

*Important Concepts . . .*

# **Preview Review**



***Science***

***Grade 8 TEACHER KEY***

***W2 - Lesson 5: Problems Associated  
with Body Systems***

## Important Concepts of Grade 8 Science

## Materials Required

Textbook:  
*Science in  
Action 8*

W1 - Lesson 1 .....	Mass, Volume, and Density
W1 - Lesson 2 .....	Solubility and Saturation Points
W1 - Lesson 3A.....	Viscosity, Flow Rate, and Buoyancy
W1 - Lesson 3B.....	Simple Machines
W1 - Lesson 4 .....	Gears, Mechanical Advantage, Speed Ratios, and Efficiency
W1 - Lesson 5 .....	Hydraulics and Pneumatics
W1 - Quiz .....	
W2 - Lesson 1 ....	The Role of Cells within Living Things, Cells-Tissue-Organ System
W2 - Lesson 2 .....	The Microscope
W2 - Lesson 3 .....	Body Systems Part 1
W2 - Lesson 4 .....	Body Systems Part 2
W2 - Lesson 5 .....	Problems Associated with Body Systems
W2 - Quiz .....	
W3 - Lesson 1 .....	Transmission and Absorption of Light
W3 - Lesson 2 .....	Reflection and Refraction of Light
W3 - Lesson 3A.....	Vision and Lenses
W3 - Lesson 3B..	Water in its Various States Affects Earth's Landforms and Climate
W3 - Lesson 4 .....	Adaptations to Aquatic Ecosystems
W3 - Lesson 5 .....	Water Quality
W3 - Quiz .....	

Science Grade 8

Version 5

Preview/Review W2 - Lesson 5 TEACHER KEY

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# Preview/Review Concepts for Grade Eight Science

## ***TEACHER KEY***



***W2 - Lesson 5:  
Problems Associated with  
Body Systems***

# OBJECTIVES

By the end of this lesson, you should

- describe some diseases associated with the excretory, respiratory, circulatory, digestive, and nervous systems
- name and describe some lifestyle choices that affect the respiratory and circulatory systems

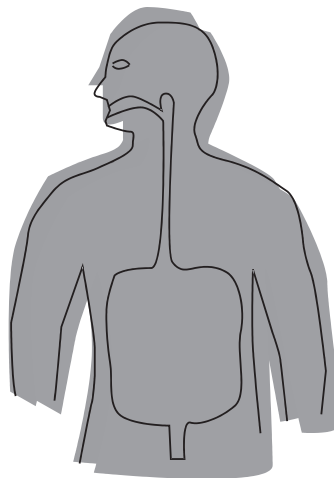
## W2 - Lesson 5: Problems Associated with Body Systems

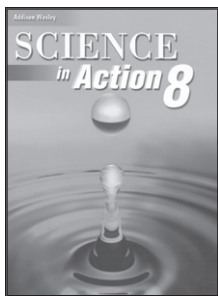
Welcome to W2 - Lesson 5. This lesson is designed to teach you about some diseases associated with the digestive, respiratory, circulatory, excretory, and nervous systems. It should take about 1.5 hours to complete.

### The Digestive System

You have learned about some of our body systems. You have learned some of their main parts and the functions of the systems. Unfortunately, for a variety of reasons, any of your body systems can develop diseases, that affect the way they work. This lesson looks at some of those problems.

Two common problems of the digestive system are esophageal reflux and ulcers. In esophageal reflux, stomach fluid (an acid) is able to get back into the esophagus. Because the esophagus does not have a protective layer like the stomach, the acid irritates it. In common terms, this is called heartburn. Not only is it uncomfortable, esophageal reflux can cause scarring of the esophagus, which can make the passage of food through to the stomach difficult. Ulcers are caused when the protective layer of the digestive system is damaged and stomach acid reaches the underlying cells. Painful sores are produced, which, if left untreated, can increase in size and depth. This can lead to bleeding, which can be life-threatening if severe enough.





### Activity 1

Read and understand pages 164 in *Science in Action 8*. Then, answer the following questions.

1. a. What did doctors once think caused ulcers?

***stress***

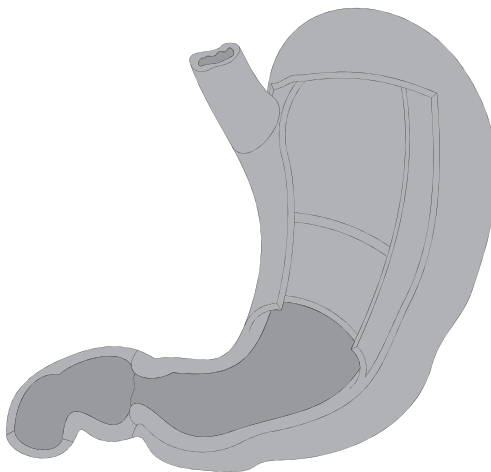
- b. What is now known to cause ulcers?

***bacteria called *Helicobacter pylori* (*H. pylori*)***

2. How does modern treatment for ulcers differ from previous treatments?

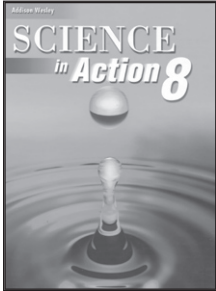
***It used to be treatment for stress. Now it includes***

***antibiotics.***



## Respiratory System

The respiratory system has many diseases associated with it. Some of the more common ones are caused by lifestyles. For example, smoking can cause lungs to develop cancer or emphysema. Both of these cause severe discomfort and potentially death.



### Activity 2

Read and understand pages 162 in *Science in Action 8*. Then, answer the following questions.

1. What is bronchitis?

***Mucus builds up in the bronchi and makes breathing***

***difficult because the tubes are narrowed.***

2. How does emphysema affect the respiratory system?

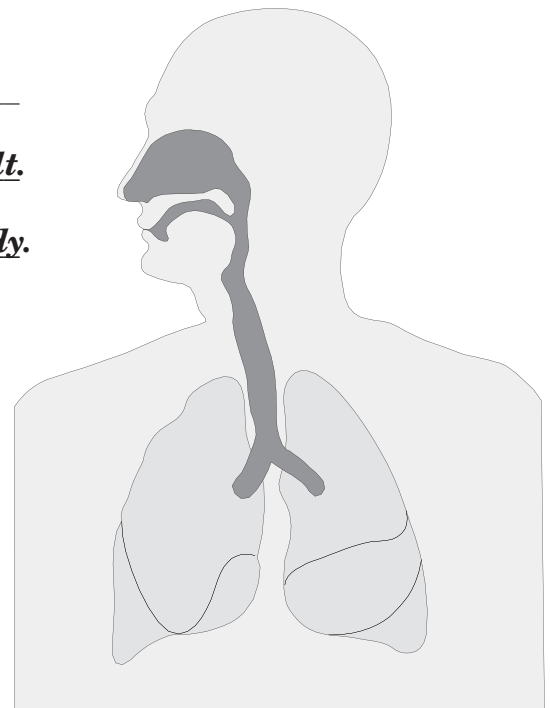
***Some substances in cigarette smoke damage the lungs.***

***Breathing is difficult and damage permanent.***

3. What specific problems does lung cancer cause?

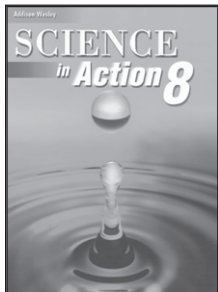
***Tumors develop, which enlarge and “plug” the***  
***lungs. Breathing becomes increasingly difficult.***

***The cancer can spread to other parts of the body.***



## Circulatory System

Diet and activity levels are linked to various problems of the circulatory system. When we have low levels of physical activity and eat lots of fatty foods, our heart and blood vessels suffer. Our arteries and veins develop build-ups of cholesterol that plugs them.



### Activity 3

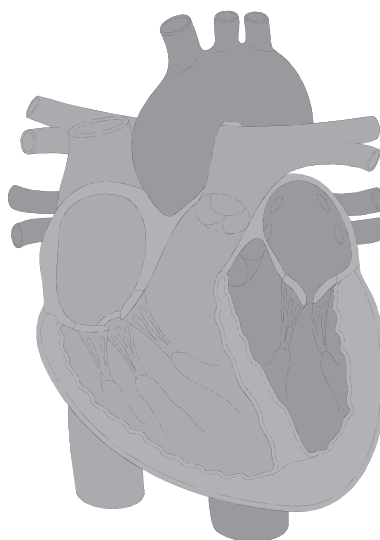
Read and understand pages 163 in *Science in Action 8*. Then, answer the following questions.

1. What happens during a heart attack?

*Blood vessels carrying oxygen to the heart become plugged*  
*and parts of the heart die. The heart cannot work*  
*properly.*

2. What is the build-up of cholesterol in blood vessels and the heart called?

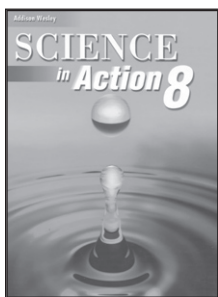
*atherosclerosis*





## Excretory System

Problems with the excretory system are often detected in the urine of the person involved. For example, substances that should not be found in urine may be there if the kidneys have been damaged. Protein and blood cells can get into urine if the filtering units of the kidneys are damaged. Normally, they are held back because they are too large to get through. Some other substances can enter the urine when the problem is actually somewhere else in the body. An example of this occurs when glucose is found in a person's urine.



### Activity 4

Read and understand page 145 in *Science in Action 8*. Then, answer the following questions.

1. What disease does a person have if glucose is found in their urine?

***diabetes***

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2. a. What is dialysis?

***Dialysis is a technology used to remove wastes from blood when kidneys do not work properly.***

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- b. Explain the process of dialysis.

***Blood is pumped through selectively permeable tubing in the machine. Substances such as waste particles can move through it from the blood to the surrounding fluid.***

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## Nervous System

The nervous system can also be damaged by disease. This is not discussed in the textbook, but problems of the nervous system are often a result of diseases or chemicals that attack parts of the nerves or brain. For example, when Multiple Sclerosis (MS) occurs, the insulating layer of nerves in the spinal cord and brain is damaged. Signals cannot travel properly along the damaged nerves, so body parts that the nerve controls are affected. The person may have difficulty walking, holding things, etc. Parkinson's Disease is caused when cells in the brain that produce a chemical called dopamine die. The lack of this chemical causes tremors in body parts such as hands and face and rigidity in the body. Both of these diseases worsen as damage to the affected parts of the nervous system increases.

**Take some time now to review the material you learned this week. You will be writing a short quiz before you go home.**



