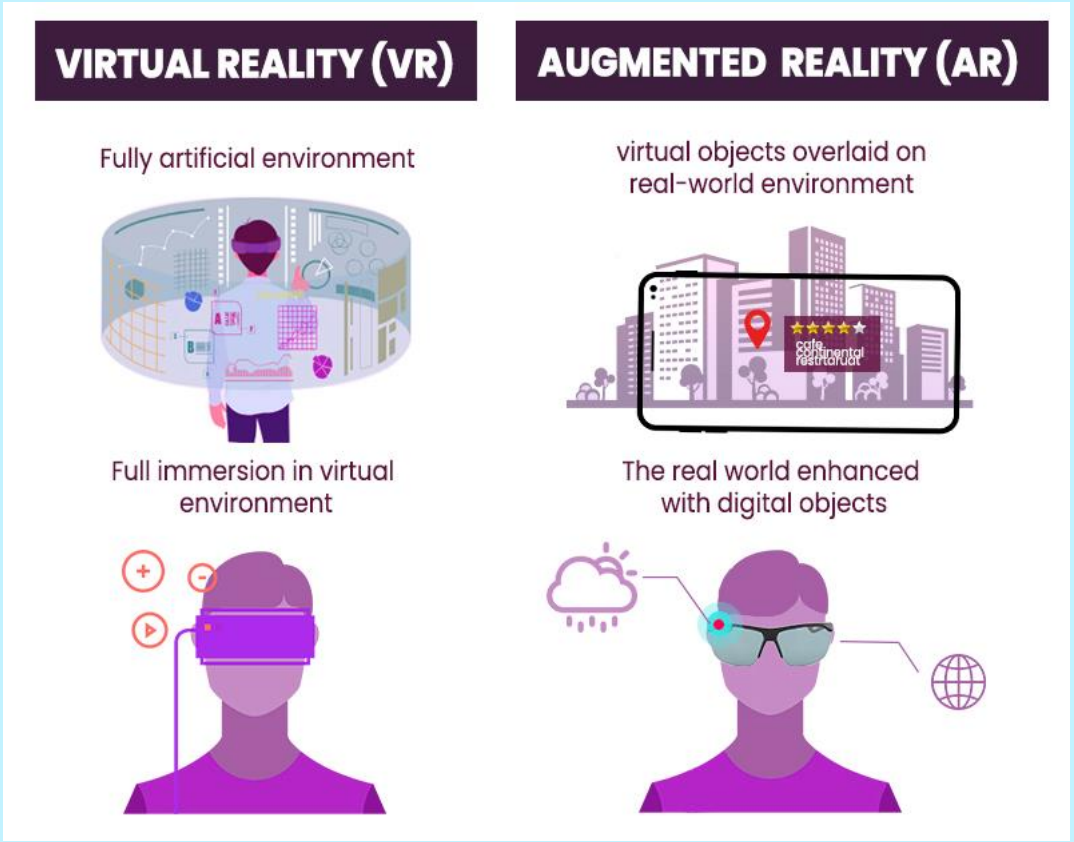
DOCTOR DIGEST

Special thanks to the team at Nanyang Primary School for creating this deck of slides.

What is AR?



https://diui35v2plbz7.cloudfront.net/blogs/20210914194822.jpg

https://scx2.b-cdn.net/gfx/news/2017/pokemongounl.jpg

https://youtu.be/vz0UUVDt2ps

Reminders for groupwork

1. Be considerate. Work at Volume 1.
2. Be cooperative. Take turns to hold the ipad and write your answers.
3. Be focused to complete your task in the given time.
4. Be proactive. Raise your hand if you need help.

Take care of the ipad. Do not bend the paper codes.

When you have finished all 4 missions,

Staple the supplementary worksheet to the back of your Activity Worksheet and submit to the front.

Index Number	Roles
Smallest	Collect and return ipads
Middle	Collect and return paper codes
Largest	Collect and return activity worksheets

Training Simulation

Module – Training Simulation

Learning Objective:

1. State the organs of the digestive system in the sequence by which the food moves through

2. State the functions of each of the organs

Doctor Digest Training Simulation

1. Search for the "Doctor Digest" app
2. Continue as a ~~guest~~ Log in details
3. Scan the simulation code using the in-app scanner (not camera)
4. Do not change any wifi settings

Scan a Module Card

Review: What are the TWO functions of the digestive system?

In your groups, complete the question to obtain your iPad and the markers (paper codes).

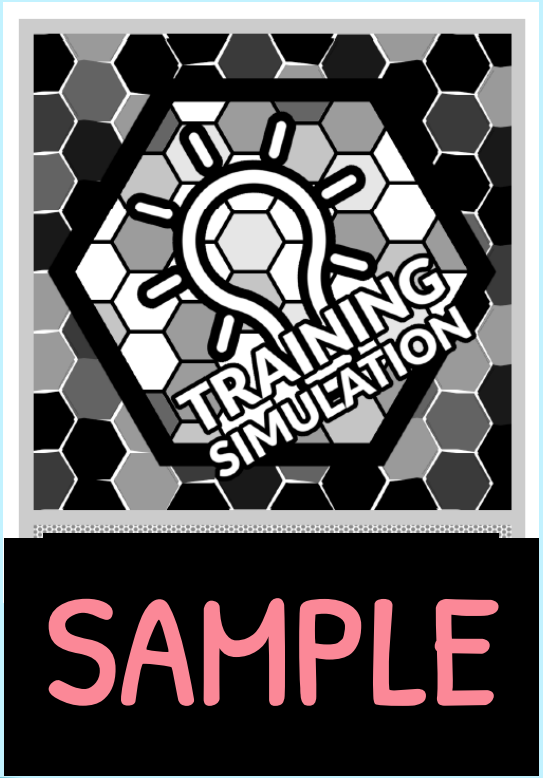
- Do not bend the codes.
- You may work on the tables or on the floor.

Module – training simulation

Paper codes: training simulation, six organs

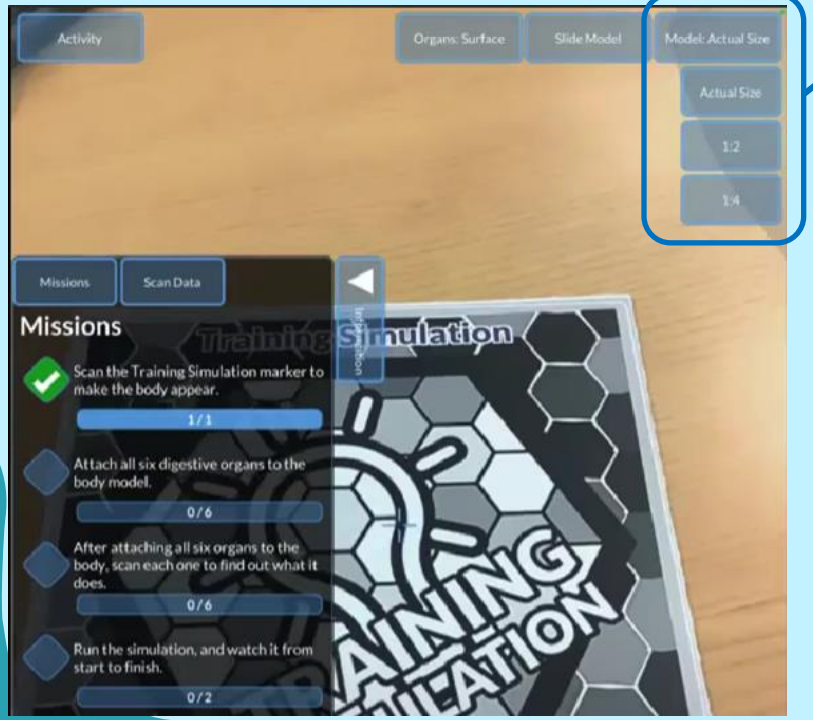
Doctor Digest Training Simulation

1. Search for the "Doctor Digest" app
2. Continue as a guest
3. Scan the simulation marker given using the in-app scanner (not camera)
4. Do not change any wifi settings



Module – Training Simulation

Mission 1 – Load Body



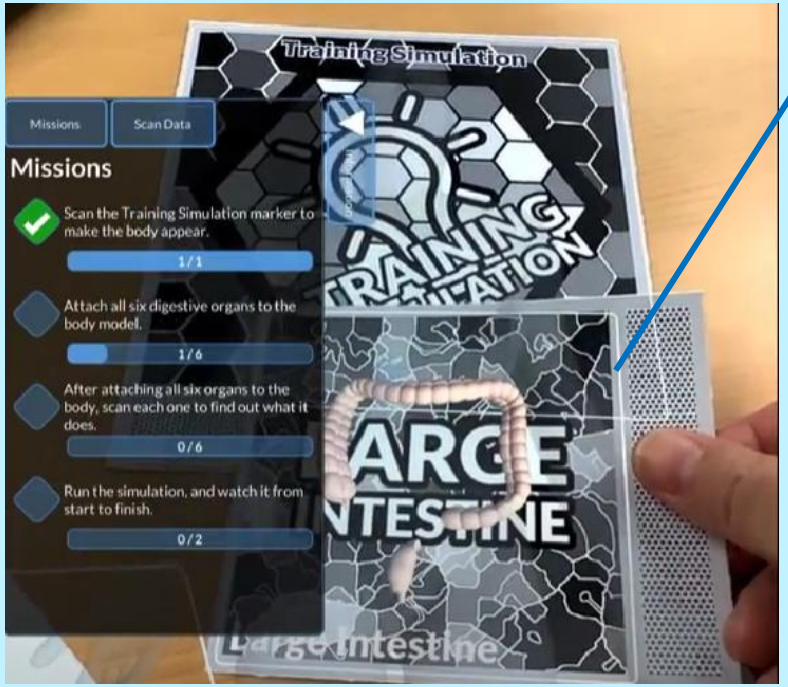
Model Actual Size
Choose 1:4 (smallest)

Body should appear. Leave the Training Simulation paper code on the table throughout.

Module – Training Simulation

Mission 2 – Install Organs

Scan organ one at a time, according to how food will move through the digestive system.

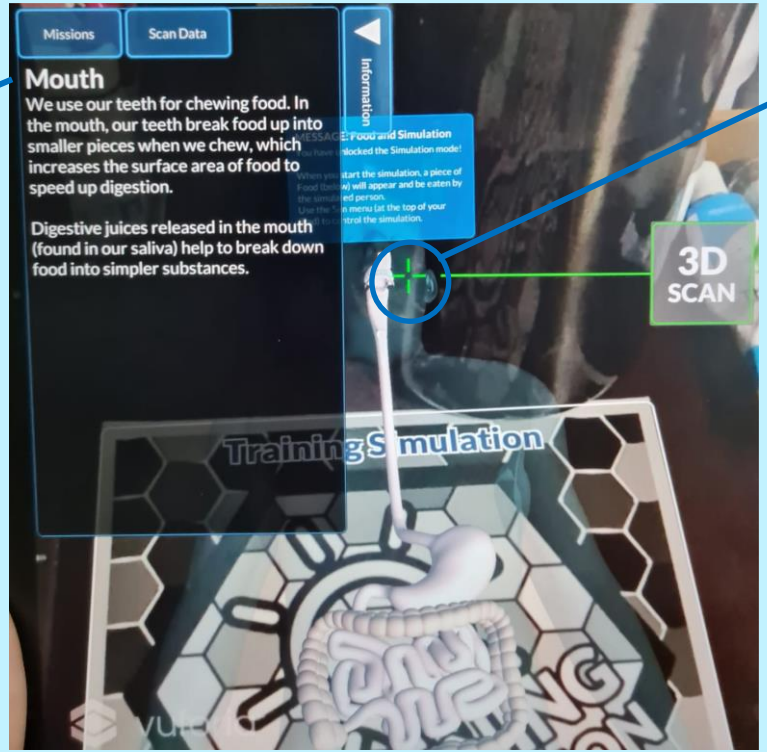


Green tick will appear when connected correctly. Then remove the organ card before scanning the next one.

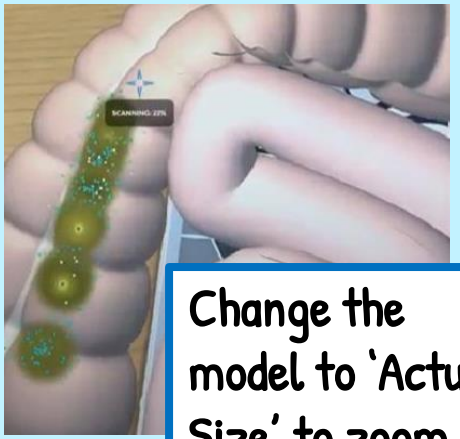
Module – Training Simulation

Mission 3 – Scan Organs

Read the function of each digestive organ and complete your activity sheet.



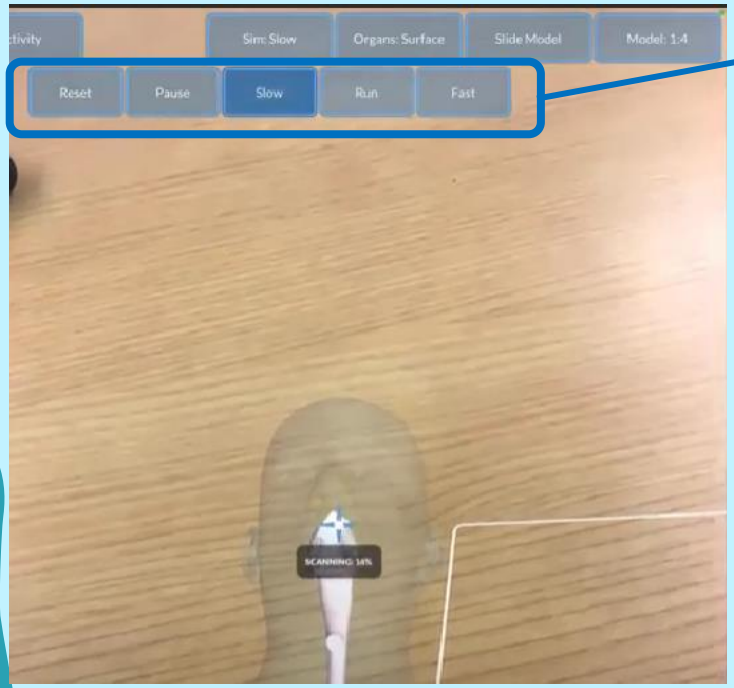
Place the green cross hairs at the organ, one by one. Click on 3D scan.



Change the model to 'Actual Size' to zoom in.

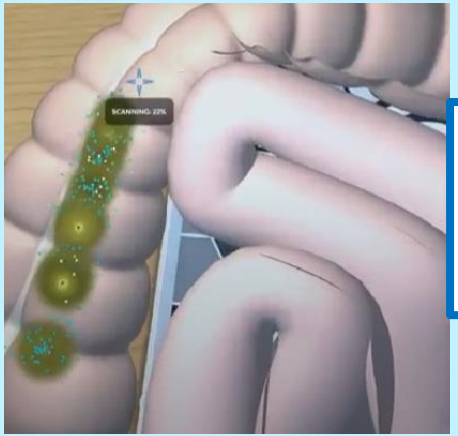
Module – Training Simulation

Mission 4 – Run Simulation



Use these to control the simulation.

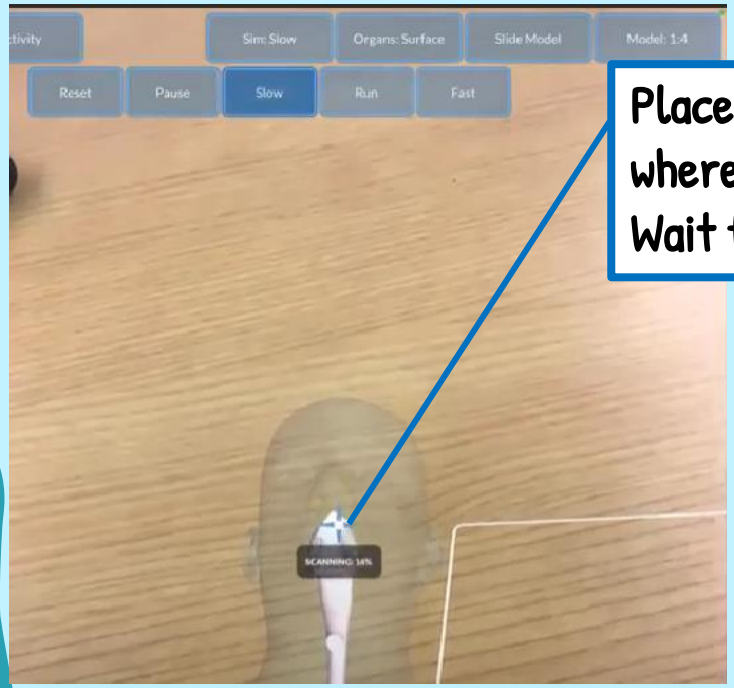
- Run (slow/fast)
- Pause
- Reset



Change the model to 'Actual Size' to zoom in.

Module – Training Simulation

Mission 4 – Run Simulation



Place the green cross hairs at the organ where you want to obtain data. Click 3D Scan. Wait for scan to reach 100%.

Complete Page 1 of Worksheet.

Name: _____ ( ) P4 _____ Date: _____

Mission - Run Simulation

- Change the ratio to 'Actual Size' to zoom in.
- To scan data, click 'Pause', then click '3D Scan'.
- To view the bar graph, change the tab from 'Missions' to 'Scan Data'.

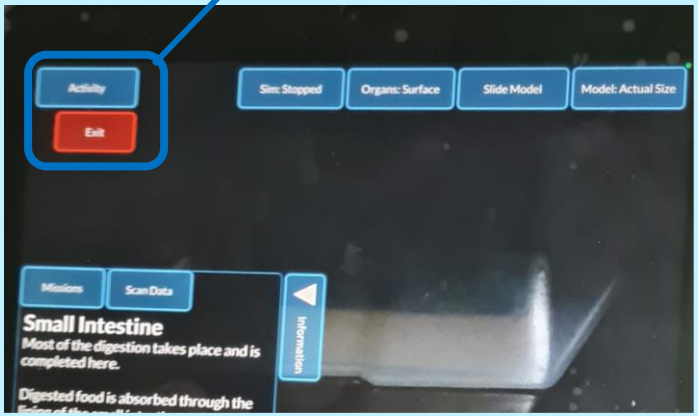
1. Compare and record the size of food when it leaves the mouth.

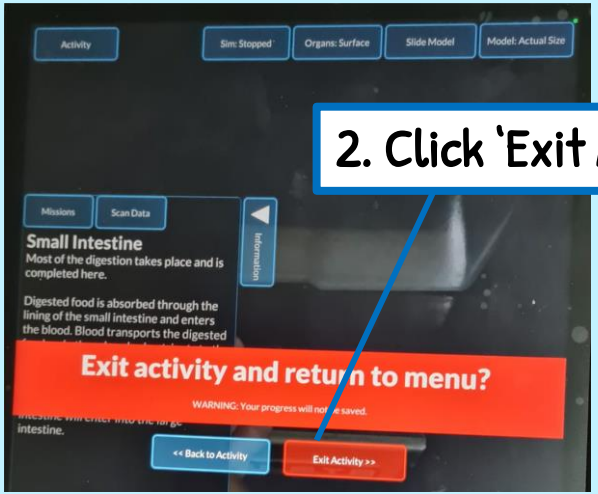
	Size of Food
In the mouth (whole food)	small / medium / large
Leaves the mouth	small / medium / large *

*Circle as appropriate

Exit the activity

1. Click activity on the top left hand corner. Click Exit.





2. Click 'Exit Activity'.

3. Return to 'Scan a Module'.

4. Press 'Home' button.

When you have finished all 4 missions,

Staple the supplementary worksheet to the back of your Activity Worksheet and submit to the front.

Index Number	Roles
Smallest	Collect and return ipads
Middle	Collect and return paper codes
Largest	Collect Activity Worksheets

Training Simulation

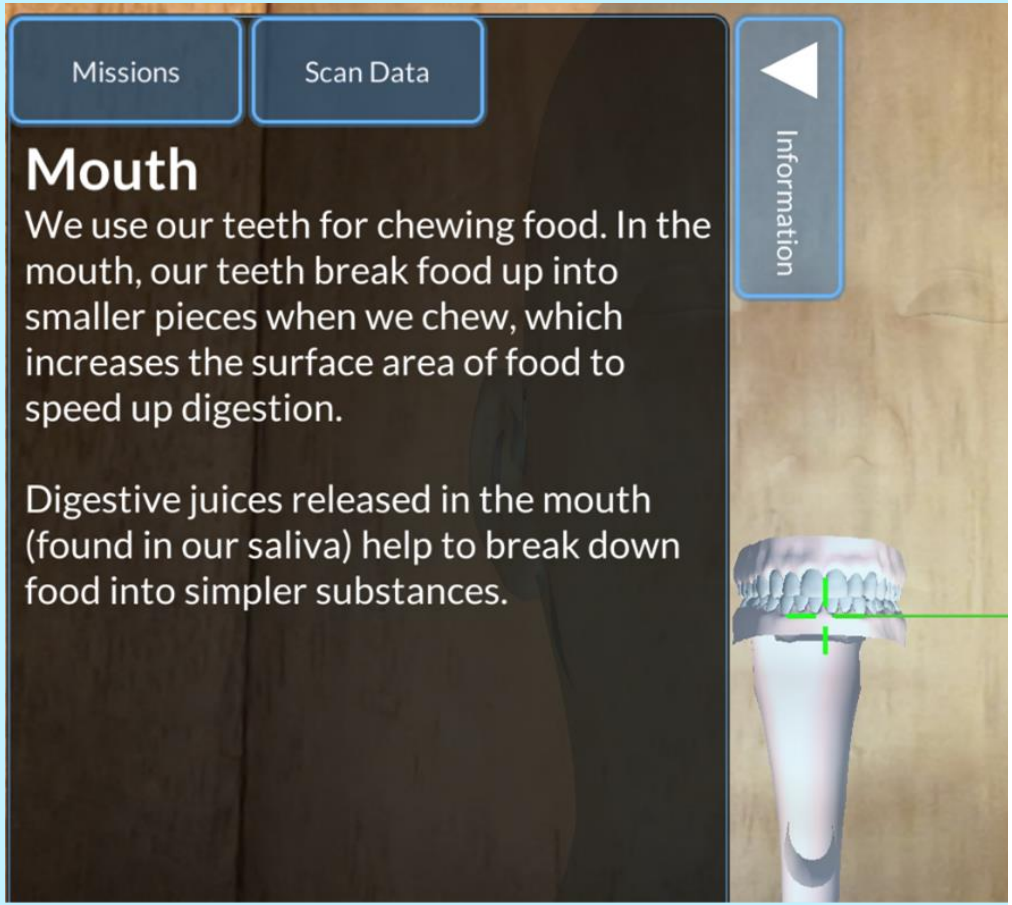
Consolidation

Module – Training Simulation

Learning Objective:

1. State the organs of the digestive system in the sequence by which the food moves through

2. State the functions of each of the organs



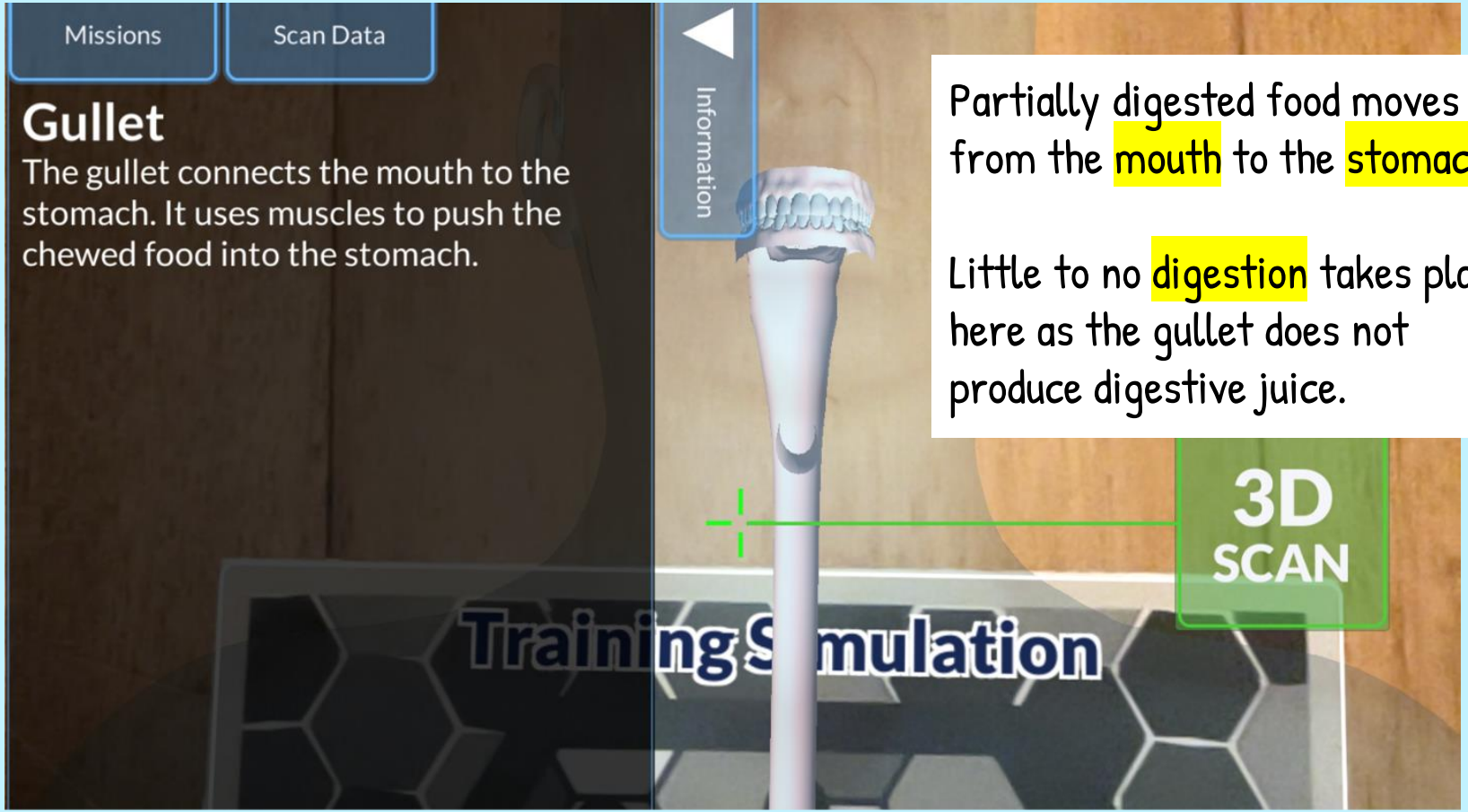
Digestion starts here!

Teeth (not mouth) help to break food up into smaller pieces.

- Smaller compared to before
- Increases surface area in contact with digestive juices

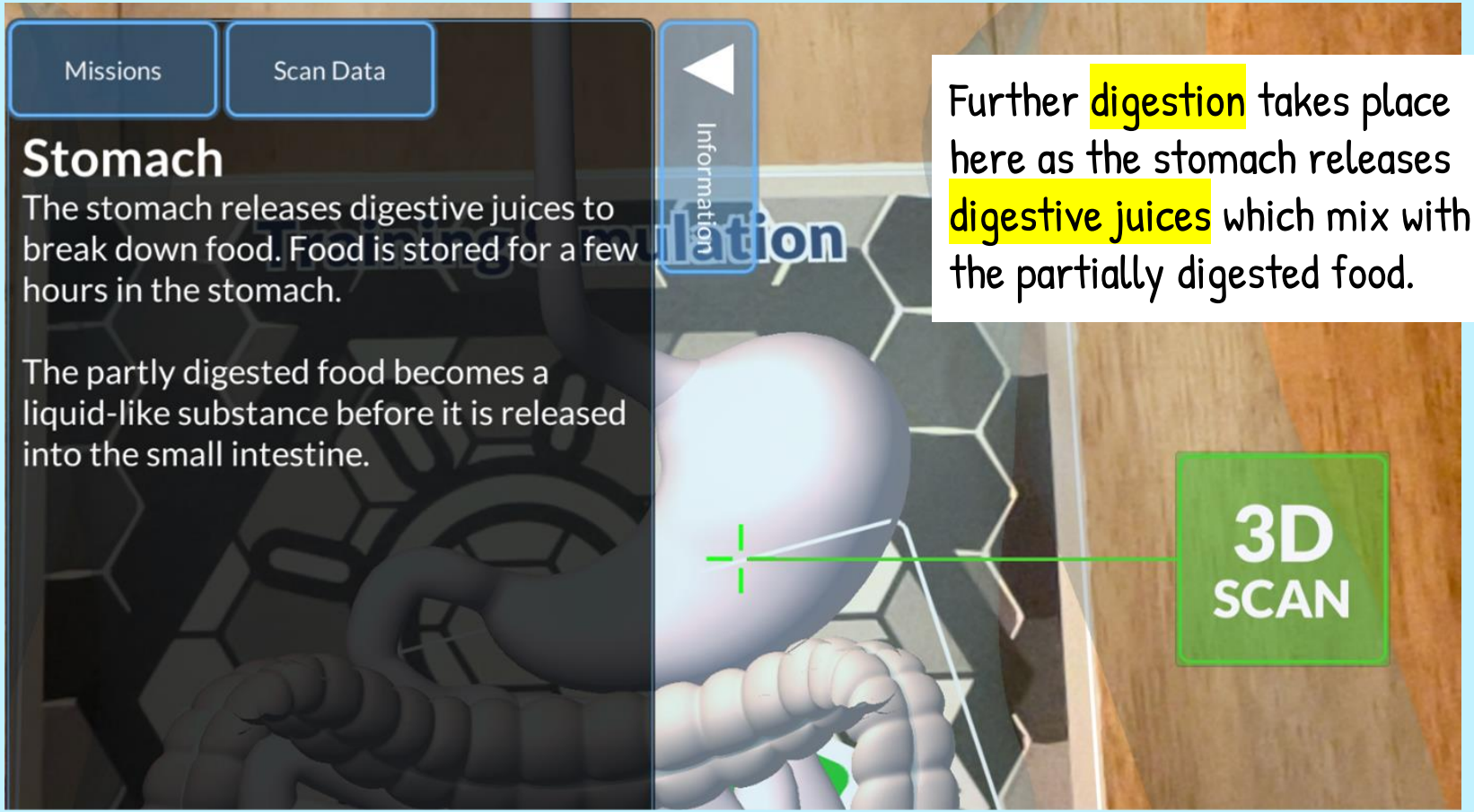
Digestive juices, which can be found in saliva) help to break food down into simpler substances.

Saliva also helps to soften the food to make food easier to swallow.

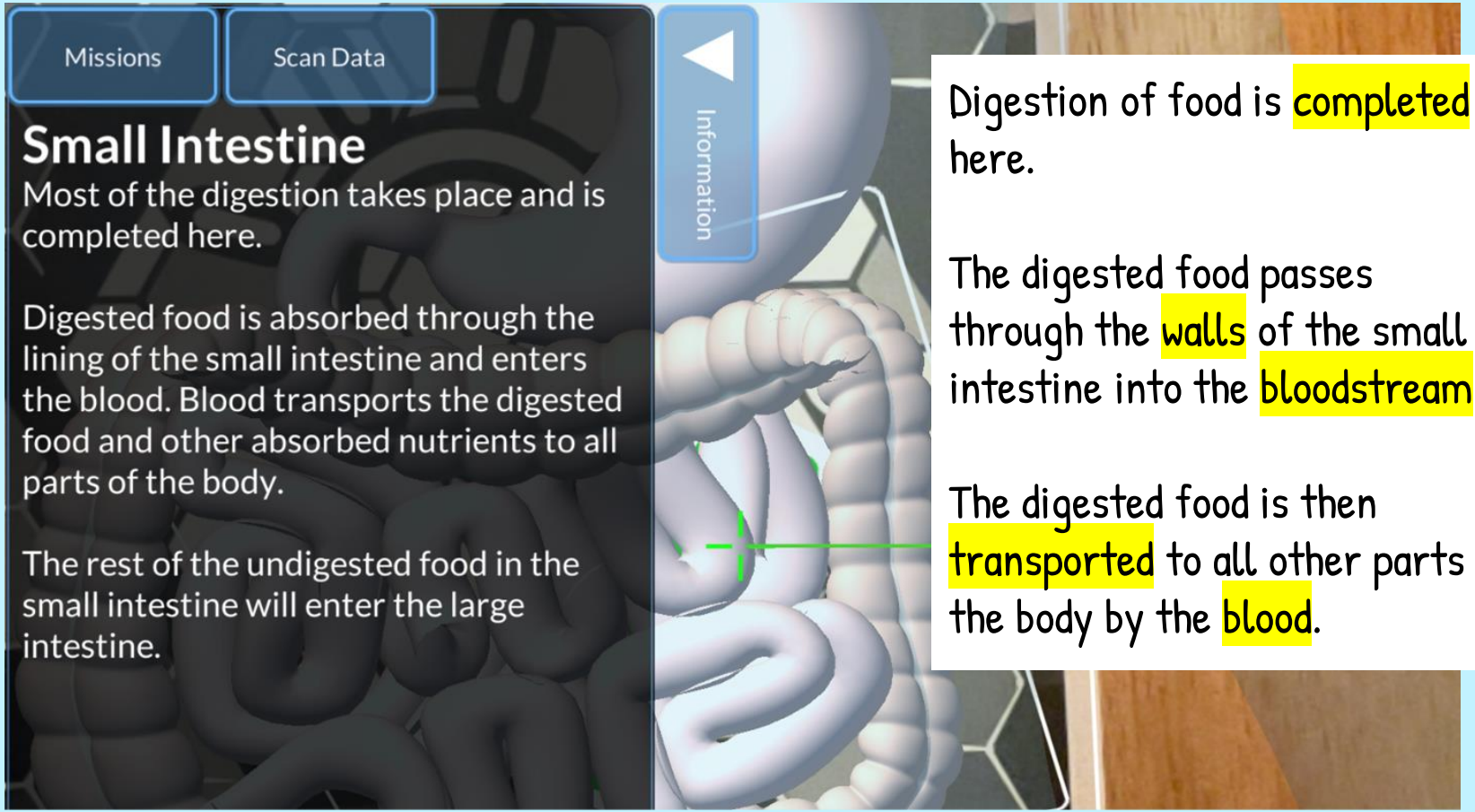


Partially digested food moves from the mouth to the stomach.

Little to no digestion takes place here as the gullet does not produce digestive juice.



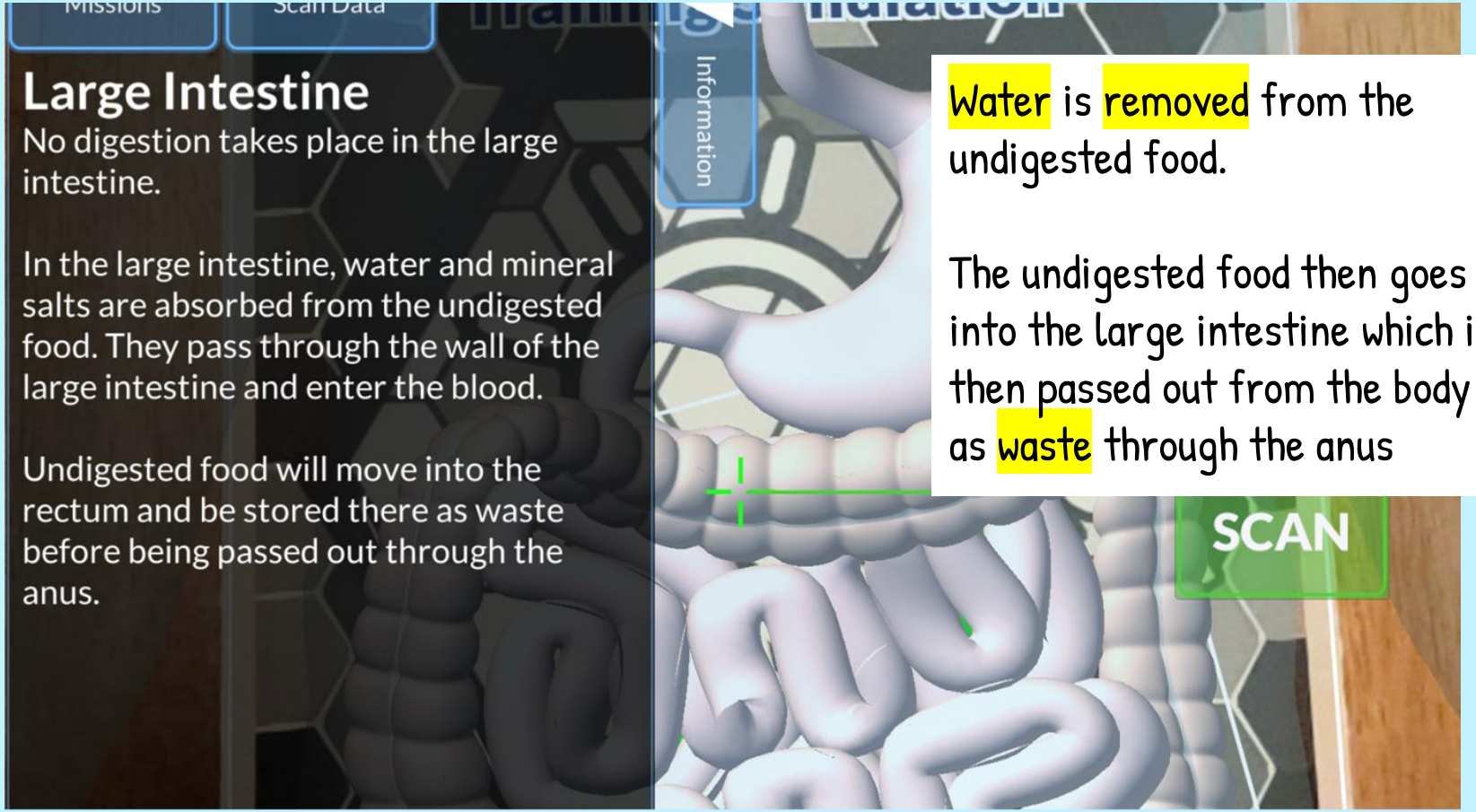
Further digestion takes place here as the stomach releases digestive juices which mix with the partially digested food.



Digestion of food is completed here.

The digested food passes through the walls of the small intestine into the bloodstream.

The digested food is then transported to all other parts of the body by the blood.



Water is removed from the undigested food.

The undigested food then goes into the large intestine which is then passed out from the body as waste through the anus

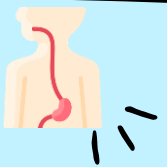
Every Organ Plays a Part
Each has its own FUNCTION!

Mouth

Teeth cut food into smaller pieces.

Saliva helps to soften food and contains digestive juices.

Transport food from mouth to stomach.



Gullet

Stomach

Contains digestive juices which help to break down food into simpler substances.

Digestion is completed here. Absorption of digested food into the bloodstream.

Small Intestine

Large Intestine

Absorption of water from undigested food.

Digestion is the process where

(1)Food is broken down into simpler substances

(1)For absorption into the body

If all the organs work properly, can they complete digestion on their own?

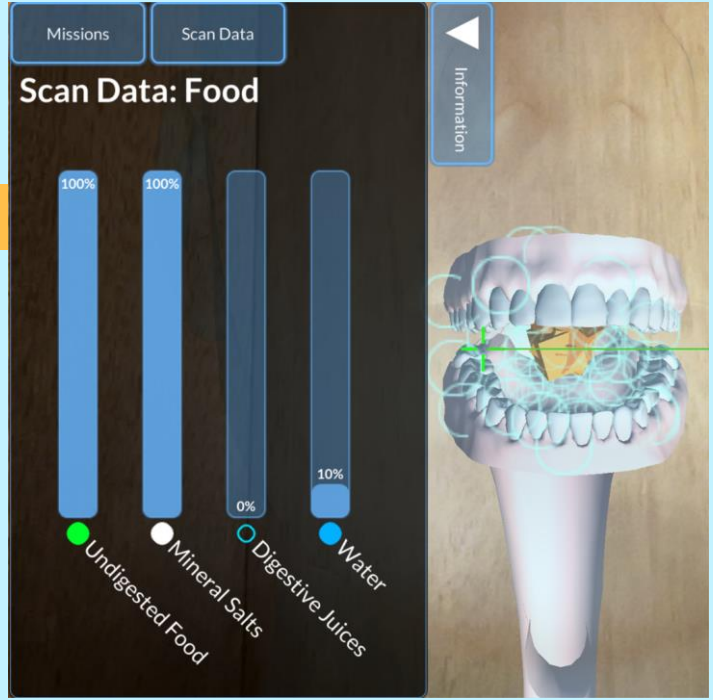
We studied these five organs:

1. Mouth
2. Gullet
3. Stomach
4. Small Intestine
5. Large Intestine

Each has their own function (role) but they must work together for digestion to take place properly.

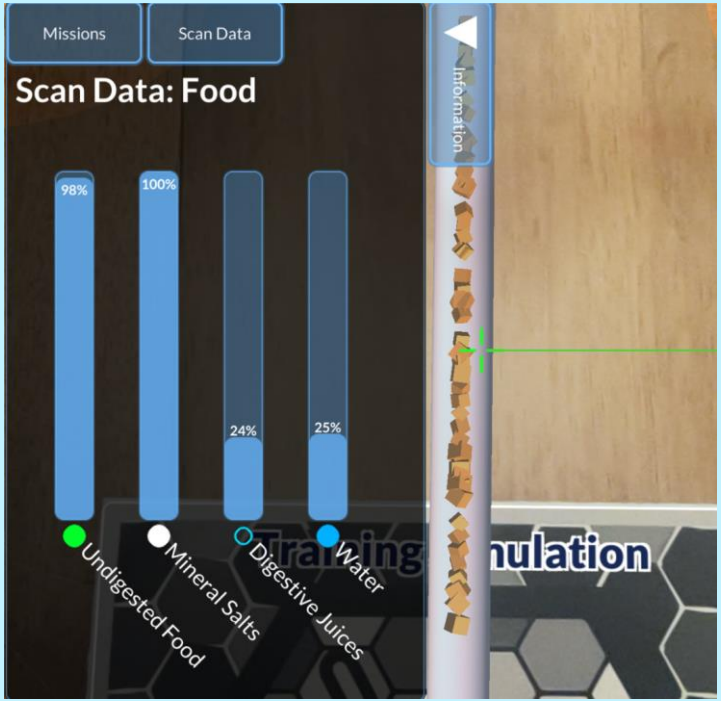
MOUTH

What do you notice about the size of the food?

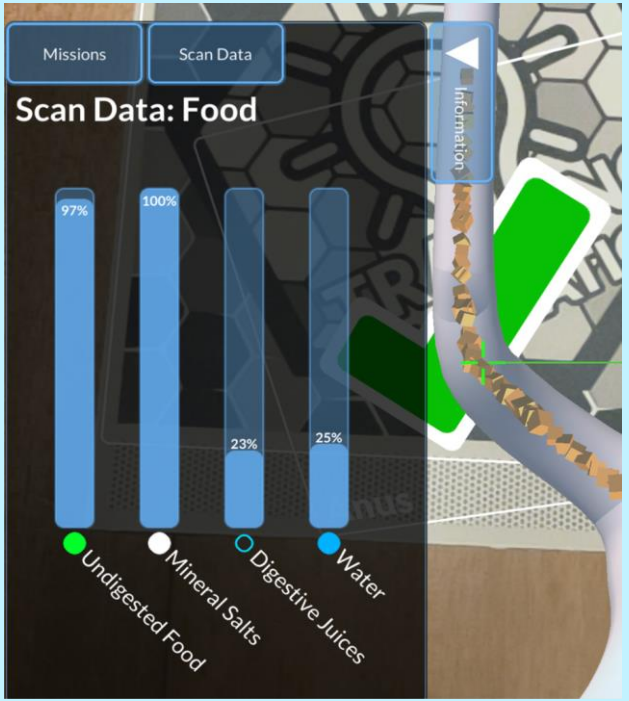


% Undigested food leaving mouth = 98%

GULLET

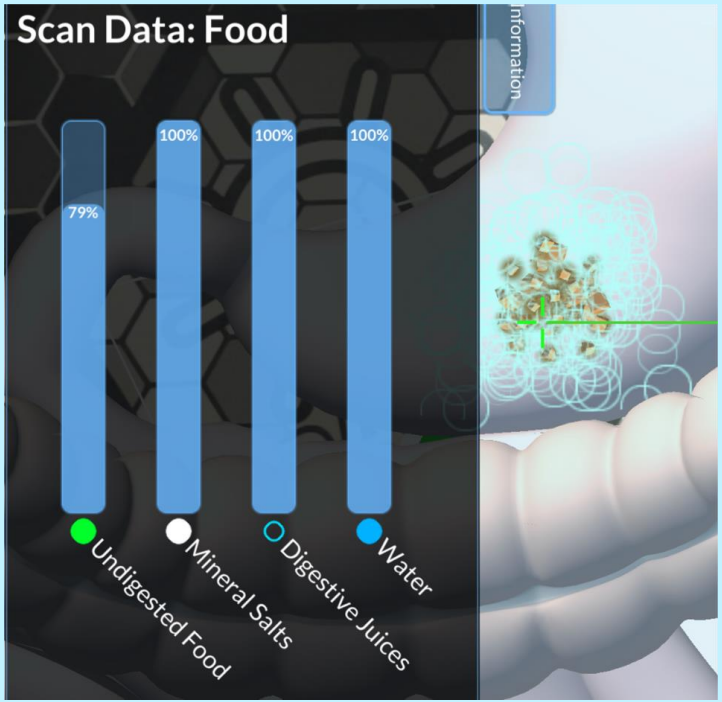


Why does the amount of undigested food decrease by 1% even though there is no digestive juice produced here?

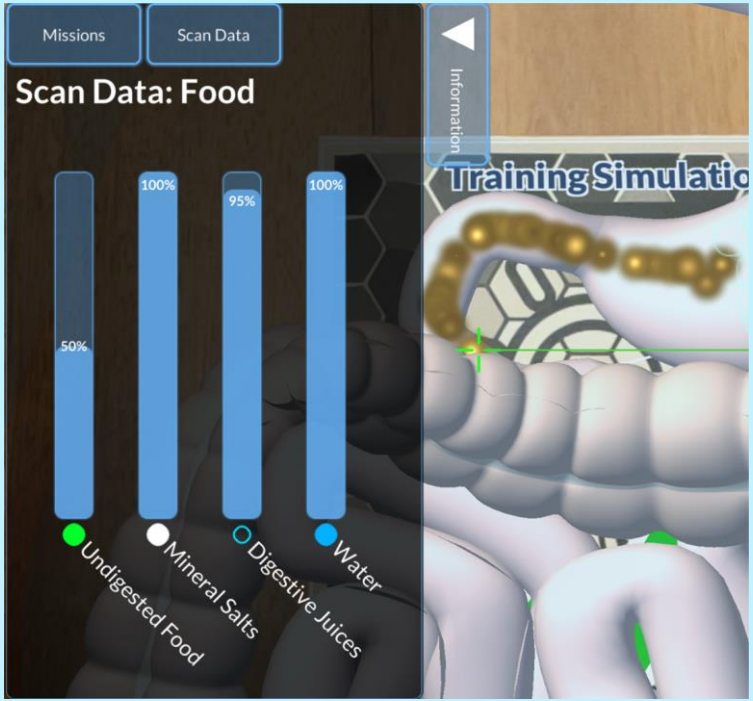


% Undigested food leaving gullet = 97%

STOMACH

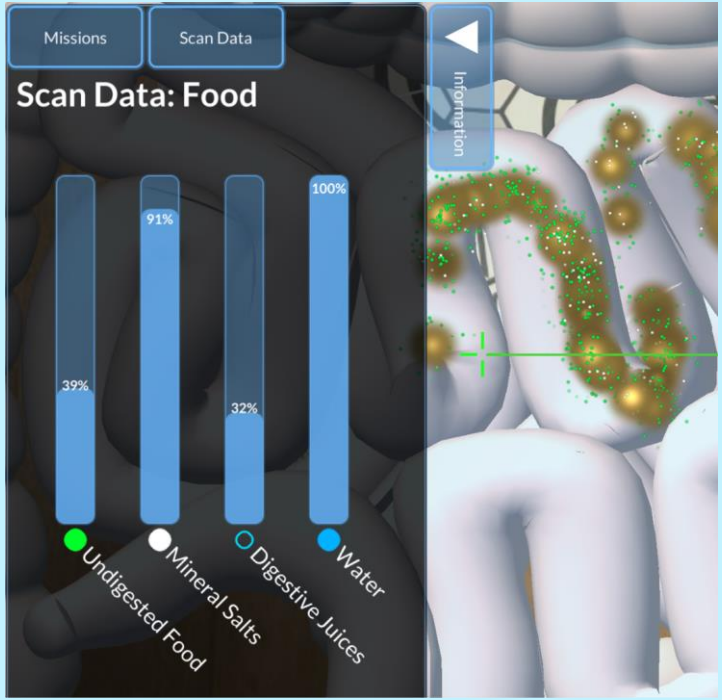

Scan Data: Food
79%
100%
100%
100%
Undigested Food
Mineral Salts
Digestive Juices
Water
Information

STOMACH

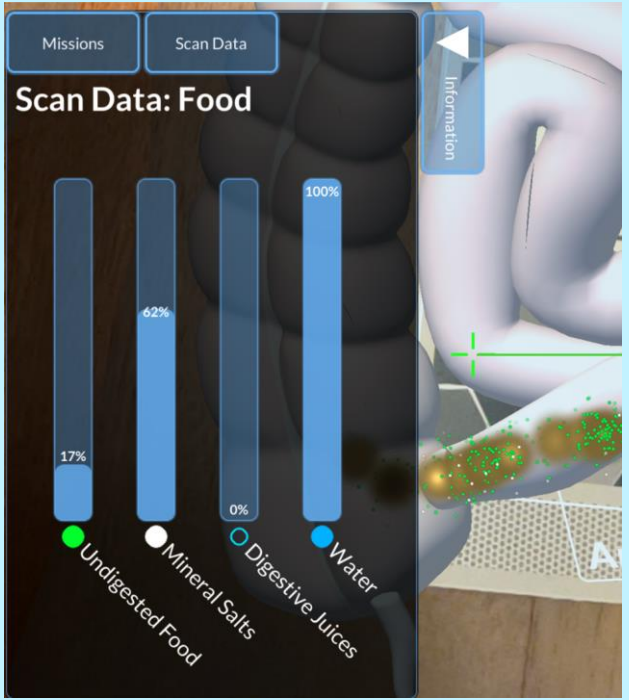


% Undigested food leaving stomach = 50% to 62%

SMALL INTESTINE

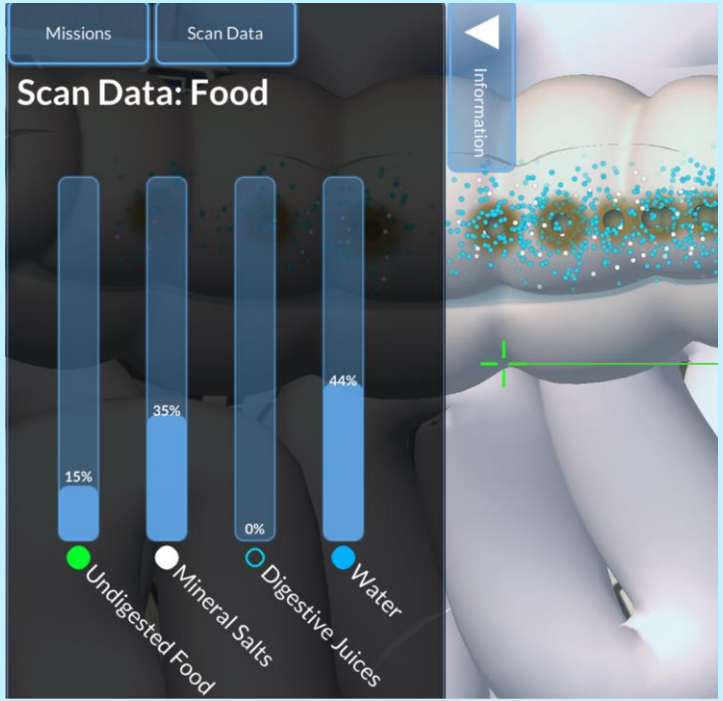


What differences do you note about the amount of undigested food, digestive juices and water?

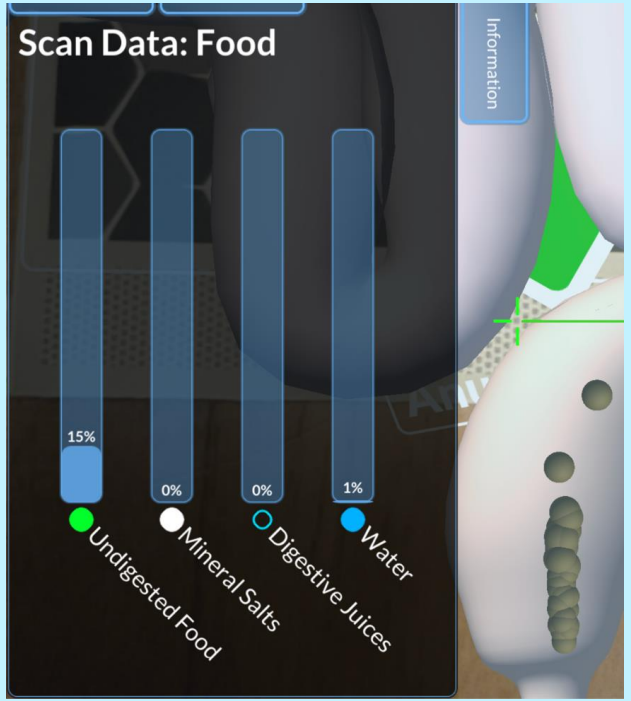


% Undigested food leaving small intestine = 15% to 17%

LARGE INTESTINE



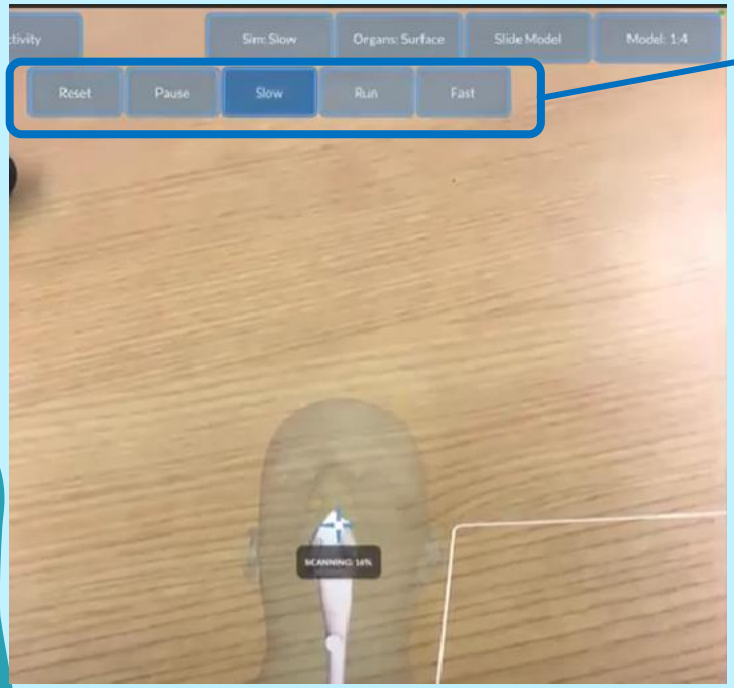
What happened to the amount of mineral salts and water?



% Undigested food leaving small intestine = 15%

Module – Training Simulation

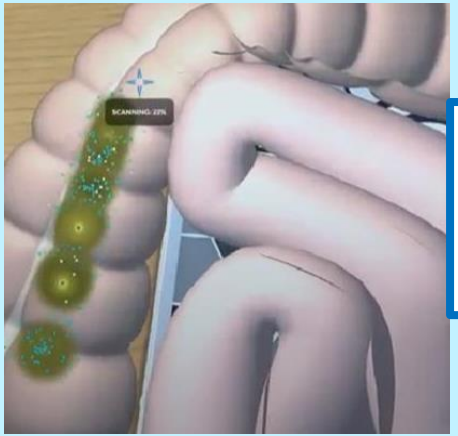
Mission 4 – Run Simulation



Use these to control the simulation.

- Run (slow/fast)
- Pause
- Reset

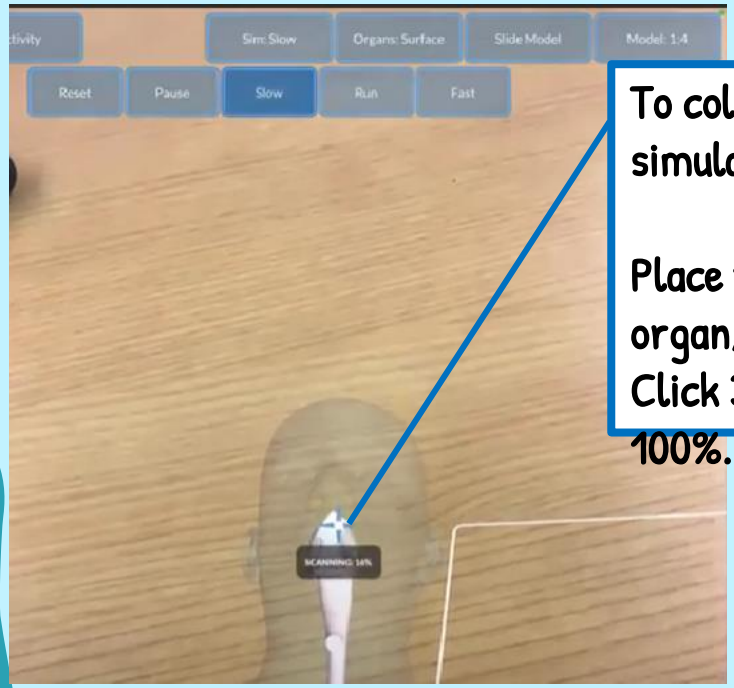
You must view the entire simulation from start to finish to "complete" the mission!



Change the model to 'Actual Size' to zoom in.

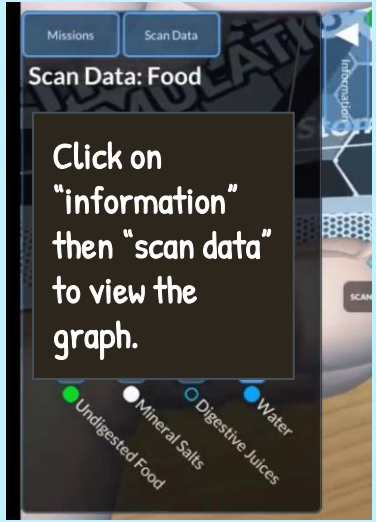
Module – Training Simulation

Mission 4 – Run Simulation

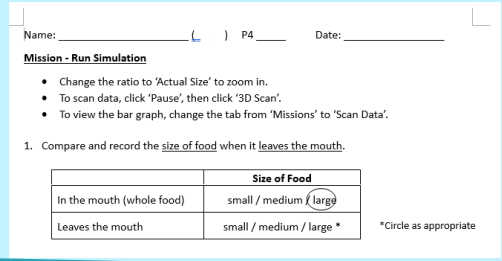


To collect the data for the graph, run the simulation and pause at each organ.

Place the green cross hairs at the organ/food where you want to obtain data. Click 3D Scan. Wait for scan to reach 100%.



Complete Page 1 of the extra worksheet.



Name: _____ ( ) P4 ____ Date: _____

Mission - Run Simulation

- Change the ratio to 'Actual Size' to zoom in.
- To scan data, click 'Pause', then click '3D Scan'.
- To view the bar graph, change the tab from 'Missions' to 'Scan Data'.

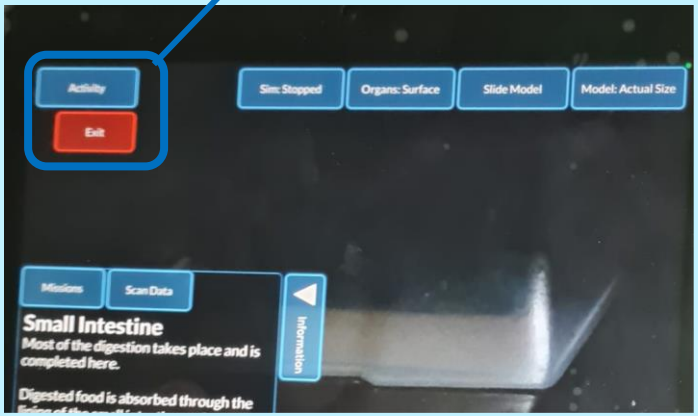
1. Compare and record the size of food when it leaves the mouth.

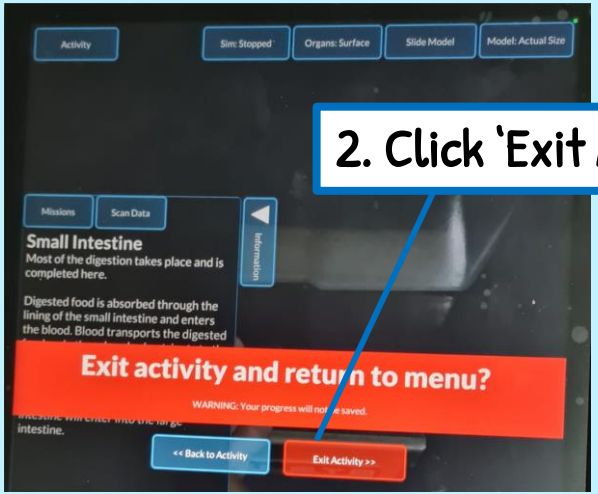
	Size of Food
In the mouth (whole food)	small / medium / large
Leaves the mouth	small / medium / large *

*Circle as appropriate

Exit the activity

1. Click activity on the top left hand corner. Click Exit.





2. Click 'Exit Activity'.

3. Return to 'Scan a Module'.

4. Press 'Home' button.

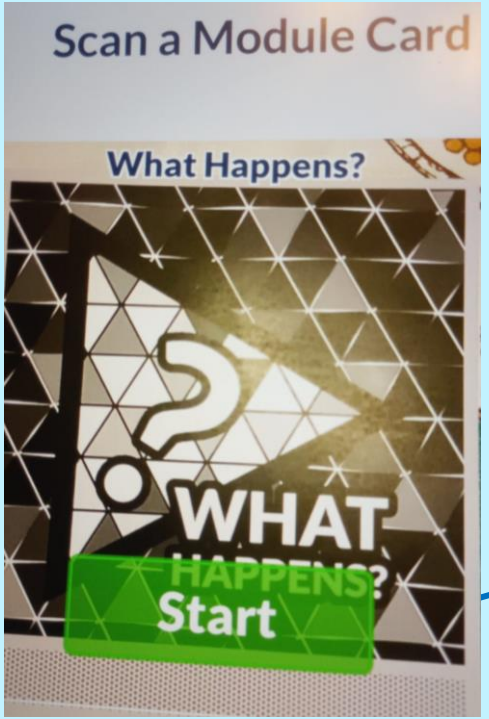
What Happens?

Module – What Happens?

Learning Objective:

To infer and state what happens if one part of the digestive system is not working well.

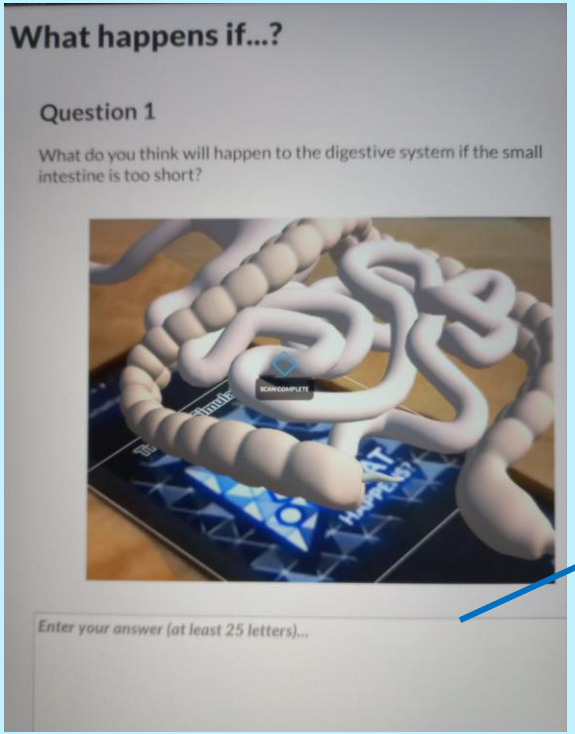
Module – What Happens?



Click Start

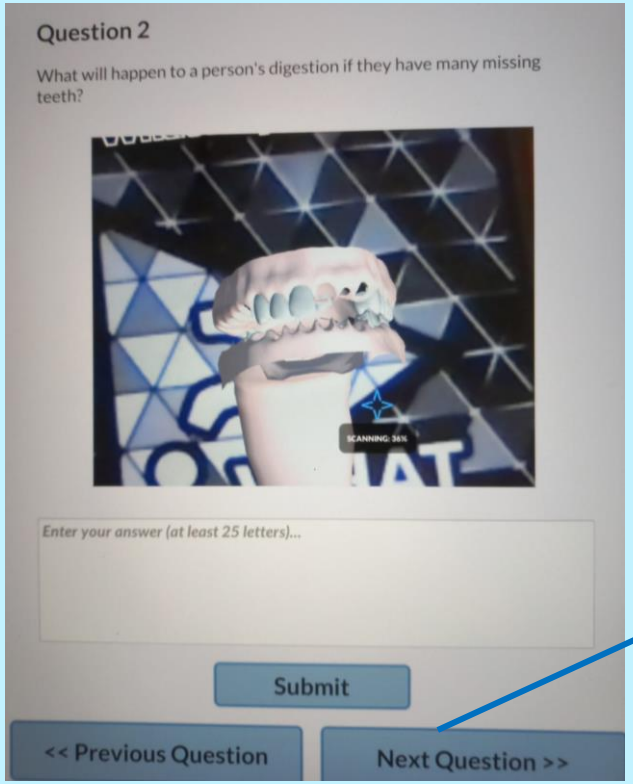
Paper code: What Happens?

What Happens?



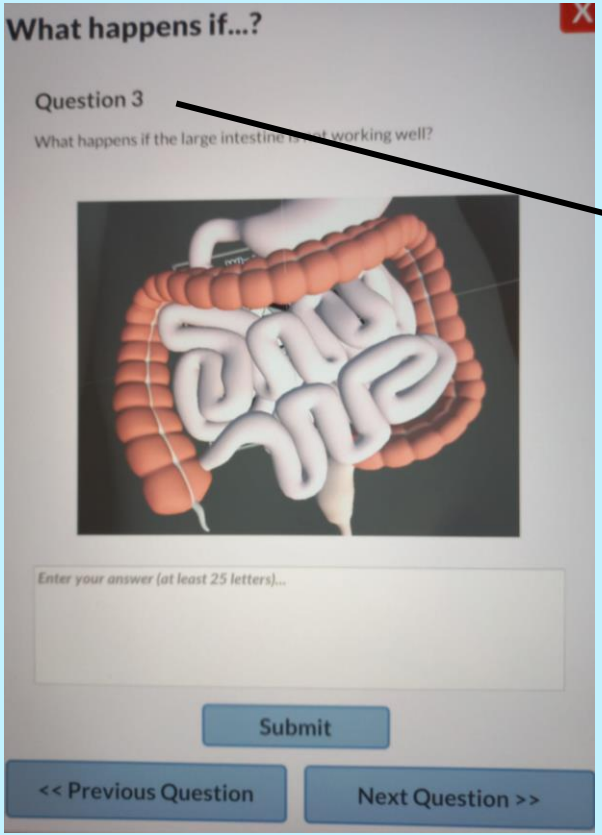
Type in your answer with at least 23 letters

What Happens?

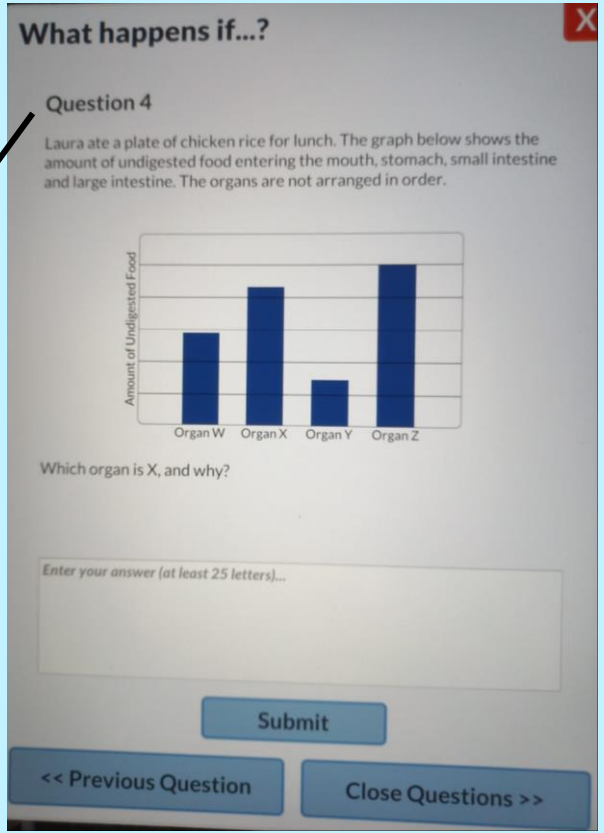


After submission, move on to the next question.

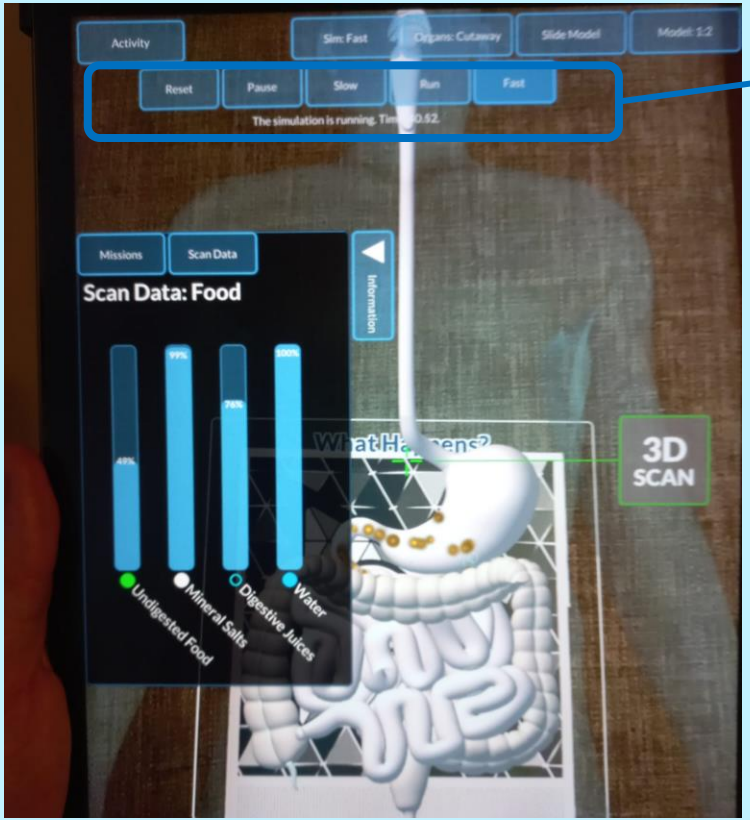
What Happens?



Complete all 4 questions.



What Happens?



Use these to control the simulation.

- Run (slow/fast)
- Pause
- Reset

Place the green cross hairs at the organ where you want to obtain data. Click 3D Scan. Wait for scan to reach 100%.

Reminders for groupwork

1. Be considerate. Work at Volume 1.
2. Be cooperative. Take turns to hold the ipad and write your answers.

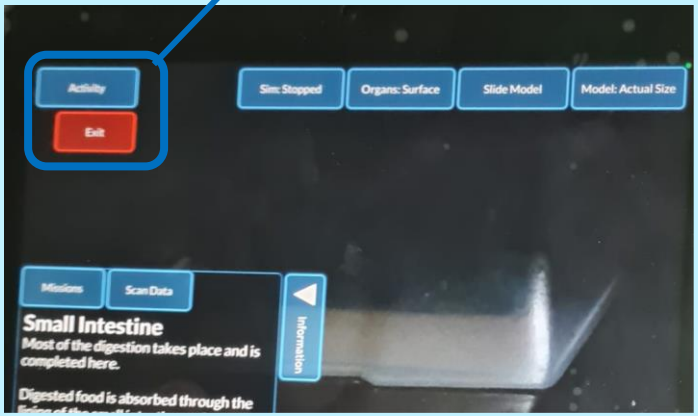
Answer all 4 questions in 15 mins

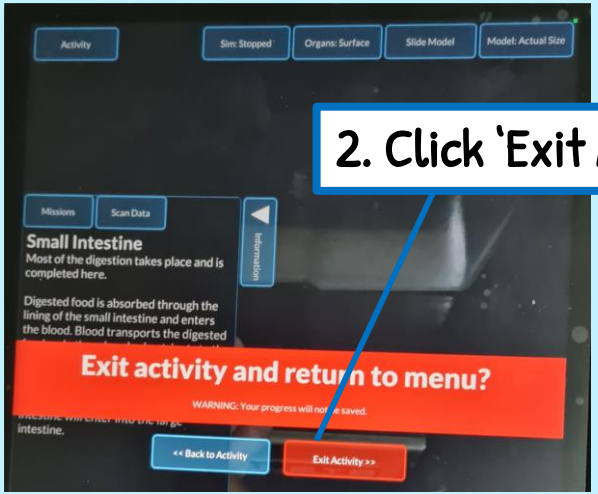
3. Be focused to complete your task in the given time.
4. Be proactive. Raise your hand if you need help.

Take care of the ipad. Do not bend the paper codes.

Exit the activity

1. Click activity on the top left hand corner. Click Exit.





2. Click 'Exit Activity'.

3. Return to 'Scan a Module'.

4. Press 'Home' button.

When you have finished all 4 missions,

Staple the supplementary worksheet to the back of your Activity Worksheet and submit to the front.

Index Number	Roles
Smallest	Collect and return ipads
Middle	Collect and return paper codes
Largest	Collect and return activity worksheets

Case Files

Digestion is the process whereby

Food is broken down into simple(r) substances

for absorption into the body

If each organ works properly, can it complete digestion on its own?

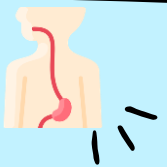
No

Every Organ has a _____ in the digestive system.

Mouth

Teeth cut food into smaller pieces.

Saliva helps to soften food and contains digestive juices to break food down into simple(r) substances.



Gullet

Pushes food from mouth to stomach.

Stomach

Produces digestive juices which help to break down food into simple(r) substances.

Small Intestine

Digestion is completed here. **Digested** food is absorbed into the bloodstream.

Large Intestine

Water is absorbed from **undigested** food (into the blood).

All the organs must work together for digestion to take place properly.

Module – What Happens?

Learning Objective:

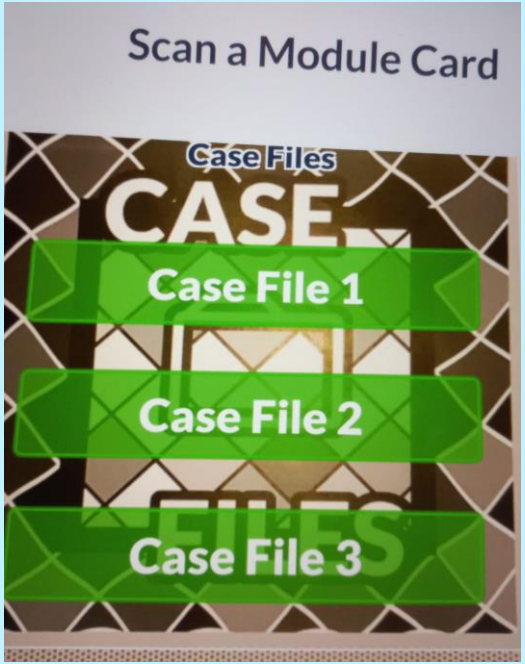
Play the role of a doctor and apply your knowledge of the digestive system to simulated* cases of patients

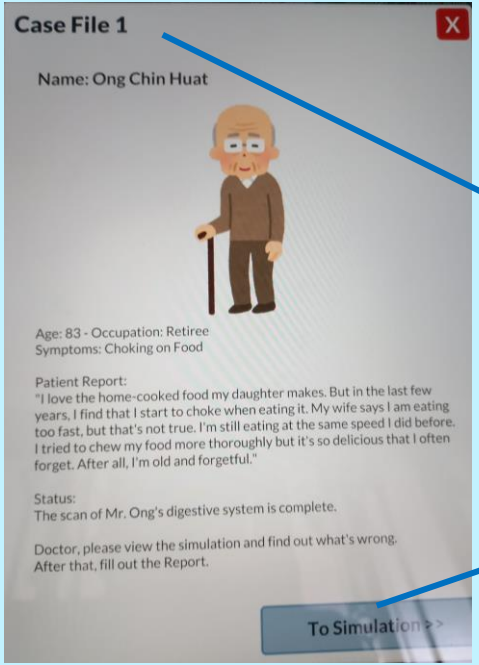
*create a situation/ model that is like one in real-life

Skills involved:

- Make observations during the simulation
- Compare different sets of data
- Draw conclusion about problematic organ
- Suggest a method of treatment

Module - CASE FILES





Information

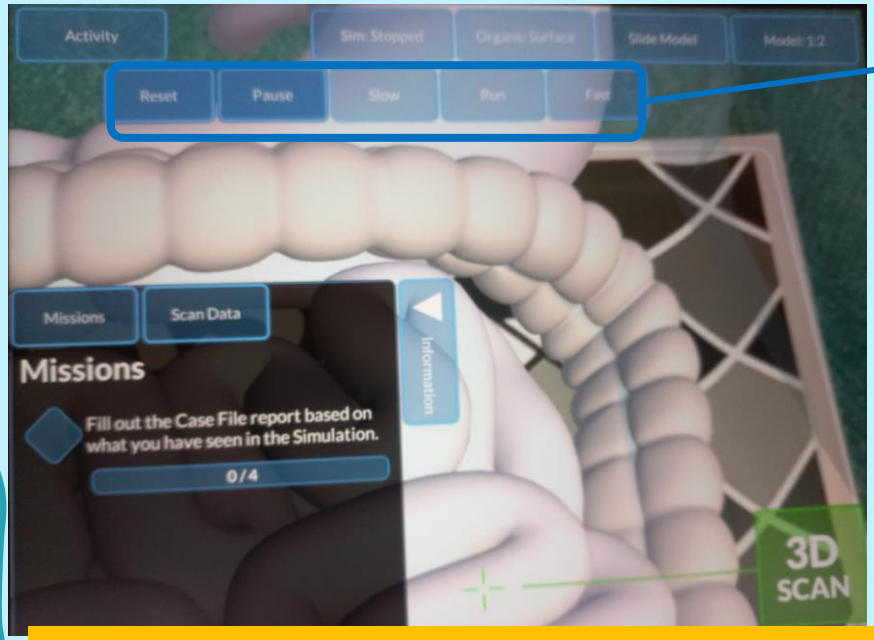
Read the Case File

Run Simulation

Paper code: case files

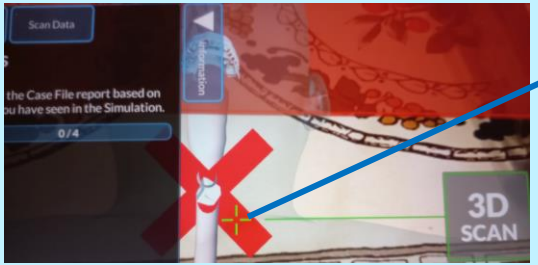
Case files

Run Simulation



Use these to control the simulation.

- Run (slow/fast)
- Pause
- Reset

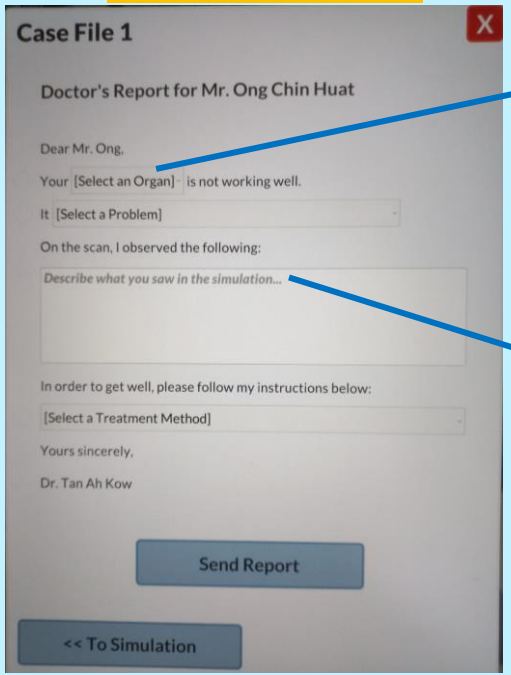


Place the green cross hairs at the organ where you want to obtain data. Click 3D Scan. Wait for scan to reach 100%.

Take down the data in the Page 2 of the supplementary worksheet for comparison.

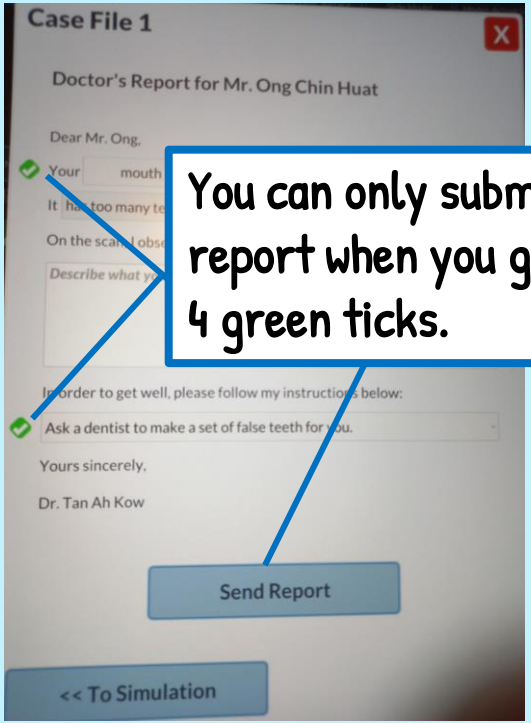
Case files

Doctor's Report



Fill up the Doctor's Report using the options provided.

You will also need to describe what you see in the simulation in at least 23 letters.



You can only submit report when you get 4 green ticks.

Reminders for groupwork

1. Be considerate. Work at Volume 1.
2. Be cooperative. Take turns to hold the ipad and write your answers.

Submit all 3 Doctor's Reports in 15 mins

3. Be focused to complete your task in the given time.
4. Be proactive. Raise your hand if you need help.

Take care of the ipad. Do not bend the paper codes.

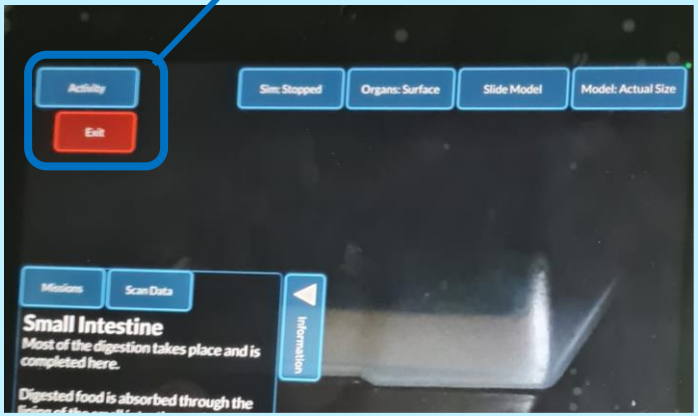
When you have finished all 4 missions,

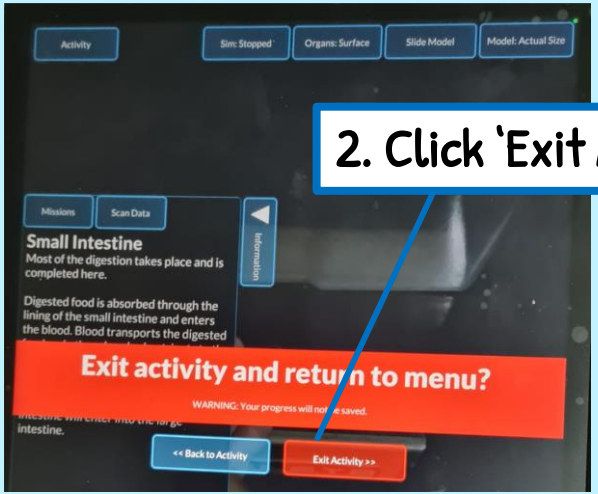
Staple the supplementary worksheet to the back of your Activity Worksheet and submit to the front.

Index Number	Roles
Smallest	Collect and return ipads
Middle	Collect and return paper codes
Largest	Collect and return activity worksheets

Exit the activity

1. Click activity on the top left hand corner. Click Exit.





2. Click 'Exit Activity'.

3. Return to 'Scan a Module'.

4. Press 'Home' button.

Case Files

Consolidation

Case File #1 – Choking on Food

Organ affected: Mouth

Problem: Does not have enough teeth

Case File #1

Case File #1

Symptoms: Choking on Food

Compare and record the size of food before and when it leaves the mouth.

	Size of Food
In the mouth (whole food)	small / medium / large
Leaves the mouth	small / medium / large *

Case File #1 – Choking on Food

Organ affected: Mouth

Problem: Does not have enough teeth

- Not able to chew food properly into smaller pieces due to missing + damaged teeth
- Food pieces are too large
- Food got stuck in the gullet

Solution: Needs a set of false teeth

Case File #2 – Watery Faeces

Organ affected: Large Intestine

Problem: Not absorbing enough water

Case File #2 – Watery Faeces

Case File #2

Symptoms: Watery Faeces

Compare and record the amount of water when it enters and leaves the large intestine.

	Amount of water in Food (%)
Entering the large intestine	98 - 100
Leaving the large intestine	65 - 67

Case File #2 – Watery Faeces

Organ affected: Large Intestine

Problem: Not absorbing enough water

- Amount of water leaving the large intestine was more than normal (data: 100% vs 67%)
- Too little water was absorbed (inference)

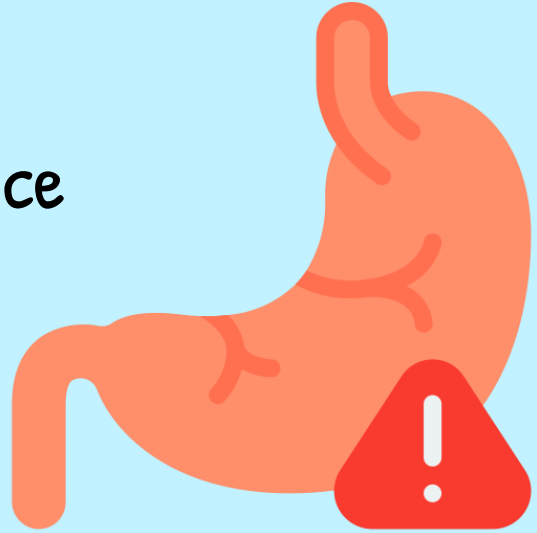
Solution: Take medicine to slow down the speed food moves through the large intestine

More time for absorption of water

Case File #3 – Stomach Pain

Organ affected: Stomach

Problem: Making too much digestive juice



Case File #3 – Stomach Pain

Case File #3

Symptoms: Stomach Pain

Observe what happens when food is in the stomach.

What do you observe in the stomach? a lot of bubbles

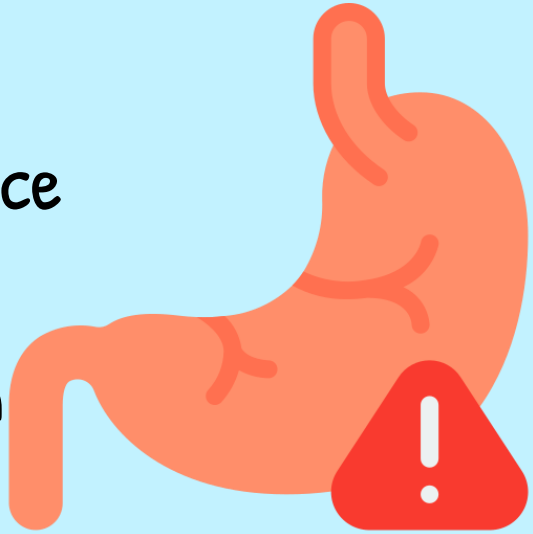
What happens to the appearance of the stomach? became red and swollen

Case File #3 – Stomach Pain

Organ affected: Stomach

Problem: Making too much digestive juice

- Too much digestive juice produced
- Stomach becomes red and inflamed / swollen



Solution: Take medicine to reduce the amount of acid produced (in digestive juice)

Having too much digestive juice → too much acid → stomach gets inflamed as acid breaks down the stomach lining