

CIRCULATION AND GAS EXCHANGE

LESSON 2 - CIRCULATION

INTRODUCTION TO THE LESSON

Note: The bot for this lesson is named HEROPHILUS.

Bot: Hello again, SCI-learner!

Welcome back to your science journey here in Roxas City, Capiz, where life flows—just like your blood!

Bot: In the last lesson, you learned about the heart, blood, and blood vessels. Today, we'll focus on how blood moves in specific pathways, just like jeepneys and tricycles following routes around the city.

Bot: This lesson is called Circulation.

(Insert diagram showing circulation of the blood)

Ready to follow the path of your blood?

User:

- Yes, let's go!
- I'm ready!

Fa-SCI-nate

Bot: Imagine this...

You jog along Baybay Roxas early in the morning.

(Attached picture showing a girl jog along Baybay road)

You breathe faster, and your heart beats harder.

Bot: Where do you think your blood goes first to get oxygen?

User:

- To the lungs
- To the stomach
- To the legs

Branching Response

Bot (Correct – Lungs): Correct! Your blood travels to the lungs to release carbon dioxide and pick up oxygen.

Bot (Incorrect): Not quite. Before oxygen reaches your muscles, blood must first go to the lungs. Let's learn how that happens!

Goal SCI-tting

Bot: By the end of this lesson, you will be able to:

1. Differentiate between the pulmonary and systemic circuits
2. Explain how blood transports oxygen, nutrients, and wastes

Bot: These goals are like your travel map—let's follow them step by step!

User:

- ▶ Let's continue

Pre-SCI-ntation

Bot: Blood does not move randomly inside your body.

Bot: Instead, it follows specific pathways called blood circuits.

Bot: Just like how public transport in Roxas City has routes, blood also has two main routes:

- 1 Pulmonary circuit
- 2 Systemic circuit

Bot: Let's explore each one.

Inve-SCI-tigation

Part 1: Pulmonary Circuit

Bot: The pulmonary circuit is the pathway between the heart and the lungs.

Bot: Its main job is to:

- Remove carbon dioxide
- Refill blood with oxygen

Bot: Blood flows from the right ventricle → lungs → left atrium.

(Attached a diagram showing the blood flow in the pulmonary circuit.)

Bot: Which gas is removed in the lungs?

User:

- ▶ Oxygen
- ▶ Carbon dioxide

Branching Response:

Bot (Correct – Carbon dioxide): Correct! Carbon dioxide is released, and oxygen enters the blood.

Bot (Incorrect): Not quite. Oxygen is absorbed, not removed.
The gas removed is carbon dioxide.

Part 2: Systemic Circuit

Bot: The systemic circuit carries blood from the heart to the rest of the body.

Bot: It delivers:

- Oxygen
- Nutrients
- Hormones

Bot: It also collects waste materials.

Bot: Blood flows from the left ventricle → body tissues → right atrium.

Bot: Which circuit do you think is larger?

User:

- Pulmonary circuit
- Systemic circuit

Branching Response

Bot (Correct – Systemic): Correct! The systemic circuit is larger because it supplies the entire body.

Bot (Incorrect): Not quite. The pulmonary circuit only goes to the lungs.
The systemic circuit reaches all body parts.

Mini Investigation (Conceptual)

Bot: Think of blood vessels like straws of different sizes.

Bot: If water flows faster in a wider straw, what does that represent in your body?

User:

- Blood flowing in larger vessels
- Blood stopping in the heart

Bot: Correct! Larger vessels allow faster blood flow, helping circulation stay continuous.

Self-A-SCI-ssment

Bot: Let's check what you've learned!

Bot:

1. Which circuit removes carbon dioxide from the blood?
2. Which circuit supplies oxygen to body tissues?
3. Where does blood entering the left atrium come from?

User:

- ▶ From the lungs
- ▶ From the body tissues

Branching Response:

Bot (Correct – From the lungs): Correct! Blood entering the left atrium comes from the lungs and is oxygen-rich.

Bot (Incorrect): Not quite. Blood from body tissues enters the right atrium, not the left.

SCI-pplementary

Bot: Did you know?

The first stethoscope was made of wood over 170 years ago!

Bot: To keep your circulation healthy here in Roxas City:

- ❤ Stay active (walk, bike, dance!)
- ❤ Eat nutritious food (fresh fish helps!)
- ❤ Avoid smoking and too much fatty food

Bot: A healthy heart means a healthy life!

CLOSING

Bot: Great job, SCI-learner! You've successfully followed the path of blood through the pulmonary and systemic circuits.

Bot: Next up: how circulation and gas exchange work together to keep your body alive and energized.

Bot: Padayon sa pagtukib sa SCI-ensiya!

See you in the next lesson!