<p><b>Did you know?</b></p> <p>It's a long, thin, tube-like organ that helps you digest your food. It's about 6 meters long and is made up of many small parts called villi.</p>	<p><b>Meet Small Bowel</b></p> <p>It's a long, thin, tube-like organ that helps you digest your food. It's about 6 meters long and is made up of many small parts called villi.</p>	<p><b>Where is Small Bowel?</b></p> <p>It's in the middle of your abdomen. It helps you digest your food. It's about 6 meters long and is made up of many small parts called villi.</p>	<p><b>Did you know?</b></p> <p>It's a long, thin, tube-like organ that helps you digest your food. It's about 6 meters long and is made up of many small parts called villi.</p>	<p><b>Meet Pancreas</b></p> <p>This organ helps you digest your food. It's about 10 centimeters long and is made up of many small parts called islets.</p>
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<p><b>What else can Living Donors donate?</b></p> <p>Living donors can donate one of their organs to someone who needs it. This can be a family member, a friend, or even a stranger.</p>	<p><b>Now let's meet someone truly mighty...</b></p>	<p><b>Logan Boulet</b></p> <p>Logan Boulet is a young boy who has a rare condition called Fanconi anemia. He has had several organ transplants, including his liver, kidneys, and small intestine.</p>	<p><b>What is the Logan Boulet Effect?</b></p> <p>The Logan Boulet Effect is a rare condition that causes a person's organs to be rejected by their immune system. This is because the organs are not recognized as their own.</p>	<p><b>Logan's effect lives on!</b></p> <p>Logan's story has inspired many people to donate their organs. His legacy lives on through the lives of many people who have received organ transplants.</p>	<p><b>Let's do a quick recap!</b></p> <ol style="list-style-type: none"> <li>1. Can you name your vital organs?</li> <li>2. Can you name your mighty organs?</li> <li>3. Why might someone choose to donate their organs?</li> <li>4. Why might someone choose not to donate their organs?</li> <li>5. Why is it important to talk with your family about your donation wishes?</li> </ol>
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# HOW TO USE THIS RESOURCE

These are the supporting notes to the **'Mighty Me'** Teacher Lesson Presentation. It provides additional facts and helpful info that teachers can use to plan and make their lessons even more memorable. Please refer to the **'Teacher Overview'** for all the additional resources available to really bring the lessons to life.

There are two versions of the **'Teacher Lesson Presentation'**: The **EXPRESS VERSION** is perfect for younger children and can be covered in a single lesson. The **FULL VERSION** is ideal for all other age groups, and includes more insights about each organ and how to care for them. If this version is supplemented by the **'Object Lessons'** resource, it can be spread over several lessons. Additional case studies can be found in the **'Additional Teacher Resources'** - allowing the concept covered to be grounded in realistic stories that highlight the difference organ donation really makes in some kids' lives.

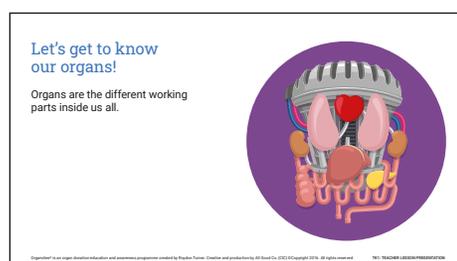
## COVER OF EACH VERSION (SLIDE 1)



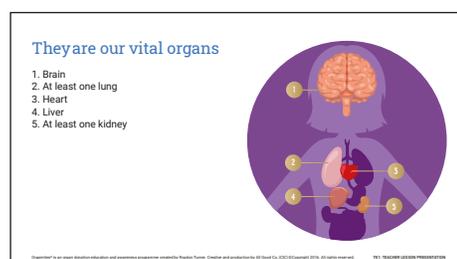
**Please note: The below notes refer to the FULL VERSION slides. However, the content below is easy to adapt should you wish to use the shorter EXPRESS VERSION.**

## GET TO KNOW YOUR ORGANS! (SLIDES 2-6)

The topic of organs is introduced over slides 2–4. To make the lesson as interactive and participative as possible, pause whenever there is a question on the slide to ask your class what they think, making time to hear several answers and opinions.



Slides 5–6 then briefly introduce our vital organs. These are the organs vital for survival. They are the heart, brain, kidneys, liver, and lungs. If any of these five organs stops functioning, without medical intervention, a person's life will stop too.



# THE MIGHTY ORGANS, ORGAN DONATION AND TRANSPLANTATION

(SLIDES 7–10)

Slides 8–10 introduce the Organites. They are the ‘mighty organs’ because they represent the organs most needed for organ donation and transplantation. To increase the level of interaction, you could ask your class:

- Which of the vital organs are also mighty organs? (Answer: Lungs, Liver, Kidneys, Heart)
- Which vital organ is not a mighty organ? (Answer: Brain)
- Why do you think that is?

Slides 9–10 briefly elaborate on the concepts of organ donation and transplantation, and the need for it within your own country.

Transplantation is the actual process whereby a doctor moves an organ from one person to another. This happens only if the person receiving a new organ really needs one and could die if they don’t get it. That’s why organ donors are a little like superheroes... when someone chooses to give their organs to someone else when they no longer need them, they’re really saving lives!

**Did you know?**

There’s another group of organs that are not only important but move-able too!

*Do you know what they’re called?*



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**They’re called the mighty organs (also known as the Organites)**

The mighty organs are:

1. Bone (Captain Marrow)
2. Heart
3. Liver
4. Kidney
5. Lungs (Left & Right)
6. Eye (Cornea)
7. Small Bowel (or Small Intestine)
8. Pancreas



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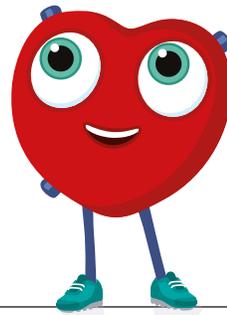
**These are the organs most needed for organ donations and transplantations**

This means that if a person’s mighty organs stop working or aren’t working well, they can be replaced with new ones from another person (called an **organ donor**).

The operation that makes this possible is called an **organ transplant**.



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**Did you know?**

There are around 4,400 people on the organ transplant waiting list in Canada right now!

One organ donor can save up to eight lives and improve the lives of many more!



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## MEET YOUR MIGHTY ORGANS

(SLIDE 11)

For each of the mighty organs that follow, the slides introduce the character, highlight its main function, elaborate on where in the body it is located, offer a fascinating ‘Did You know?’ fact, as well as a top tip to help keep that organ in top-tip shape.

Let’s meet our mighty organs...



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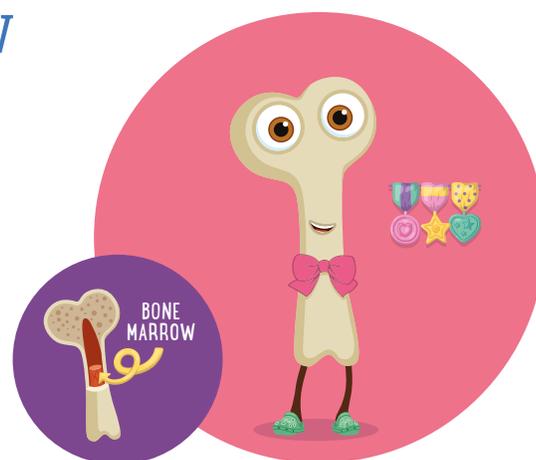
Along with the info on the slide, you may want to ask your students to guess where each organ is located and what they think that organ’s main job is, before revealing the info on the slide.

# MORE ABOUT CAPTAIN MARROW

(SLIDES 12–14)

## More fascinating facts about our bones and Captain Marrow:

- Unlike the other organs, Captain Marrow represents your bone marrow and the stem cells inside it. His main job is to make the billions of blood cells you need to survive.
- Bone marrow is mostly found in the flat bones such as the hip bone, breastbone, skull, ribs, vertebrae and shoulder blades. It is also found at the end of the long upper arm bone (the humerus) and the thigh bone (the femur).
- You're born with about 300 bones but as you grow older, some fuse together until you're left with around 206!
- Your marrow makes about 2 to 3 million red blood cells *every second*, and about 173 to 259 billion red blood cells *every day*!
- Red marrow stem cells make red blood cells (to carry oxygen), white blood cells (to defend your body against infections) and platelets (to clot your blood and stop the bleeding when you scrape a knee or cut your finger). Yellow bone marrow is made mostly of fat and contains stem cells that can become cartilage, fat, or bone cells.
- Stem cells are very special because they can adapt to become whatever cells the body needs—renewing and even copying themselves through cell division. Unlike other cells, they can divide over and over again to produce new cells. As they divide, they can change into whatever other types of cells the body needs!
- **A bone marrow transplant takes healthy stem cells from a living donor and puts them into the recipient's bloodstream. The donor's cells then help another person's body grow healthy red and white blood cells and platelets. A transplant like this can save the life of someone battling leukemia, lymphoma, or another blood cancer. In fact, over 80 serious diseases can be treated from these super stem cells! When a person needs a bone marrow transplant, they can't just take anybody's old marrow. They have to find the perfect match.**
- **Over 1 million stem cell transplants using bone marrow, peripheral blood and cord blood have been performed so far!**
- **70% of patients in need of a marrow transplant do not find a matching donor in their family. To register as a bone marrow donor, when you're over 16, you need only swab the inside of your cheek. The DNA on this little swab provides all the info needed to determine if you could be a match for someone else. After donation, bone marrow replaces itself within just four to six weeks!**



## Additional health tips:

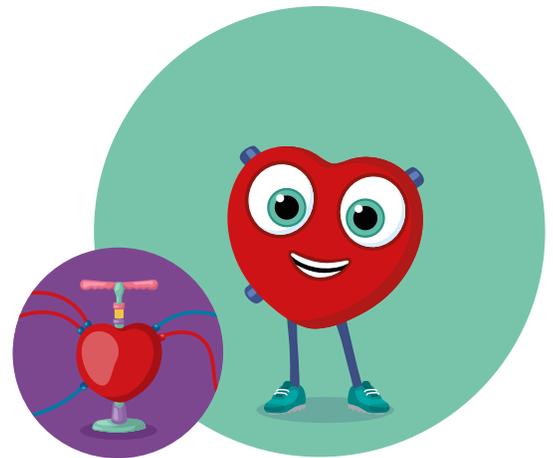
- Eat protein every day. Eat food like lean meats, fish (especially sardines and tuna), beans, lentils, nuts, milk and eggs. The amino acids in these protein-rich foods form the building blocks for our own healthy cells.
- Pump up on iron. Eating iron-rich foods is one of the best gifts you can give Captain Marrow. This helps him to make new red blood cells (which are loaded with iron). Vitamins like B9, B12 and folic acid are important too.
- Run! Running isn't just good for your heart, it can actually improve your bone strength and bone marrow too.

# MORE ABOUT THE HEART

(SLIDES 15–17)

## More fascinating facts about our hearts:

- The heart has four chambers, two on the right and two on the left. The right side of the heart pumps oxygen-poor blood to the lungs, where it picks up oxygen and gets rid of carbon dioxide. The left side of the heart then pumps oxygen-rich blood returning from the lungs to the rest of your body, where it delivers oxygen and other nutrients to your cells.
- About the size of your two hands clasped together, your heart pumps oxygenated blood (filled with oxygen and nutrients) through a maze of tubes called arteries. Other tubes called veins then bring the deoxygenated blood back (filled with CO<sup>2</sup>) back to your heart.
- No two hearts are alike. Every heart is as unique in appearance as its owner's face! Still, you can't tell which heart belongs to which person – no matter their race, religion or gender. So in the most important sense – we're all the same inside, and it's what's inside that really counts.
- Another important function of the heart is to help regulate your body's blood pressure. Blood pressure is the force of blood against the walls of your blood vessels. The heart does this by contracting and relaxing its muscles to help control the flow of blood throughout your body.
- The heart also plays a role in your body's immune system. It contains special cells called immune cells that help to protect your body from germs and other harmful substances.
- An electrical impulse controls the timing of each heartbeat and in healthy people, it never stops or goes out of sync! Thanks to this home-grown electrical supply, a heart can carry on beating for a while, even when separated from the body. This is why heart transplants are even possible.
- The fairy fly, which is a kind of wasp, has the smallest heart of any living creature. Measuring just 0.006 of an inch long, you'd need a really big microscope to see this tiny heart!
- The blue whale has the largest heart of all. This big-hearted fellow has a heart the size of a Mini car, weighing over 680kg (1,500 pounds)!
- If you took out all your blood vessels and laid them out in a line – which you absolutely, positively, definitely should NOT do – they could stretch around the entire world more than *twice*!
- **Around the world, someone gets a heart transplant every two hours. A heart transplant gives the healthy heart from a donor who has passed away, to another person (called the recipient) whose own heart isn't working properly. It's the ultimate act of kindness – allowing love and life to live on.**



## Additional health tips:

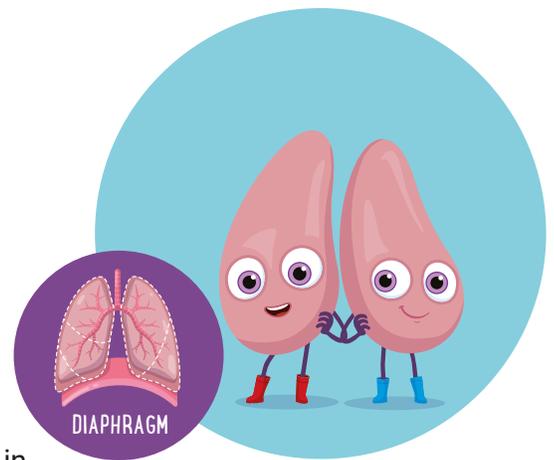
- To keep your heart happy and healthy – eat lots of heart-friendly foods, like leafy greens, omega-3-rich fish, legumes, nuts, fresh fruit and berries.
- Up those beats. Regular exercise is the single best thing you can do to take care of your heart and keep it beating stronger for very longer.
- Stress less. It's not just diet and exercise that lead to a happy heart – it's happy feelings too! When you're very worried and stressed, your heart gets a bit stressed too!

# MORE ABOUT THE LUNGS

(SLIDES 18–20)

## More fascinating facts about our lungs:

- Your left lung's a bit smaller than the right lung, to make room for your heart.
- Inhaling and exhaling are equally important. Our cells need the oxygen supplied by our in-breath, but without breathing back out, our bodies would retain too much dangerous CO<sup>2</sup>.
- Your lungs are controlled by your brain. The respiratory center in your brain is made up of lots of different parts that are constantly measuring how much oxygen you need. Using information collected from your chemoreceptors, your brain never stops making sure that there's enough oxygen and not too much carbon dioxide in your bloodstream.
- There are 300 000 000 alveoli (tiny balloon-like structures) in each of your lungs. If you were to spread all your alveoli out on the ground – yours could cover the entire surface of a tennis court!
- Denmark's Stig Severinsen currently holds the Guinness World Record for the longest free dive – in 2010, he held his breath underwater for 22 minutes.
- When you breathe in, your body uses just 5% of the oxygen you've inhaled. The rest is exhaled back into the air around you.
- Your lungs are never completely full! Even at maximum exercise intensity, we only use about 70% of our lung's capacity.
- Your lungs are never completely empty! When you breathe out, you don't actually breathe all the air out your lungs – about a litre of it sticks around! That's why they are also the only organ that can float.
- Horses can only breathe through their nostrils.
- Dolphins can exhale air really fast - up to 100 mph. When dolphins inhale, they exchange up to 80% of the contents of their lungs, helping them to hold their breath up to seven minutes. By comparison, we only exchange 17% of the air in our lungs when we breathe.
- One turtle species can breathe through their butts! The Fitzroy River turtle has a very cool party trick indeed!
- While two is always better than one, many people live with just one lung. As long as they don't do too much heavy exercise, these folks can lead a fairly normal life.
- **If a person has a lung disease or a damaged lung, a lung transplant can dramatically improve (and even save) their lives. During a lung transplant, one or both lungs are replaced by lungs from a donor. Donor lungs can be taken from a living or deceased donor.**



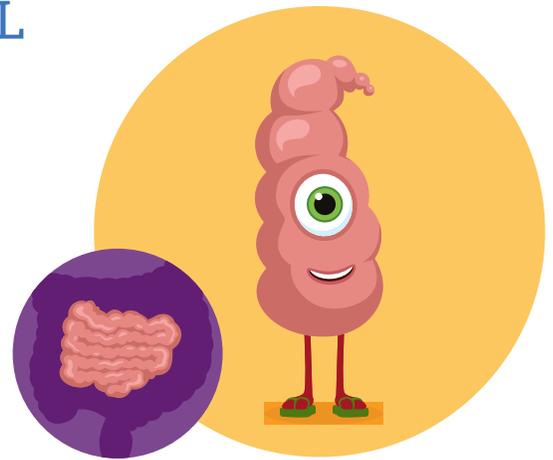
## Additional health tips:

- Breathe deeper. This isn't just good for your lungs, it's especially good for your brain too. Slow, deep breathing stimulates the vagus nerve, which makes us feel calmer, more focused and happier too.
- Fight for fresh air. Spending too much time in places with no fresh air is no good for your lungs. As much as is possible, try to avoid too much time where there's heavy traffic pollution, chemical fumes, smoke, and secondhand cigarette smoke.
- Get a little breathless. Moderate exercise which leaves you feeling breathless will improve your lung capacity and overall health.

# MORE ABOUT THE SMALL BOWEL (SMALL INTESTINE) SLIDES 21–23

## More fascinating facts about our small bowels:

- The small bowel is a long, tube-like organ that carries food from your stomach to your large intestine, sucking up (or absorbing) 90% of your body's nutrients along the way.
- It uses **enzymes** and other substances to break down the food into small pieces that can then be absorbed into the bloodstream and sent to each cell to use for energy.
- Measuring in at about four times your height, your small bowel is not small at all - it's actually the longest organ in your body!
- There are 10 times as many microbes (tiny living things) as there are cells in your body! Most are in your gut.
- No two biomes are alike! Every person has a unique collection of microorganisms living in their gut making up its very own microbiome. Even identical twins have different ones!
- Your gut has more neurotransmitters than the brain! These are nerves that affect how you feel and act. Your gastrointestinal tract also contains most of your serotonin (which is the hormone that makes you feel happy and that helps you to sleep well).
- Also known as your 'second brain' your gut can even continue to function if disconnected from your actual brain! Still, your gut prefers to stay in constant communication with your brain (via the vagus nerve).
- Your enteric nervous system in your gut is made up of over 100 million nerve cells that monitor your entire digestive system – from top to literal bottom.
- Your poop contains trillions of bacteria, which help keep your digestive system healthy by breaking down food and absorbing nutrients. Some bacteria also produce vitamins we need, like Vitamin K.
- Most people poop between three to 21 times a week, according to a 2013 study. However, the frequency of bowel movements varies from person to person and depends on factors like diet and activity level.
- On average, it takes about 4 hours for your food to travel from the start of your small bowel to the end. Travel times vary depending on what kind of food you eat!
- 70% of your immune system is found in your gut!
- **Small bowels can be swapped! Although the stomachs and large intestines are very important, only the small bowel is transplantable. So when we no longer need it, once we pass on, we can choose to donate it to someone who's small bowel might be too damaged or diseased to carry on working properly.**



## Additional health tips:

- Keep your small bowel smiling by eating healthy meals packed with nutrients, fibre and fresh ingredients. And drink enough water too—otherwise you could get constipated.
- Call in the pros. Probiotics are good bacteria – they're the ones that help to strengthen your immune system and keep your gut happy and healthy. By adding probiotics to your diet, you can keep your microbiome beaming. Yoghurt, kimchi and kefir are all foods packed with probiotics.
- Stress less and sleep more. When we worry, our guts receive an influx of adrenalin. This hormone shuts down our digestion and can cause bloating. Getting enough sleep also aids in your digestion.

# MORE ABOUT THE PANCREAS

(SLIDES 24–26)

## More fascinating facts about our pancreas:

- An important part of your body's digestive system, the pancreas produces essential digestive juices and makes sure your blood sugar levels are stable so that you have energy throughout the day.
- When you eat, the pancreas releases enzymes into your small bowel, where they help to break down the food into small pieces that your body can use for energy.
- The pancreas is really two separate glands inside the same organ. The exocrine gland makes enzymes to break down fats and proteins in the food we eat, while the endocrine gland makes the hormones needed to stabilise your blood sugar levels.
- The pancreas plays a role in your body's immune system too. It contains cells called lymphocytes, which help to protect your body by attacking harmful germs and other baddies that try to invade your body.
- The venom of a Brazilian scorpion can cause pancreatitis. When this happens, the digestive enzymes in the pancreas go rogue and start to digest the pancreas itself! Luckily, in most cases, doctors can treat this terrible condition.
- Up until the 19th century, doctors believed that the pancreas was simply a fancy-shaped shock absorber to protect your stomach!
- The pancreas also produces two hormones called insulin and glucagon, which work together to help keep your blood sugar levels stable. Insulin is released when you have too much sugar in your blood, and glucagon is released when you don't have enough sugar. Too much sugar is bad for our teeth and can put too much strain on our pancreas. When this happens, our pancreas can stop making insulin—causing the levels of sugar in our blood to shoot up and then crash down. This dangerous condition is called diabetes.
- TYPE 1 DIABETES isn't only caused by too much sugar, there can be lots of reasons (including our genes). TYPE 2 DIABETES develops over time, and the pancreas usually still manages to produce a bit of insulin.
- The pancreas has taste receptor cells that let it sense the presence of sugar in your blood. It uses this info to work out how much insulin or glucagon to add to your blood!
- **Pancreas transplants are mostly done for people with severe TYPE 1 DIABETES. They are not as common as kidney or liver transplants and are often conducted as a double transplant with the kidney. It's a really tricky operation too, so donating your pancreas (when you're done using it) could lead to one of just 200 pancreas transplants performed each year!**



## Additional health tips:

- Go easy on the sweet stuff. Don't eat too many sugary, refined foods.
- Become a sugar spy. Look out for sneaky names for sugars in the snacks, drinks and food you eat.
- Eat more fresh, healthy food. To get your pancreas healthy, eat foods that are rich in protein, low in animal fats, and that contain loads of antioxidants. Lean meats, beans and lentils, clear soups, and dairy alternatives (such as flax milk and almond milk) are all easy for your pancreas to process!

# MORE ABOUT THE LIVER

(SLIDES 27–29)

## More fascinating facts about our livers:

- An essential part of your body’s digestive system, this mighty organ is the second largest organ in your body (after your skin) and one of the busiest: with over **500 jobs** to do.
- One of the main jobs of the liver is to help your body digest food. When you eat, your liver helps to break down the food so your body can use it for energy. It does this by producing digestive enzymes and bile.
- The only organ that has a dual blood supply from both the portal vein and the hepatic artery, 1.5 litres of blood is pumped through your liver every single minute!
- The liver consists of 2 main lobes, made up of 8 segments each, with 1,000 lobules (small lobes) in each of those. Like a sieve, anything that you eat or drink (after being absorbed by the small bowel) gets filtered through these lobules—and any harmful toxins are swiftly removed from your system.
- Ideally positioned to detect pathogens entering the body via the gut, your liver is perfectly designed to detect, capture, and kick out dangerous bacteria, viruses, and macromolecules from your system. It also gets rid of bilirubin, a yellowish substance that’s made when old red blood cells are broken down. If there is too much bilirubin in your system, your skin and eyes turn yellow. In babies, this is called jaundice.
- The liver plays an important role in helping your body maintain healthy levels of sugar in your blood. It does this by storing sugar when you have too much, and releasing it when you need it for energy. This helps to keep your blood sugar levels stable.
- **Your liver has the amazing ability to regenerate itself, making liver transplants possible. When people donate half their liver, the remaining part of their liver regenerates the part that was removed. In fact, just a quarter of your liver can ‘regrow’ to its original size (and function just as well) in just a few weeks.**



## Additional health tips:

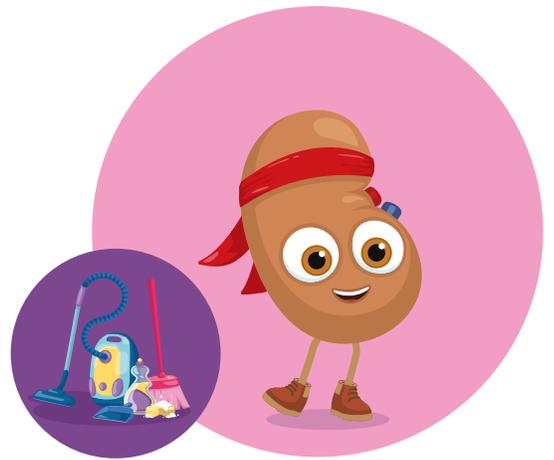
- Get enough Vitamin D. Apart from playing outdoors in the sunshine, fortified orange juice, salmon, sardines and beef liver are all great sources of Vitamin D.
- Eat and live clean. Livers can be damaged if a person drinks too much alcohol or takes dodgy drugs. Eating too much greasy, processed, unhealthy food is also not good for your liver.
- Eat the foods your liver loves. Like broccoli, kale, cabbage, cauliflower, nuts, grapes and berries.

# MORE ABOUT THE KIDNEYS

(SLIDES 30–32)

## More fascinating facts about our kidneys:

- Even though the kidney only accounts for 0.5% of our body's weight, it receives more blood than all the other organs (except the liver).
- Your blood carries waste products and other things that your body doesn't need or want, and the kidneys help to get rid of them. They do this by filtering your blood and creating urine, which is a waste product that your body then sends to your bladder to get pee'd out later!
- Inside each of your kidneys are a million little filters called nephrons. Every drop of blood in your body gets filtered through your kidneys every 30 minutes, which is about 50 times every day. About 25% of all the blood pumped from your heart goes straight to the kidneys.
- Your kidneys also regulate the amount of water in your body. They do this by controlling how much urine your body makes. If you have too much water in your body, the kidneys will make more urine to get rid of it. If you don't have enough water, they will make less urine to help keep the right amount of water in your body.
- In addition, kidneys help to regulate the levels of electrolytes in your body. These are substances like sodium and potassium that are important for your body to function properly. Your kidneys also produce hormones that help control your blood pressure, aid in bone health, and control the production of red blood cells. Although kidneys usually come in pairs, some people have just one kidney. If a kidney is taken out or damaged, the remaining kidney works even harder and can still keep you happy and healthy. If a person is born without a kidney, the other one will grow and weigh the same as two normal kidneys put together!
- **The most commonly donated organ by living donors is a kidney—usually because someone the donor knows and matches with is in desperate need of a healthy one.**



## Additional health tips:

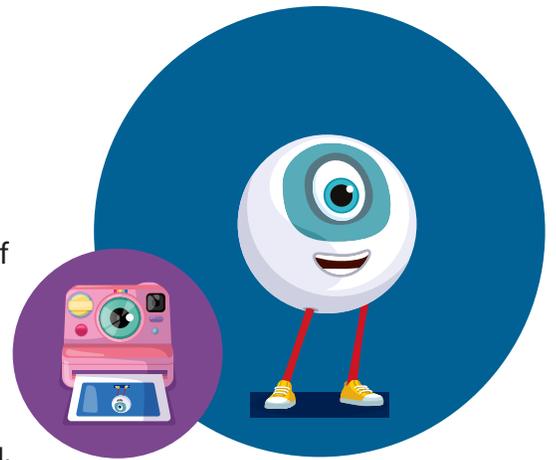
- Drink at least 6 to 8 glasses of water every day. Along with drinking lots of water, take lots of bathroom break breaks too. It's really not healthy to 'hold it in' as this stretches your bladder and can later lead to you really not being able to 'hold it in' at all!
- Keep moving. Regular exercise is good for all sorts of organs – including your kidneys!
- Control your blood sugar. When your body's cells can't use all the sugar in your blood, your kidneys are forced to work extra hard. Over many years, this can damage your kidneys.

# MORE ABOUT THE EYES

(SLIDES 33–35)

## More fascinating facts about our eyes:

- Over 2 million: that's how many working parts are in just one of your eyes! It is one of the most complex organs in the body – second only to the brain.
- The part of your eye that you can see is only about a sixth of your actual eye. Our eyes stay roughly the same size throughout our life, while our nose and ears never stop growing.
- The outer part of the eye is called the sclera. This is the white part that you can see when you look at someone's eye. It's a tough, protective layer that keeps the eye safe from harm.
- Next, there's the cornea. This is the clear, curved layer at the front of the eye that helps to focus light. Like a window, it lets light into the eye without letting dirt, germs or harmful UV rays through.
- So that it can remain completely see-through, the cornea is the *only* living part of the body that doesn't have blood vessels. To stay alive, it gets oxygen directly from the air around it.
- Behind the cornea is the iris, which is the coloured part of the eye. The iris is a muscle that can change the size of the pupil, which is essentially just a hole that dilates or contracts to let just the right amount of light in.
- Inside the eye, there's a gel-like substance called the vitreous humor. This helps to keep the eye in shape and allows light to pass through to the back of the eye. At the back of the eye, there's a layer of cells called the retina. The retina is made up of special cells called rods and cones that are sensitive to light. When light hits the retina, the rods and cones send messages to the brain through the optic nerve. The brain then interprets these messages and creates the images that we see.
- A shark's cornea is very similar to a human eye – so similar that shark corneas are sometimes used in human eye surgery.
- **The cornea and the sclera are the only part of the eye that can be donated. The cornea is the clear, window at the front of the eye, and if someone has a damaged cornea, doctors can take a healthy one from a person who has donated it. The sclera (the white part of the eye) is used when someone has damaged the outer surface of their eye, but it's not used as often as the cornea.**



## Additional health tips:

- Give your eyes plenty of rest by switching off from screens regularly.
- Fix your focus. Try staring at objects far away and then up close every 20 minutes, throughout the day.
- Give your eyeballs a regular workout: keep your head fixed and look up, then to each side, then down.

# LIVING DONORS

(SLIDES 36–37)

Having been introduced to the most needed and commonly donated organs and tissues, this slide highlights which of the Organites can be donated by living donors.



**What is a Living Donor?**

Anyone can choose to donate their mighty organs after they die, but some things can be donated while still alive. Living Donors are usually grown-ups. They can donate...

**A kidney:** The most common organ donated by Living Donors— usually because someone the donor knows and matches with really needs one.

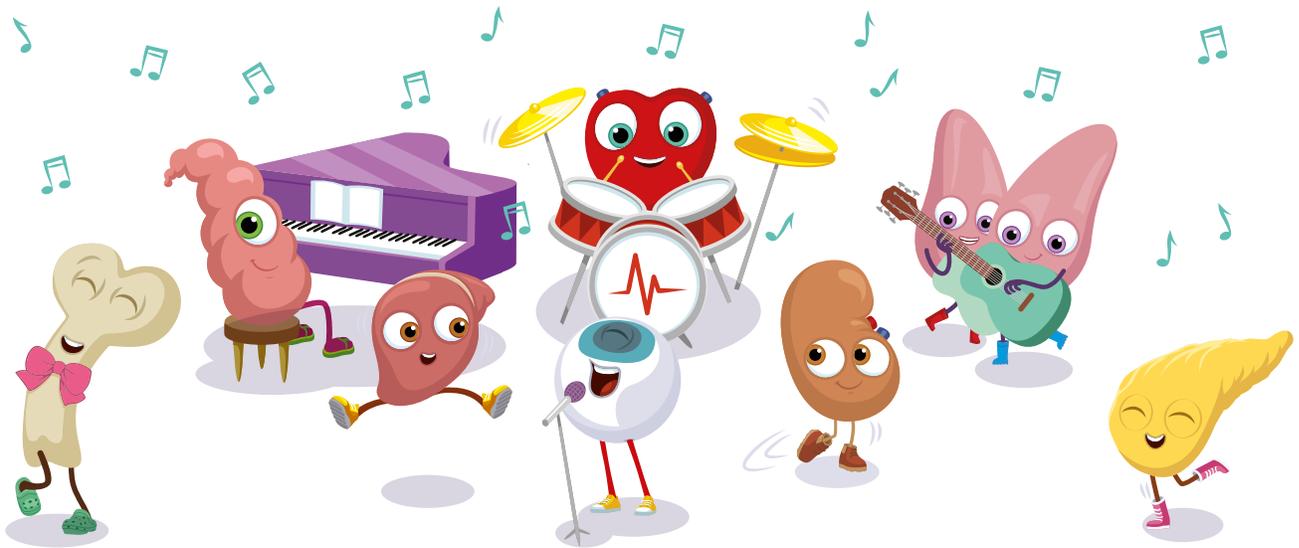
**Bone marrow:** If a living person wants to donate their bone marrow, there is a special donation register they can sign up to.

**What else can Living Donor's donate?**

**Liver:** With its amazing ability to regrow, a part of someone's healthy liver can be donated. Both the organ donor and recipient will soon have a healthy, whole liver!

**Blood and plasma:** Giving blood and plasma is easy and safe. Most people aged between 17 and 65 can donate blood or plasma. Plasma is used to make lots of different medicines to help sick people.

# NOW LET'S MEET SOMEONE TRULY MIGHTY...



# LOGAN BOULET

(SLIDES 39–41)

The inspiring story of Logan's life and ongoing gift of life is shared over these slides.

**Meet Logan**

Logan Boulet loved hockey, art, adventure and his friends and family. In 2018, Logan and his Humboldt Broncos team were traveling to a playoff game when the bus they were on was in a terrible crash.

Tragically, Logan and fifteen other people died, and thirteen more were seriously injured. The summer before the crash though, Logan had told his Dad that he wanted to be an organ donor. So, in the midst of their grief, his family said 'yes' to Logan being an organ donor. The donation of Logan's strong heart, lungs, liver, kidneys and corneas saved the lives of five people and restored sight for two more.

**What is the Logan Boulet Effect?**

When Canadians heard about Logan's gift, it gave them another way to show support. People started signing up to be organ donors themselves. And in the month that followed the crash, more than 100,000 Canadians registered to be organ donors.

This has been called the **Logan Boulet Effect**. The number of people positively impacted continues to grow and save lives as more and more people talk about Logan's gift of organ donation, and talk about their own choices with their families.

**Logan's effect lives on!**

April 7 (the day Logan passed away) has even become known as Green Shirt Day.

This is a day to honour Logan and his desire to be an organ donor and to recognise the Logan Boulet Effect by wearing green (the colour of the Broncos, Saskatchewan, and organ donation), talking to others about organ donation, and registering to be a donor.

## REFLECTION TIME

(SLIDES 42–43)

**Talking about organ donation helps us to honour one another's choices.**

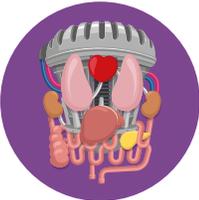
No matter which pace you choose, be sure to allocate a little time to recap and reflect on what has been covered in the lesson. Let students share some of their own thoughts and impressions. When teaching about organ donation, focus on the positivity of 'giving a gift', and the difference a transplant can make to a recipient's life. Try to keep the conversation light, positive and non-judgmental.

**Why voice your choice?** Because sometimes a person will have chosen to donate their organs but their family don't know about their choice and so their organs don't end up being donated. Only a third of adults have shared their organ donation choice with their family - and far fewer kids! That's why it's really important for people to continue to talk about their choice with those closest to them, so that their family can honour that choice.

To help kick-start the conversation, our Family Resource (available as part of this toolkit) is the ideal take-home for all parents and guardians of students to receive on the day of this lesson.

**Let's do a quick recap!**

1. Can you name your vital organs?
2. Can you name your mighty organs?
3. Why might someone choose to donate their organs?
4. Why might someone choose not to donate their organs?
5. Why is it important to talk with your family about your choices around organ donation?



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**So what have we learnt today?**

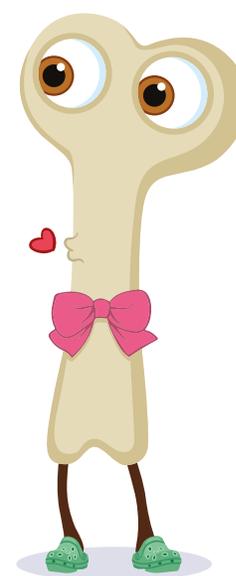
We are all made up of some pretty mighty organs!

We're all the same inside!

And in the end, it's what's on the inside that really counts!



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## NEXT STEPS

(SLIDES 44–45)

Now equipped with lots of inspiring insights about their organs and organ donation, these slides seek to offer students a clear, simple and practical way forward.

The Mighty Pledge is completely optional. It is a call to all to be kinder to ourselves, other people and the planet we all share. Consider making the Mighty Pledge together, and even displaying it somewhere in your classroom.



**What next?**

1. **Have the conversation** (talk about organ donation with your family)
2. **Make the Mighty Pledge** (with a pinky promise)
3. **Be Mighty Proud** (voice your choice far and wide)



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**ORGANITES**

**MIGHTY PLEDGE**

Our world is precious, and fragile too  
I commit to look after it and take the long view...  
I'll try to recycle and put litter in bins,  
I'll recycle too and reuse my things.

Every person is special, whether old or young  
We all just want love so I honour each one.  
I'll treat all the people I meet with respect every day  
And be as kind as can be in my own unique way.

My body is mine and it's perfect for me  
I'm thankful for it, I'm as proud as can be.  
I pledge to look after it and to be kind to each part  
From my head to my toes, from my kidneys to heart.

And if one day, these parts I don't need,  
You can pass them along as my final good deed.  
After all, it's not our looks or clever tricks that astound...  
We're all beautiful and precious -  
it's what's inside that counts!



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## WHAT NEXT?

For the rest of the lesson, teachers have access to a variety of 'Additional Teacher Resources' to enhance the learning experience and drive the message home: Case Studies, Classroom and Take Home Activities, Colouring-in Sheets and Classroom Posters and other teaching aids. Choose any or all of them, print them out or upload them onto your whiteboard.

### Object Lessons

To help kids really appreciate their mighty organs (and remember why and how they work for the rest of time) we've created a series of fun and interactive object lessons (one for each of the mighty organs).

### Family Resources

To get families talking more about what really matters, please send this important 'booklet' to all parents and guardians on the same day you introduce the Organites to your class (you can print it or email it to them).

### Mighty Pledge Certificate and Classroom Poster

This is our mighty manifesto. It's a call to all to be kinder to yourselves, other people and the planet we all share. Consider making the Mighty Pledge together, and even displaying it somewhere in your classroom.

### Have you discovered Toolkits 2 and 3?

Although self-standing, our toolkits sequentially build upon one another. **Toolkit 2: 'Mighty Habits'** offers the best information available on how to practically live a healthy life (at any age). **Toolkit 3: 'Mighty Kind'** seeks to show people how powerful their small, individual choices can be—inspiring them to change the world through kindness.

### Got questions or would like to share your Organites art?

For any questions or to share your Organites art with us, please write to [info@organites.ca](mailto:info@organites.ca)

To download additional Organites educational tools and resources, please visit [Organites.ca](http://Organites.ca)

## YOUR INPUT MAKES A BIG IMPACT!

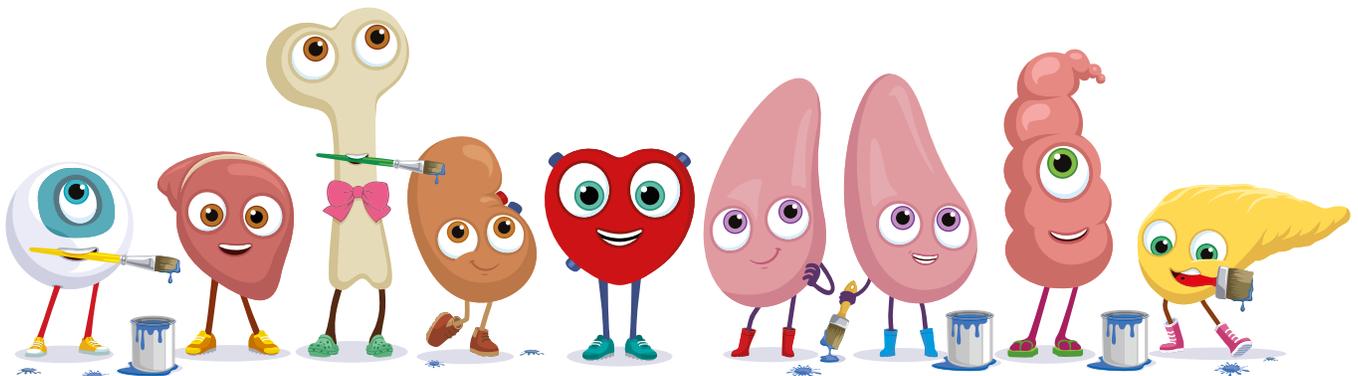
If you've introduced the Organites to your classroom, we'd love to know how it's going. Please use our feedback form on the 'Resources Hub' page on our website, and please encourage as many other teachers, students and parents to do so too. Don't forget to...

1. **Have the conversation** (talk about organ donation with your family)
2. **Make the Mighty Pledge** (with a pinky promise)
3. **Be Mighty Proud** (voice your choice wide and far)



[Organites.ca](http://Organites.ca)

# IT'S WHAT'S INSIDE THAT COUNTS!



IN PARTNERSHIP WITH



**Canadian  
Blood  
Services**

BLOOD  
PLASMA  
STEM CELLS  
ORGANS  
& TISSUES