

Important Concepts . . .

Preview Review



Science

Grade 8

W2 - Lesson 4: Body Systems - Part 2

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 4

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Preview/Review Concepts for Grade Eight Science



***W2 - Lesson 4:
Body Systems - Part 2***

OBJECTIVES

By the end of this lesson, you should

- name the basic parts and explain in general terms the working of the excretory system
- name the basic parts and explain in general terms the working of the nervous system

GLOSSARY

excretory system - filters wastes from the blood and removes them from the body

nervous system - coordinates and controls everything in the body (Detects, processes, and responds to stimuli.)

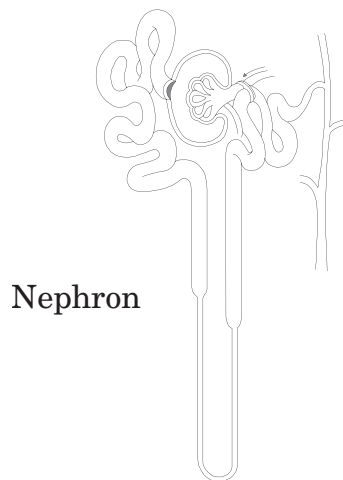
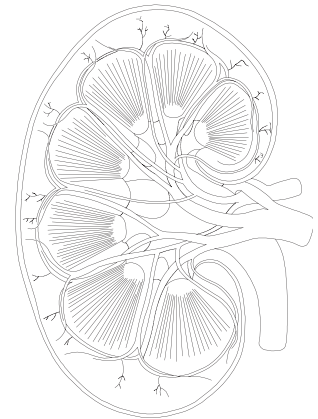
W2 - Lesson 4: Body Systems Part 2

Welcome to W2 - Lesson 4. This lesson is designed to teach you about the excretory and nervous systems. It should take about 1.5 hours to complete; there will be a small homework assignment at the end.

The Excretory System

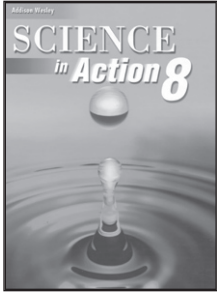
Excretion as defined by *Science in Action 8* is the job of waste removal. You learned previously that blood carries wastes such as carbon dioxide to the lungs where they can be removed from the body. One other place wastes are carried to is the kidneys, the major organ of the **excretory system**.

When cells break down proteins, a very toxic compound called ammonia is formed. The liver converts ammonia to a less toxic substance called **urea**. Kidneys take materials such as urea, excess water, and salts out of the blood.



Nephron

Each kidney is made up of many tiny units called **nephrons**. They are filters with extremely small pores. Particles such as water, salt, and urea are forced through the filter from the blood. Larger particles such as proteins stay in the blood. The nephron then returns needed materials such as glucose, some of the salt, and most of the water to the body. The remaining liquid, **urine**, is stored in the bladder until it is released from the body.



Activity 1

Read and understand pages 141 to 145 in *Science in Action 8*. Then, answer the following questions.

1. What is the excretory system?

2. What are the main organs of the excretory system?

3. What role does the liver play in waste control?

4. What is the function of the kidneys?

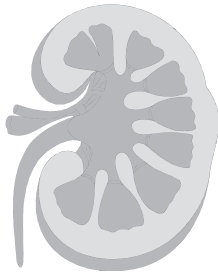
5. What is the function of your skin in relation to excretion?

6. Where is urine stored after it is produced from the body?

7. Through what tube is urine released from the body?

8. What health problems might a person have if his or her urine contained protein or glucose?

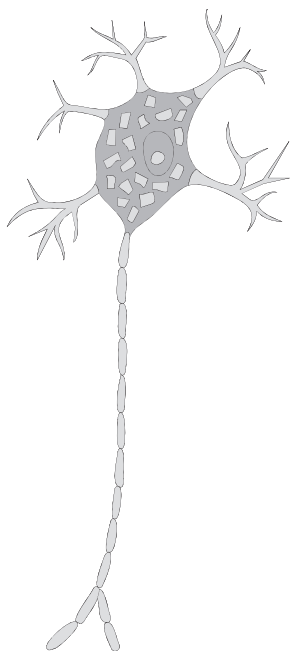
9. Describe the process of dialysis.



cross section of a kidney

10. Why can most people donate a kidney and still lead normal lives?

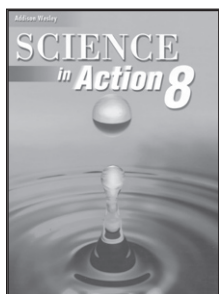
11. If you drank more water than usual, and you were not doing a lot of activity that caused you to sweat, what would your body's response be to this increased intake of fluid?



Nervous System

The control system in humans is the nervous system. It is made of two general parts—the central and the peripheral nervous systems. Your **central nervous system** (CNS) including the brain and spinal cord is the control centre. All other parts are in the **peripheral nervous system**.

The main unit in the nervous system is the **neuron** (basically a nerve). Neurons are special cells that can transmit signals or messages very quickly. Some of them send signals to the CNS from various parts of the body; some transmit the other direction. An example of how the nervous system works follows. If you touch a piece of cold metal, a message is sent from the touch receptors on your hand to the CNS. The CNS sends a message to the muscles in your hand and arm. In response, your hand moves away from the cold and is protected.



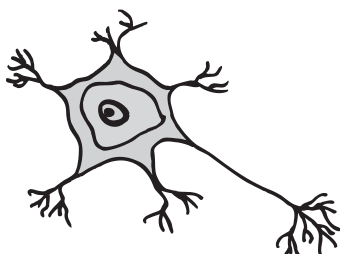
Activity 2

Read pages 146 to 151 in *Science in Action 8*. Then, answer the following questions.

1. Define the word stimulus and give an example.

2. What is the central nervous system composed of?

3. What is the autonomic nervous system?



4. What parts of the body provide the brain with stimuli from the outside world?

5. What are the two functions of the spinal cord?

6. What is the role of the nervous system?

7. If someone survived a spinal cord injury and had part of her body paralyzed, what could she do to adapt to this situation?

8. Describe, in general, how a reflex works.

You should now be able to meet all the objectives listed at the beginning of the lesson. Go through the list to see if there is anything you need to spend more time on.

Extended Activity (Homework)

Go for a walk outside for about 15 minutes. Make a list of information you collected with your 5 senses. If you did not use some of your senses, do not include them in your list. What sense did you use to collect the most information on your list? What sense did you use the least?
