CIRCULATION AND GAS EXCHANGE

LESSON 4 – Circulatory and Respiratory Diseases: Prevention and Treatment

INTRODUCTION TO THE LESSON

Bot: Hello, SCI-learner! Welcome back to our science journey here in Roxas City where fresh seafood, coastal air, and an active lifestyle are part of everyday life.

Bot: But have you noticed how pollution, unhealthy food, or lack of exercise can affect how we breathe and how our hearts work?

Bot: Today's lesson focuses on circulatory and respiratory diseases, and more importantly—how we can prevent them.

Bot: Ready to learn how to protect your heart and lungs?

User:

- ▶ Yes, let's start!
- ▶ I'm ready!

Fa-SCI-nate

Bot: Imagine this...
You're walking near a busy road of Avenue Street in Roxas City.
You smell smoke, feel short of breath, and start coughing.

Bot: What do you think smoke and pollution can do to your lungs and heart?

User:

- ▶ They can damage them
- ▶ They make them stronger
- ▶ I'm not sure

Branching Response:

Bot (Correct): Correct! Harmful substances can damage both the respiratory and circulatory systems.

Bot (Incorrect / Not sure): Not quite. Pollution and smoke harm the lungs and blood vessels over time.

Goal SCI-tting

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

1. Explain how harmful substances affect the heart and lungs
2. Explain how lifestyle choices influence circulatory and respiratory health

Bot: These goals will help you make healthier choices—now and in the future.

User:
▶️ Continue

Pre-SCI-ntation

Bot: Your circulatory system and respiratory system work closely together.

Bot:
The lungs supply oxygen to the blood
The heart pumps oxygen-rich blood to the body
Carbon dioxide is brought back to the lungs and exhaled

Bot: When one system is unhealthy, the other is affected too.

Bot: But sometimes, these systems don't function properly—leading to diseases.

Inve-SCI-tigation

Part 1: Circulatory Diseases

Bot: Two common circulatory diseases are:

(Note: include photo of each disease)

1. **Atherosclerosis**
   – Fatty substances (cholesterol plaques) build up in arteries
   – Blood flow becomes restricted
2. **Hypertension (High Blood Pressure)**
   – Blood pressure stays high for a long time
   – Often has no symptoms, so it's called the "silent killer"

Bot: Which circulatory disease is called the "silent killer"?

User:
▶️ Atherosclerosis
▶️ Hypertension

Branching Response:

Bot (Correct – Hypertension): Correct! Hypertension often has no warning signs.

Bot (Incorrect): Not quite. Hypertension is called the silent killer because it may go unnoticed.

Part 2: Respiratory Diseases

(Note: include photo of each disease)

Bot: Common respiratory diseases include:

1. **Asthma** – narrowing of airways due to allergies or pollution
2. **Bronchitis** – inflammation of bronchi
3. **Cystic fibrosis** – genetic disorder causing thick mucus
4. **Emphysema** – destruction of alveoli (no cure yet)
5. **Lung cancer** – uncontrolled cell growth
6. **Pulmonary fibrosis** – scarring of lung tissue

Bot: Which disease is commonly linked to smoking?

User:

▶️ Lung cancer
▶️ Asthma
▶️ Bronchitis

Bot: Correct! Lung cancer is strongly linked to smoking.

Part 3: How the Two Systems Work Together

Bot: Here's how the two systems interact:

The heart sends oxygen-poor blood to the lungs
The lungs add oxygen and remove carbon dioxide
The heart pumps oxygen-rich blood to the body

Bot:
What happens if gas exchange in the lungs is poor?

User:

▶️ Body cells get less oxygen
▶️ The heart beats slower
▶️ Nothing changes

Bot: Correct! Less oxygen means less energy for body cells.

Self-A-SCI-ssment

Bot: Let's test your understanding!

Bot:
1. Why are atherosclerosis and hypertension called lifestyle diseases?
2. Why is hypertension known as the silent killer?
3. Which respiratory diseases are mainly caused by pollution?

User:
▶️ Because of unhealthy habits
▶️ Because they happen suddenly

Branching Response:

Bot (Correct): Correct! Unhealthy habits like poor diet, smoking, and inactivity increase risk.

Bot (Incorrect): Not quite.
These diseases develop slowly due to lifestyle choices.

SCI-pplementary

Bot: Prevention is always better than cure!

Bot: A heart-healthy lifestyle includes:

Eating nutritious food (fresh fish, vegetables, fruits)
Staying physically active
Avoiding smoking and second-hand smoke
Maintaining healthy body weight
Reducing salt and fatty food intake

Bot: Small daily choices can protect your heart and lungs for life.

CLOSING

Bot: Great job, SCI-learner! You've learned how circulatory and respiratory diseases develop—and how to prevent them.

Bot: Remember: A healthy lifestyle today means a healthier tomorrow.

Bot: Padayon sa pag-atipan sang imo lawas ka SCI-ensiya! See you in the next topic!