Chapter 3: Human Body Systems

**Word Work**

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| Air sacs | Artery | Bronchioles | Capillary | Esophagus |
| Mucus | Trachea | Valve | Vein |  |

**Scientific Process Skills Focus**

The use of tools and instruments play an integral part of conducting accurate scientific inquiries. Such as using thermometers to measure the temperature or a balance to measure the mass of an object.

Lesson 1: What is the circulatory system?

1. The Body’s Transportation System
2. The circulatory system brings food and oxygen to every cell in your body, as well as takes away cell waste.
3. Functions of the Blood
4. Plasma in your blood brings food and water to your cells; it also takes away waste and moves chemicals from one part of the body to another.
5. Red blood cells in your blood carry oxygen to cells in the body.
6. White blood cells in your blood protect your body against germs and harmful things; your body makes more white blood cells when it needs to fight an infection.
7. Platelets are pieces of cells floating in the blood that stop bleeding by sticking together near the edges of a cut.
8. Arteries, Capillaries and Veins
9. Arteries carry blood away from the heart to other parts of your body.
10. Capillaries are the smallest blood vessels.
11. Veins are blood vessels that bring blood from cells back to the heart.
12. Valves are flaps that keep blood flowing in one direction.
13. Parts of the Heart
14. The heart has two sides and two parts, the upper part is called an atrium and the lower part is called a ventricle.
15. Veins carry the blood into the right atrium which then pushes blood into the right ventricle. Next, the right ventricle pumps the blood into an artery that goes to the lungs where the blood gets oxygen and flows into the left atrium. Finally, the left atrium pushes blood into the left ventricle which pumps blood with oxygen into your arteries and to the rest of your body.

Lesson 2: What is the respiratory system?

1. Part of the Respiratory System
2. Air enters the respiratory system through the mouth or nose and then goes from the throat into the larynx.
3. Air then travels from the larynx into the trachea which is a tube that carries air into the lungs.
4. The trachea leads into two branches in the lungs called bronchi and branches again into smaller tubes called bronchioles.
5. Air sacs are at the end of each bronchiole, which are tiny thin walled pouches filled with air, and that is where oxygen enters the blood through a web of capillaries.
6. Mucus coats some parts of the respiratory system and is a sticky, thick liquid that traps dust and germs that might be in the air.
7. Cilia are tiny hair-like structures on cells linings of many parts of the respiratory system.
8. How You Breathe
9. When you breathe in (inhale) the diaphragm tightens and moves down, when you breathe out (exhale) the diaphragm loosens.
10. Respiratory and Circulatory System Work Together
11. When carbon dioxide builds up in your blood, your brain senses this and sends a message to your diaphragm and rib muscles telling them to breathe.
12. The respiratory system brings oxygen from the air into your body and into the air sacs.
13. Then the blood in the circulatory system picks up oxygen from the air sacs, takes it to the rest of the cells in your body and picks up the carbon dioxide to carry the waste out of your body.
14. All multicellular organisms need oxygen for their cells to get the energy they need.

Lesson 3: What are the digestive and urinary systems?

1. Digestive System
2. The digestive system breaks down the food into very small materials so that the food can enter your cells.
3. Your digestive system is made up of many organs that work together to help digest food.
4. The Mouth and Esophagus
5. The first step in digestion is chewing the food which is done with your teeth.
6. Saliva also helps breaking down food in your mouth by using chemicals in the liquid.
7. When you swallow the food it enters your esophagus and the muscles there push and squeeze the food into the stomach through this tube.
8. Stomach and Intestines
9. Walls of the stomach can stretch to store food and the stomach produces fluids that help in digestion.
10. The stomach squeezes the food into the small intestines where it receives chemicals from the two organs, the pancreas and liver, which help in digestion.
11. The walls of the small intestine are lined with structures called villi, which are shaped like fingers to provide more surface area to absorb food.
12. When digestion is finished, the particles of digested food move into the blood vessels in the small intestines.
13. The food that is not digested moves into the large intestine where it takes water and salts from the waste to make it solid. There are also helpful bacteria that live in the large intestine.
14. The Urinary System
15. The urinary system removes waste from your blood through two organs called the kidneys.
16. The kidneys clean the blood running through the circulatory system, regulate the level of salt in the blood and control the level of water in the blood.
17. The urinary bladder stores a mix of wastes and water, urine, until it is ready to leave the body.

V. The Nervous System

a. The nervous system consists of the brain, spinal cord and nerves that run through the body and control body function.