**The Respiratory and Circulatory Systems**

**Study Guide**

**Functions of the respiratory system**

* Supplies oxygen to the body(inhale)
* Removes or releases carbon dioxide from the body(exhale)
* The main organ of the respiratory system is the lungs. The lung is divided into lobes. The right lung has 3 lobes and the left lung has 2 lobes to make room for the heart.
* The diaphram is a dome shaped muscle that gives the lungs their power.

**Parts of the respiratory System:**

1. The pharynx or throat has two passageways-one tube the esophagus leads to the stomach and the other tube the larynx leads to the lungs.
2. The alveoli is where oxygen and CO2 is exchanged between the blood and the environment.
3. The larynx is part of the throat that holds the vocal cords.
4. The trachea or windpipe splits into two branches called bronchi and directs the air into the lungs.
5. The bronchi connects to each lung. This is the main opening where air enters the lungs. Each bronchus branches into smaller tubes called bronchioles.

**Problems of the Respiratory System**

1. Bronchitis is inflammation of the mucus membrane that lines the bronchial tubes.
2. Pneumonia is inflammation of the alveoli causing them to swell and become clogged where breathing becomes difficult.
3. Asthma is (**most common for young people**) a chronic condition caused by inflammation and narrowing of the bronchial tubes. Symptoms are wheezing , shortness of breath, and coughing.
4. Sinusitis is inflammation of the tissue that lines the sinuses.
5. Tuberculosis is a contagious bacterial infection found in the lungs.
6. Emphysema (**linked to smoking**)-is where the alveoli are damaged or destroyed and breathing becomes difficult.
7. Lung Cancer is a Tumor in the tissues of the lungs, related to smoking. Second hand smoke can also cause lung cancer.

**Circulatory System**

The circulatory system or cardiovascular system pumps the blood through the blood vessels delivering oxygen to the body’s cells and removes wastes from the cells. It then transports the waste (carbon dioxide) back to the lungs for elimination.

**What makes up the circulatory system?**

* The cardiovascular system is made up of the heart , blood, and blood vessels.
* The Heart is the main organ.

1. **Blood Vessels- there are 3 types**

* Arteries take oxygenated blood from the heart to the cells.
* The Aorta is the largest artery
* Veins take carbon dioxide from the cells back to the heart.
* Capillaries are tiny blood vessels where the exchange of gases, nutrients, and waste takes place between the cells and the blood.

1. Blood plays an important part in circulation.

* An adult human body has about 5 liters of blood.
* Usually, females are found to have slightly lesser amount of blood, as compared to males. Adults have more blood in their body, than kids.
* How much blood is needed to survive?
* An average human being can lose a maximum of 30-40% of the total blod volume and stay alive, provided he is given immediate treatment.
* **Two parts of blood:**

1. Plasma is the fluid or liquid part of blood(92% is water)
2. The platelets are the solid Part of blood that is found in the bone marrow.

**There are two types of blood cells:**

1. Red Blood Cells carry oxygen to every cell in the body.
2. White Blood Cells \_- carries germ fighters from the immune system to fight pathogens that cause diseases.

A Blood Transfusion is replacing blood by giving someone blood that was donated. There are specific ways blood types must be matched so the body does not reject the blood.

There are 4 major blood groups (A, B, AB, & O) determined by the presence of an antigen this produces 8 different blood types.

How is your blood determined? It is inherited based on the blood types of your mother and father.

**Problems of the Circulatory system**

* Blood Pressure is the force of blood against artery walls.

1. Hypertension is also known as high blood pressure.
2. A heart attack is caused by blockage of blood flow to the heart. This can be caused by too much cholesterol in your body (a waxy, fat-like substance in your blood).
3. Cholesterol is a waxy, fat like material that is found in all parts of the body. It can cause blockage in arteries.
4. Atherosclerosis is hardening of the arteries which reduces blood flow through them.
5. A stroke is a sudden disruption of blood supply to part of the brain, killing nerve tissue in that area.
6. Anemia is an abnormally low level of hemoglobin which is a protein that binds to oxygen in red blood cells.
7. Leukemia is a type of cancer where large amounts of white blood cells are produced that interferes with the production of other blood cells.

* The leading cause of death in the USA is Heart Disease

**Care for the Circulatory system**

* **By physically active**
* **Limit the amount of fat & cholesterol (**Cholesterol is used in many functions of the body, as it creates the building blocks for all hormones and it is used to repair blood vessels) in your diet. Bad cholesterol causes plaque build-up in arteries causing blockage.