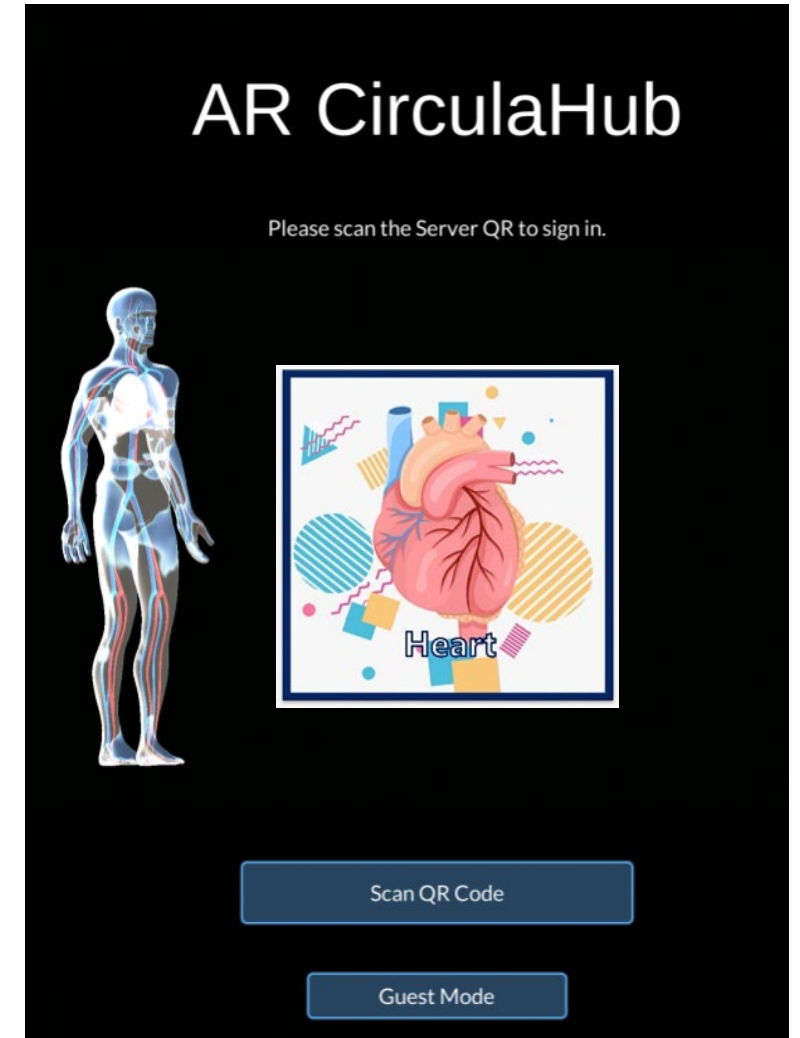
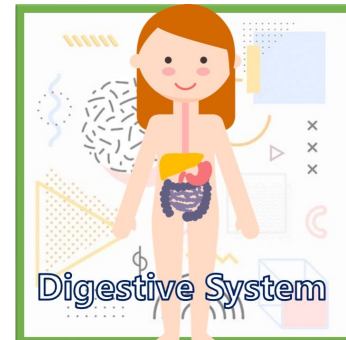
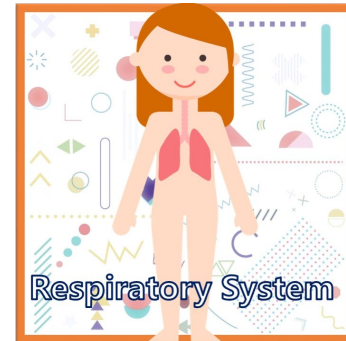
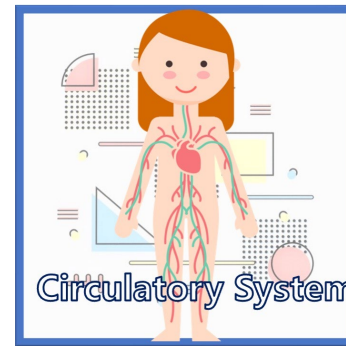
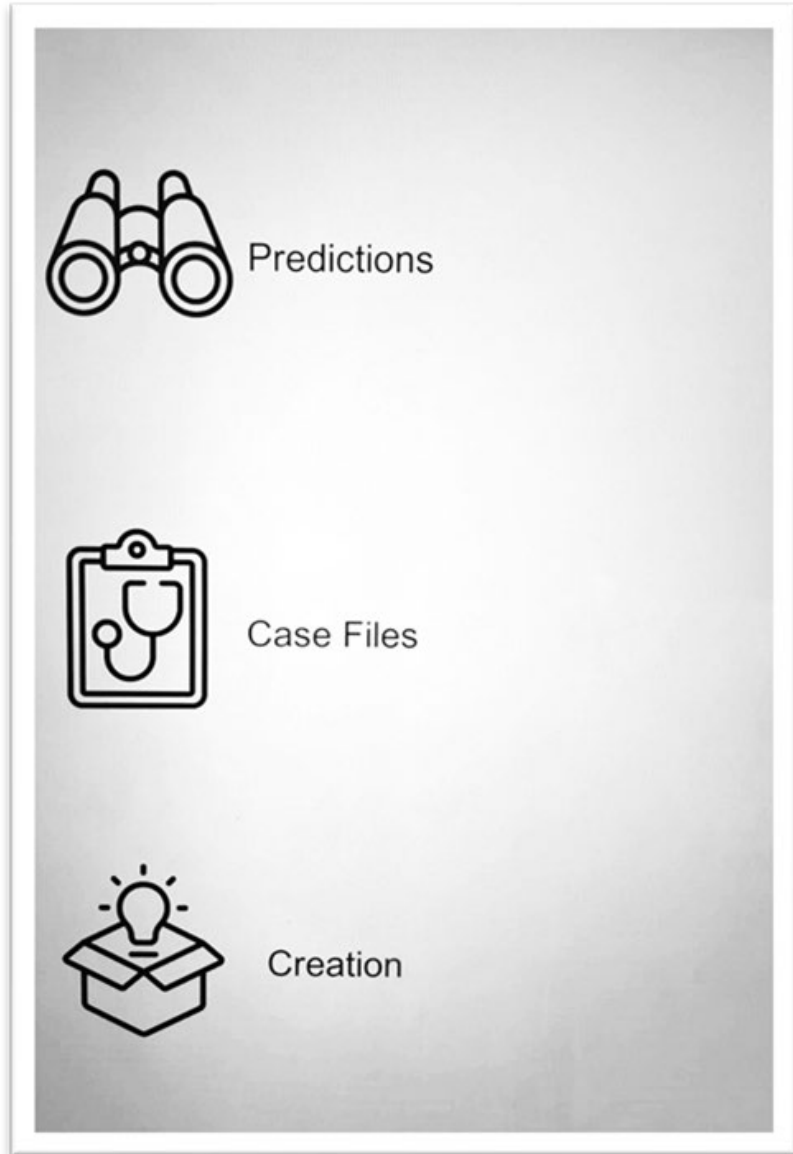


CirculaHub



CirculaHub App – Overview



There are 3 activities under *Predictions*

There are 2 activities under *Case Files*

There is 1 *Creation* activity

**Please complete the accompanying
worksheet while you view your AR**

CirculaHub App-Predictions

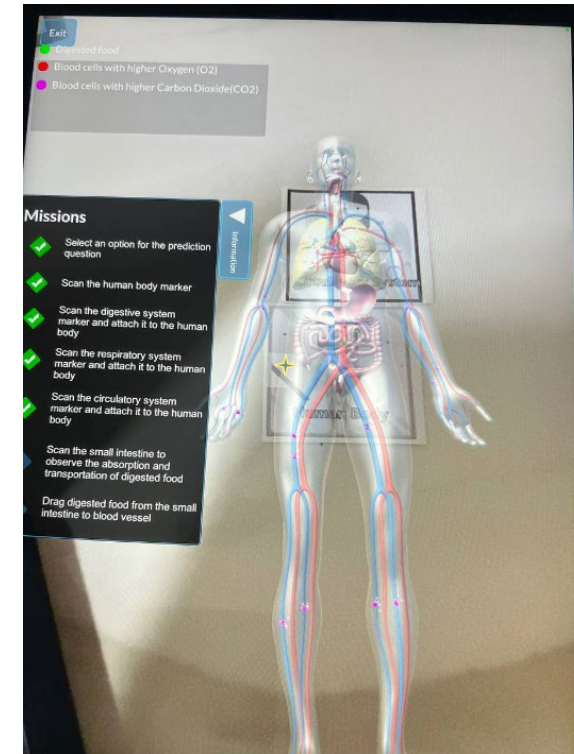
Activity 1 – Predict

(Does the circulatory system work together with the digestive system)

Activity 1 – Scan the different markers

Follow the mission and scan the different human body marker.

* Do remember to remove the different system after you are done with your scanning.

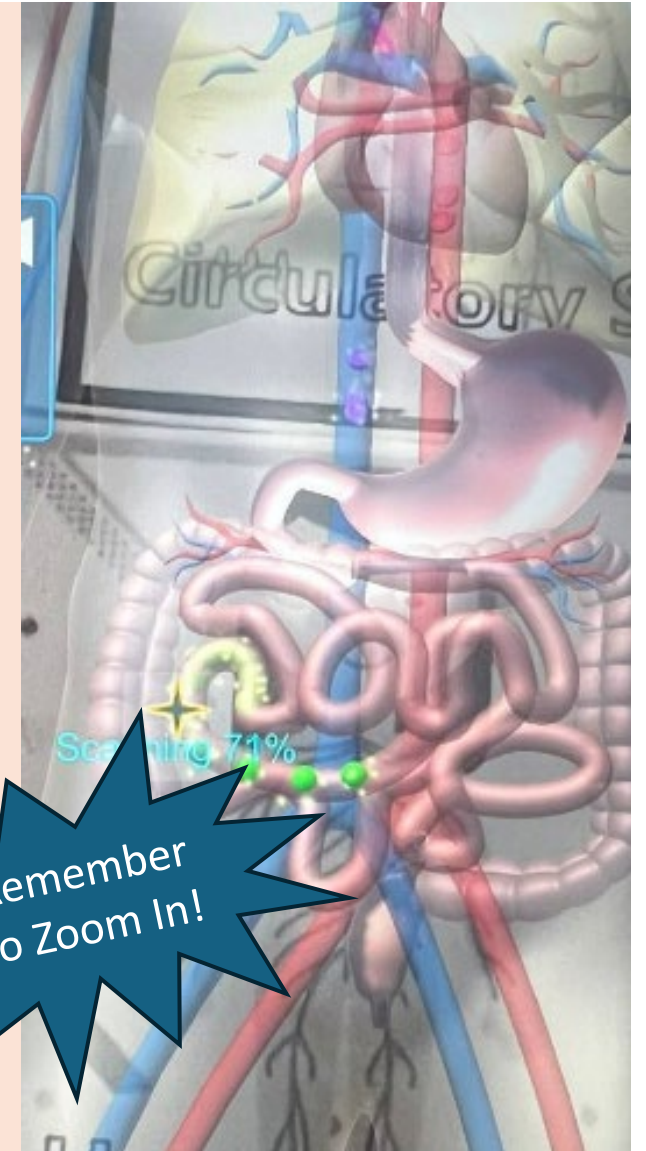




CirculaHub App- Predictions

Does the circulatory system work together with the digestive system? Explain your answer.

There is blood in the blood vessels.



CirculaHub App-Predictions

Activity 2 – Predict

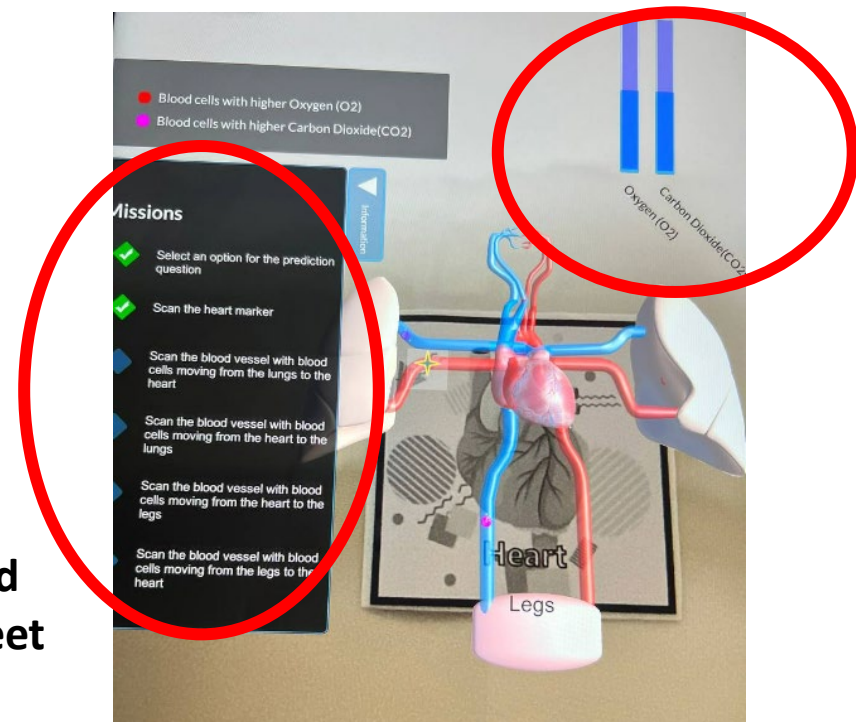
(Does the circulatory system work together with the respiratory system)

Activity – Let’s look at the concentration of oxygen and carbon dioxide in our blood.

- Red : Blood cells with higher oxygen level
- Purple: Blood cells with higher carbon dioxide

Follow the mission and complete the worksheet

Observe the bar and shade the worksheet



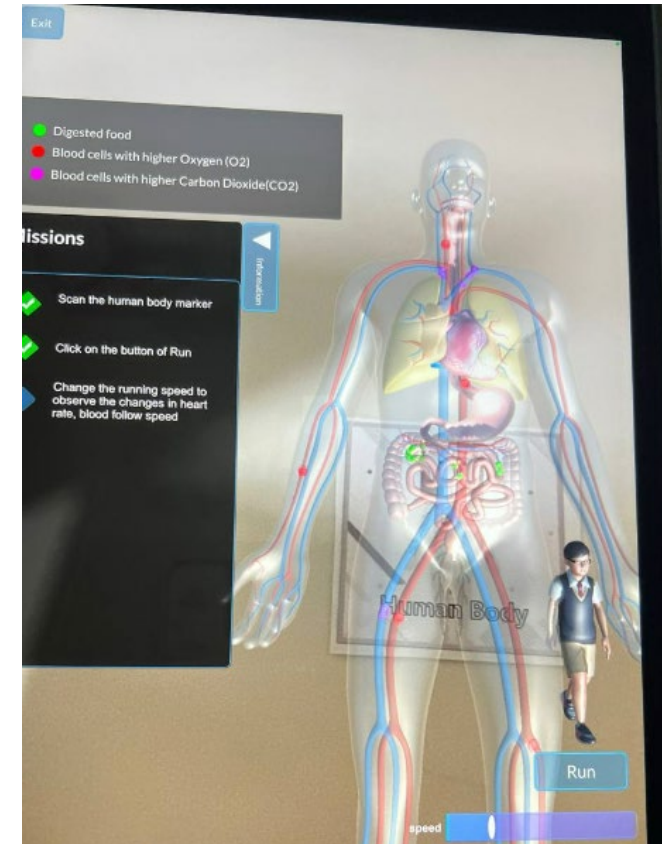
CirculaHub App-Predictions

Activity 3 – Predict

(What happens to our heart rate when we run?)

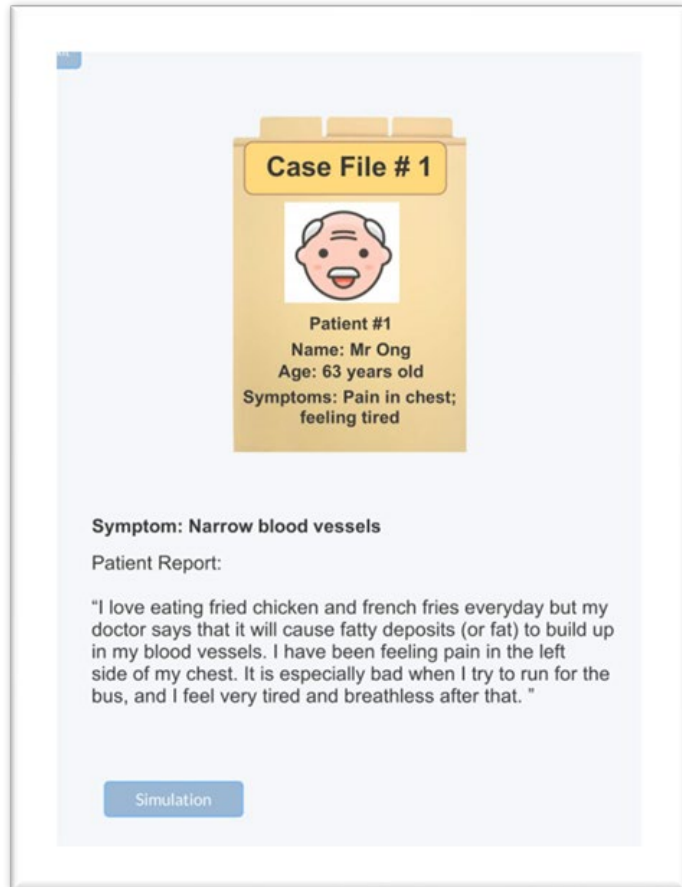
Activity 3- Let's observe

- Red: Blood cells with digested food and oxygen
- Purple: Blood cells with higher carbon dioxide



CirculaHub App – Case Files

You are given two patient reports and will help (1) diagnose the cause of their symptoms and (2) suggest a possible treatment.



The screenshot shows a mobile app interface for 'Case File #1'. At the top, there is a yellow folder icon with the text 'Case File #1'. Below it is a simple line drawing of a man's face. The text reads: 'Patient #1', 'Name: Mr Ong', 'Age: 63 years old', and 'Symptoms: Pain in chest; feeling tired'. Below the folder is a section titled 'Symptom: Narrow blood vessels' and 'Patient Report:' followed by a paragraph: 'I love eating fried chicken and french fries everyday but my doctor says that it will cause fatty deposits (or fat) to build up in my blood vessels. I have been feeling pain in the left side of my chest. It is especially bad when I try to run for the bus, and I feel very tired and breathless after that.' At the bottom left, there is a blue button labeled 'Simulation'.

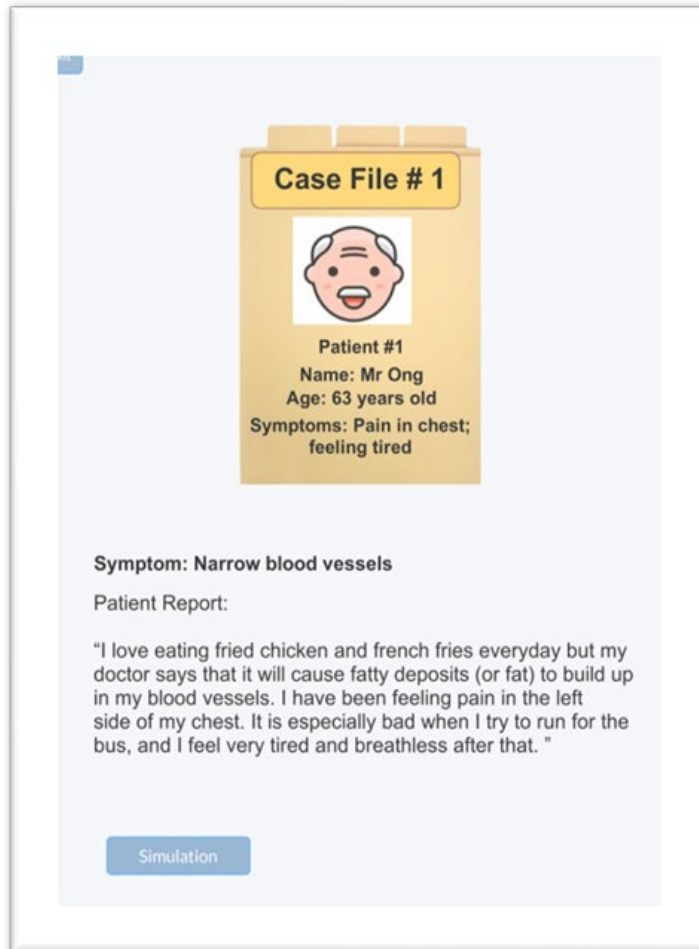


The screenshot shows a mobile app interface for 'Case File #2'. At the top, there is a yellow folder icon with the text 'Case File #2'. Below it is a simple line drawing of a boy's face. The text reads: 'Patient #2', 'Name: Lenny', 'Age: 11 years old', and 'Symptoms: Feel tired all the time'. Below the folder is a section titled 'Symptom: Feel tired all the time' and 'Patient Report:' followed by a paragraph: 'I was sick and I lost a lot of blood due to my illness. I enjoy PE lessons but now I cannot even play my favourite soccer game as I feel tired all the time. I feel breathless, even when I am lying down. The doctor says that I need a blood transfusion.' At the bottom left, there is a blue button labeled 'Simulation'.

STEP 1 → STEP 2 → STEP 3

Case File

Read the patient's report



The screenshot shows a digital case file for 'Case File #1'. It features a patient icon, name 'Mr Ong', age '63 years old', and symptoms 'Pain in chest; feeling tired'. Below this is a 'Symptom: Narrow blood vessels' section and a 'Patient Report' with a paragraph of text. At the bottom, there is a 'Simulation' button.

Case File #1

Patient #1
Name: Mr Ong
Age: 63 years old
Symptoms: Pain in chest; feeling tired

Symptom: Narrow blood vessels

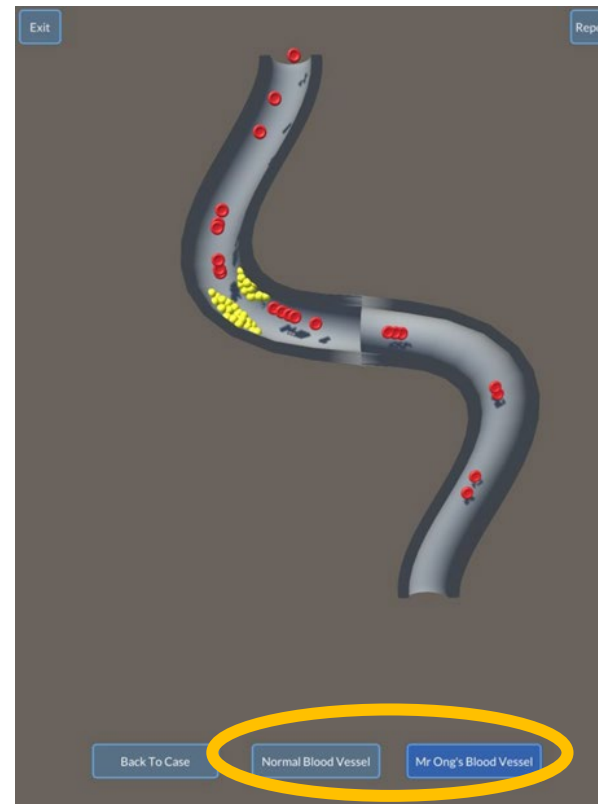
Patient Report:

"I love eating fried chicken and french fries everyday but my doctor says that it will cause fatty deposits (or fat) to build up in my blood vessels. I have been feeling pain in the left side of my chest. It is especially bad when I try to run for the bus, and I feel very tired and breathless after that."

Simulation

Simulation

Compare the patient's condition to a normal person's condition



The screenshot shows a 3D simulation of a blood vessel. It compares a 'Normal Blood Vessel' (left) with 'Mr Ong's Blood Vessel' (right). The normal vessel is wider and has fewer red blood cells, while the patient's vessel is narrower and has a significant blockage. At the bottom, there are buttons for 'Back To Case', 'Normal Blood Vessel', and 'Mr Ong's Blood Vessel'. The 'Normal Blood Vessel' and 'Mr Ong's Blood Vessel' buttons are circled in yellow.

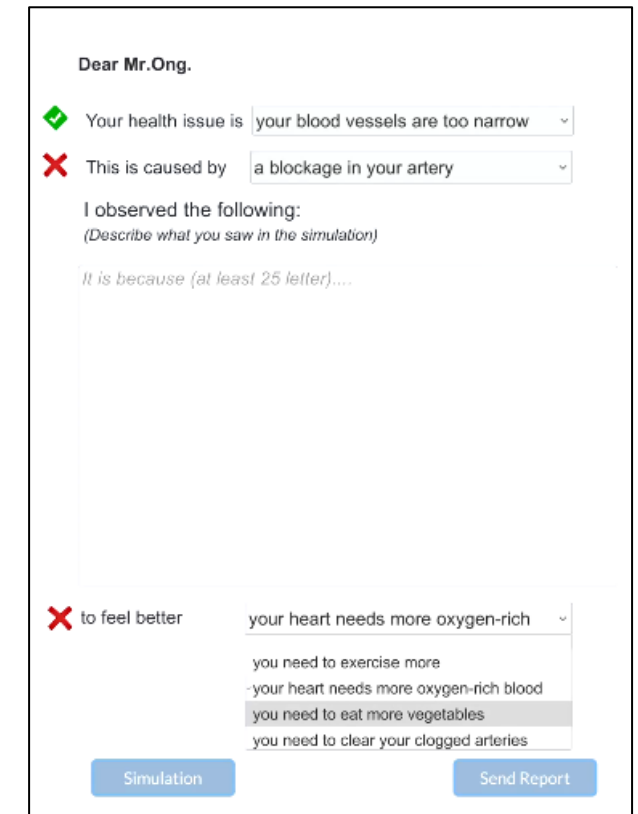
Exit Report

Back To Case Normal Blood Vessel Mr Ong's Blood Vessel

Use the buttons to switch between the simulation for normal person and patient

Case Report

Discuss the cause of and possible treatment for the symptoms



The screenshot shows a 'Case Report' form. It starts with 'Dear Mr.Ong.' and has three green checkmarks for correct answers: 'Your health issue is your blood vessels are too narrow', 'This is caused by a blockage in your artery', and 'to feel better your heart needs more oxygen-rich'. There are also red X marks for incorrect answers: 'I observed the following: (Describe what you saw in the simulation) It is because (at least 25 letter)...' and 'you need to exercise more'. At the bottom, there are 'Simulation' and 'Send Report' buttons.

Dear Mr.Ong.

✔ Your health issue is your blood vessels are too narrow

✘ This is caused by a blockage in your artery

I observed the following:
(Describe what you saw in the simulation)

It is because (at least 25 letter)...

✘ to feel better your heart needs more oxygen-rich

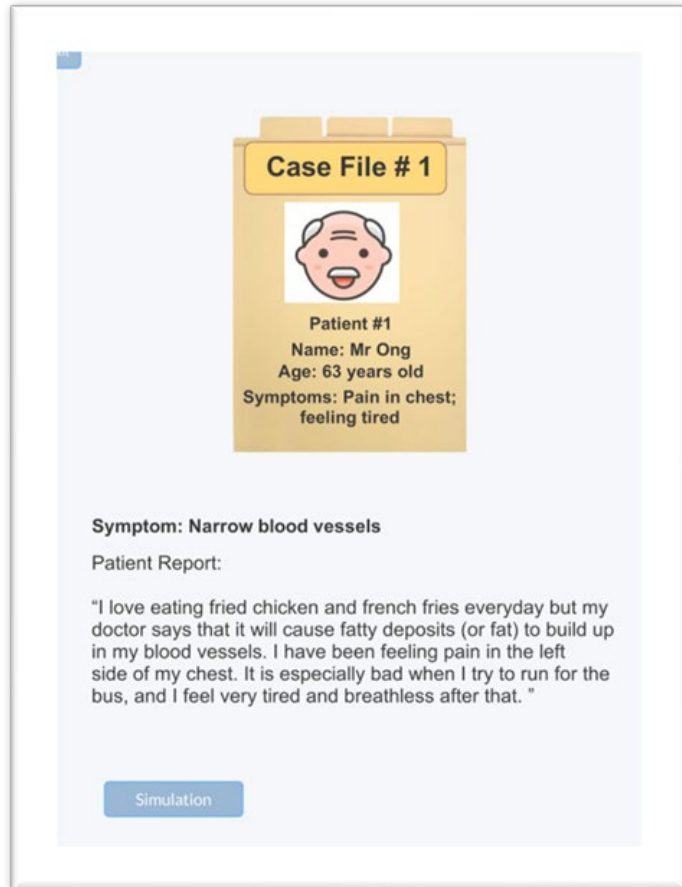
you need to exercise more
-your heart needs more oxygen-rich blood
you need to eat more vegetables
-you need to clear your clogged arteries

Simulation Send Report

Click "Send Report" to check your answers. You must have three green ticks to complete the case.

CirculaHub App – Case Files 1

You are given two patient reports and will help (1) diagnose the cause of their symptoms and (2) suggest a possible treatment.



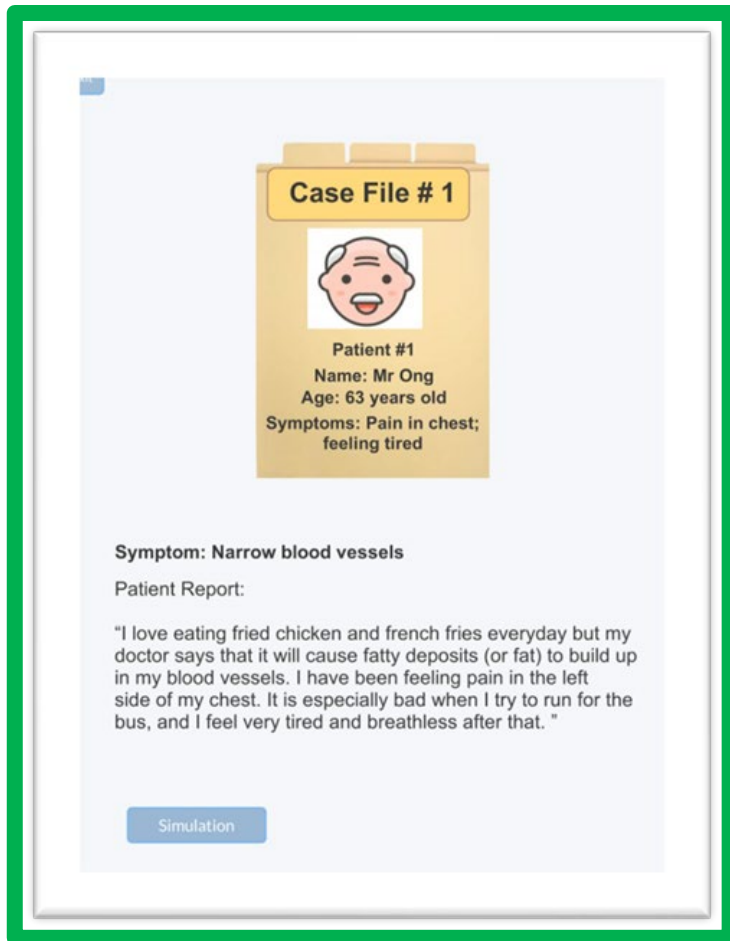
The screenshot shows a mobile app interface for 'Case File #1'. At the top, there is a yellow header with the text 'Case File #1' and a small icon of a person's head. Below this, the patient's details are listed: 'Patient #1', 'Name: Mr Ong', 'Age: 63 years old', and 'Symptoms: Pain in chest; feeling tired'. A 'Symptom: Narrow blood vessels' is also noted. The 'Patient Report' section contains a paragraph of text: "I love eating fried chicken and french fries everyday but my doctor says that it will cause fatty deposits (or fat) to build up in my blood vessels. I have been feeling pain in the left side of my chest. It is especially bad when I try to run for the bus, and I feel very tired and breathless after that." At the bottom left, there is a blue button labeled 'Simulation'.




The screenshot shows a mobile app interface for 'Case File #2'. At the top, there is a yellow header with the text 'Case File #2' and a small icon of a person's head. Below this, the patient's details are listed: 'Patient #2', 'Name: Lenny', 'Age: 11 years old', and 'Symptoms: Feel tired all the time'. A 'Symptom: Feel tired all the time' is also noted. The 'Patient Report' section contains a paragraph of text: "I was sick and I lost a lot of blood due to my illness. I enjoy PE lessons but now I cannot even play my favourite soccer game as I feel tired all the time. I feel breathless, even when I am lying down. The doctor says that I need a blood transfusion." At the bottom left, there is a blue button labeled 'Simulation'.

CirculaHub App – Case Files 1

You are given two patient reports and will help (1) diagnose the cause of their symptoms and (2) suggest a possible treatment.



Case File # 1



Patient #1
Name: Mr Ong
Age: 63 years old
Symptoms: Pain in chest;
feeling tired

Symptom: Narrow blood vessels

Patient Report:

"I love eating fried chicken and french fries everyday but my doctor says that it will cause fatty deposits (or fat) to build up in my blood vessels. I have been feeling pain in the left side of my chest. It is especially bad when I try to run for the bus, and I feel very tired and breathless after that."

Simulation



Case File # 2



Patient #2
Name: Lenny
Age: 11 years old
Symptoms: Feel tired all
the time

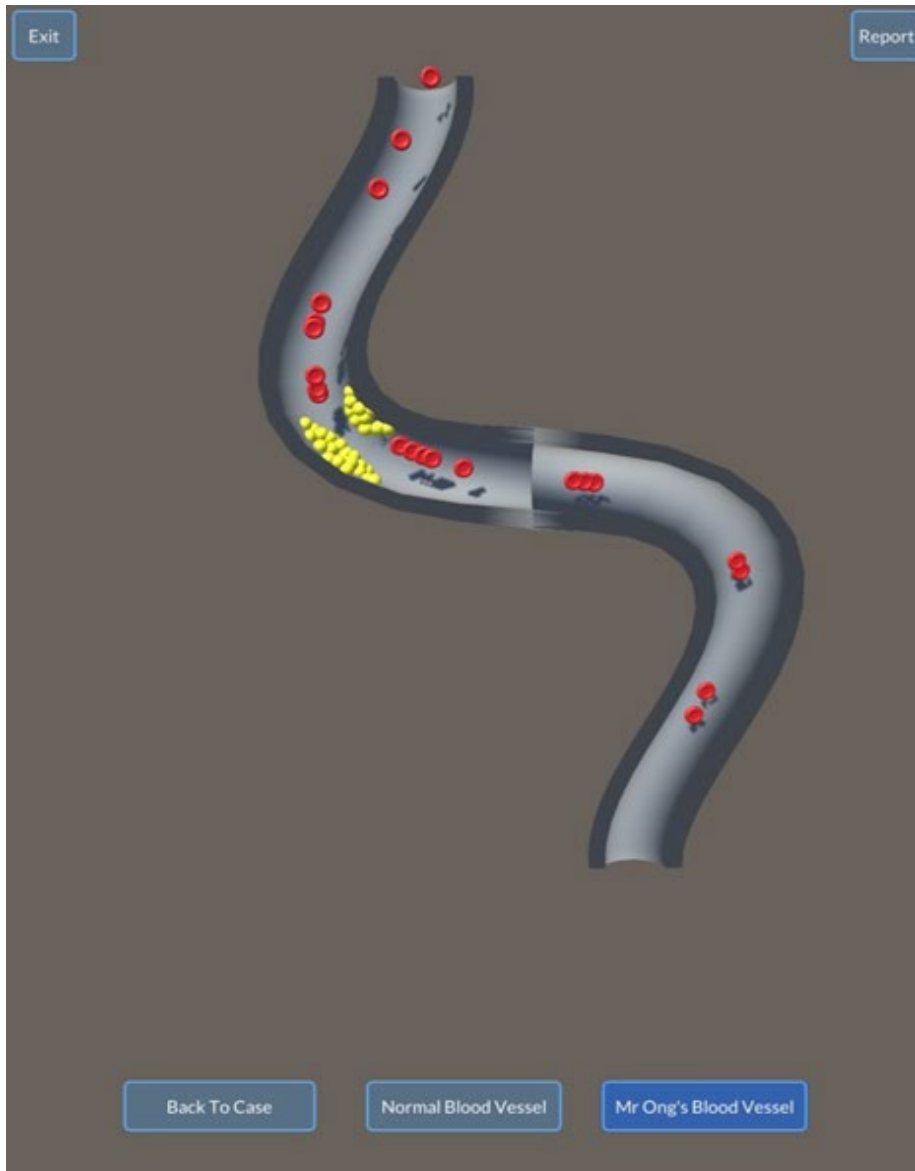
Symptom: Feel tired all the time

Patient Report:

"I was sick and I lost a lot of blood due to my illness. I enjoy PE lessons but now I cannot even play my favourite soccer game as I feel tired all the time. I feel breathless, even when I am lying down. The doctor says that I need a blood transfusion."

Simulation

CirculaHub App – Case Files 1



Mr Ong loves eating fried foods.

His doctor told him that this causes fatty deposits in his blood vessels.

Mr Ong also gets tired and breathless easily.

CirculaHub App – Case Files 1

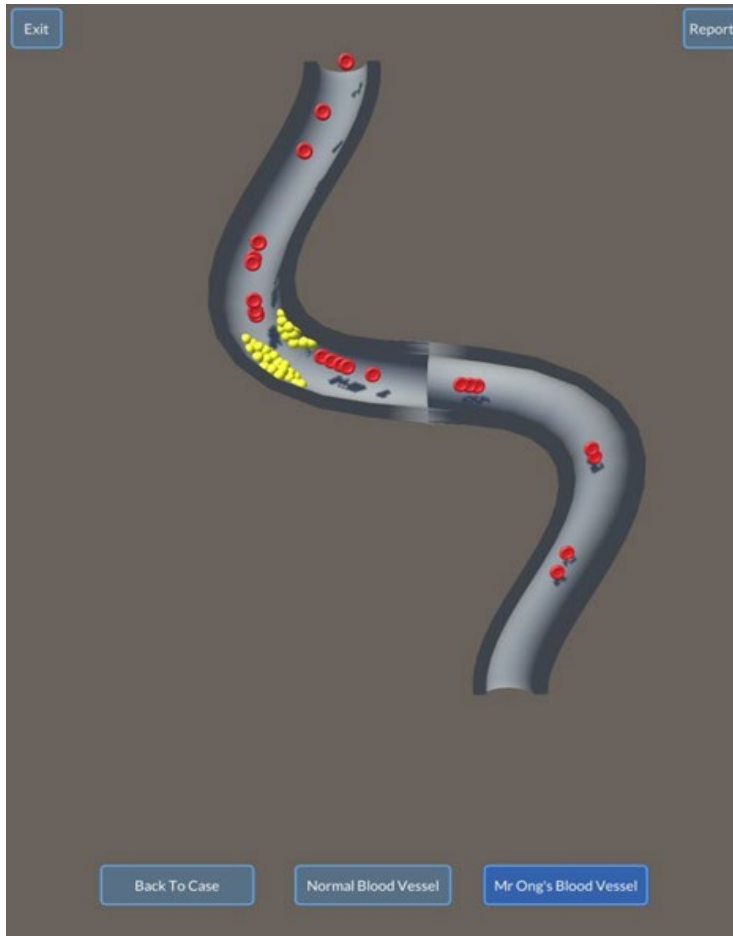


Questions

- Why is there a build up of fatty deposits?
- What is the effect of the build-up of fatty deposits on the blood vessel and blood flow?
- What will happen to your heart rate?
- How does this lead to shortness of breath?

CirculaHub App – Case Files 1

Mr Ong loves eating fried foods. His doctor told him that this causes fatty deposits in his blood vessels. Mr Ong also gets tired and breathless easily.



Eating too much fatty foods causes fatty deposits.
(4 groups)

CAUSE

Blood vessels get narrower due to accumulation of fat which slows down blood flow through the vessel
(10 groups)

EFFECT

Feeling tired and breathless due to a lack of oxygen (and digested foods) or slower transport of oxygen around the body
(3 groups)

Tired – not enough oxygen
Breathlessness – body signals respiratory system to breathe faster to try to take in more oxygen

CirculaHub App – Case Files 1

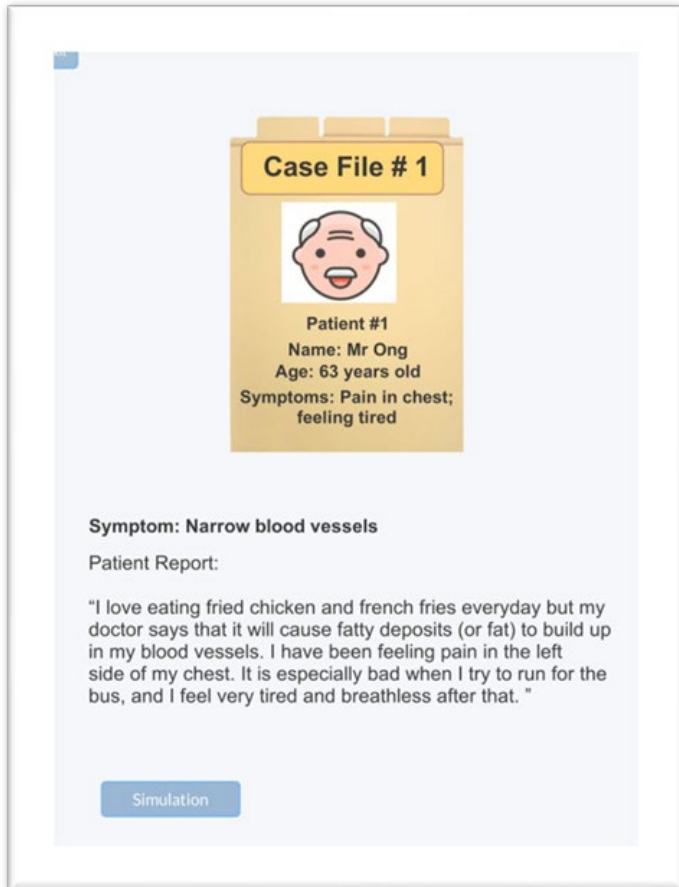
BLOOD CLOT

BLOCKS YOUR ARTERY




CirculaHub App – Case Files 2

You are given two patient reports and will help (1) diagnose the cause of their symptoms and (2) suggest a possible treatment.



Case File # 1



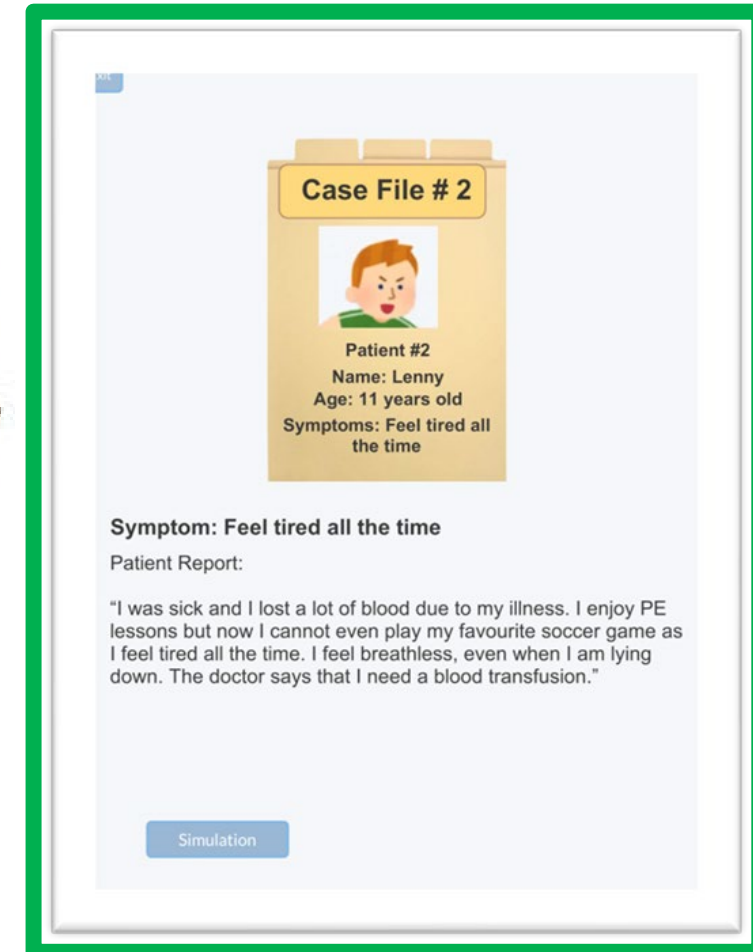
Patient #1
Name: Mr Ong
Age: 63 years old
Symptoms: Pain in chest;
feeling tired

Symptom: Narrow blood vessels


Patient Report:

"I love eating fried chicken and french fries everyday but my doctor says that it will cause fatty deposits (or fat) to build up in my blood vessels. I have been feeling pain in the left side of my chest. It is especially bad when I try to run for the bus, and I feel very tired and breathless after that."

Simulation



Case File # 2



Patient #2
Name: Lenny
Age: 11 years old
Symptoms: Feel tired all
the time

Symptom: Feel tired all the time

Patient Report:

"I was sick and I lost a lot of blood due to my illness. I enjoy PE lessons but now I cannot even play my favourite soccer game as I feel tired all the time. I feel breathless, even when I am lying down. The doctor says that I need a blood transfusion."

Simulation

CirculaHub App – Case Files 2



Lenny lost a lot of blood due to an illness.

Now, he feels tired and breathless all the time. He can no longer be as active as he was before.

His doctor recommends that he gets a blood transfusion.

CirculaHub App – Case Files 2



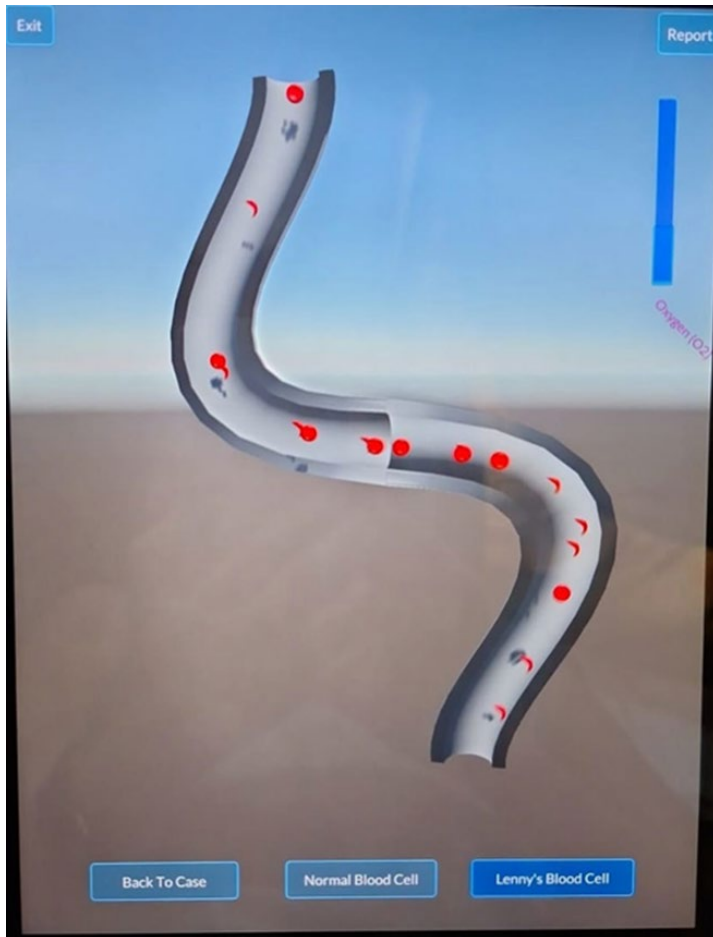
SICKLE CELL DISEASE

Questions

- How does the shape of the blood cell affect blood flow?
- How does this affect your breathing rate?
- How does this affect growth?

CirculaHub App – Case Files 2

Lenny lost a lot of blood due to an illness. Now, he feels tired and breathless all the time. He can no longer be as active as he was before.



Blood cells have a sickle/unhealthy shape.
(6 groups)

Not enough oxygen-rich blood transported.
(6 groups)

Body parts do not receive enough oxygen (and digested food) causing you to feel tired.
(3 groups)

How would a blood transfusion help?

CirculaHub App – Case Files 2



CirculaHub App – Creation

You will investigate a procedure to help address a health issue.

Exit Create a solution that can help the patient in the Case file #1

Case File # 1



Patient #1
Name: Mr Ong
Age: 63 years old
Symptoms: Pain in chest; feeling tired

Symptom: Narrow blood vessels

Doctor's Report for Mr Ong

Mr Ong's blood vessels are too narrow, as there is a blockage in his arteries. He needs to clear his clogged arteries via surgery.

Simulation Solution



The description of tool

Select your tools from above

Two empty boxes for selecting tools.

We chose the above tools because

It is because (at least 25 letter)....

Send Report

1. Click on the different tools and read their descriptions.
2. Select two tools and share the reason(s) for your choice.
3. Sort out the procedure steps.
4. Observe the simulation.
5. Discuss why and how the procedure will help Mr Ong, based on what you have learnt.

CirculaHub App – Creation

WHAT HAPPENS DURING
A HEART ATTACK?



Special thanks to the team at Nanyang Primary School for creating these slides.