

Name _____

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NATURAL SCIENCE

NUTRITION II

CIRCULATORY SYSTEM & EXCRETORY SYSTEM

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CIRCULATORY SYSTEM & EXCRETORY SYSTEM

In this unit we are going to learn about:

1. Circulatory System
 - 1.1. Blood
 - 1.2. Blood vessels
 - 1.3. The heart
 - 1.4. Blood circulation

2. Excretory System
 - 2.1. What is excretion?
 - 2.2. Urinary system
 - 2.3. Sweat glands

MY VOCABULARY

1. _____ - _____	11. _____ - _____
2. _____ - _____	12. _____ - _____
3. _____ - _____	13. _____ - _____
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9. _____ - _____	19. _____ - _____
10. _____ - _____	20. _____ - _____

1. THE CIRCULATORY SYSTEM

CIRCULATION

Circulation is the movement of blood through the circulatory system. Circulation transports substances. The circulatory system is made up of the **blood**, the **blood vessels** and the **heart**.

1.1. BLOOD

Blood is the only tissue in our body that is **liquid**. This red, viscous liquid reaches all the cells in our body and transports nutrients, oxygen, carbon dioxide and waste. An adult human has about 5 liters of blood in their body.

Blood is made up of plasma, which is the liquid part, and blood cells:

PLASMA

- **Plasma** is a clear fluid which is ninety percent water. It transports nutrients, waste products, hormones and some other substances (sugar, salt...) around the body.

RED BLOOD CELLS

- **Red blood cells** are the most numerous. They carry **oxygen** and **carbon dioxide**. Red blood cells contain a chemical called **haemoglobin**. The haemoglobin attracts the oxygen as the blood passes through the lungs. Red blood cells **don't have a nucleus**. They are produced in the **bone marrow**, which is the soft part found in the centre of large bones. They make blood red and live for approximately 110 days!!

WHITE BLOOD CELLS

- **White blood cells** **protect** the body from germs, illnesses and infections.

PLATELETS

- **Platelets** are cell fragments that attach to the walls of blood vessels when you have a wound. Platelets join together and help stop the bleeding forming a thick **clot**. When the clot dries, it becomes a **scab**. This process is called **coagulation**.

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1.3. THE HEART

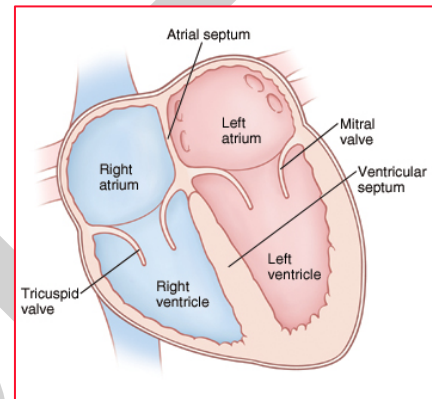
The **heart** is a hollow organ made up of **muscles**. These muscles contract and relax all the time to **pump** blood around the body. The heart is located in the **thoracic cavity**. It lies a little to the **left** of the middle of the chest, between the two lungs. It is the size of your fist. The heart is divided into two halves, separated by a thick wall of muscle. Each half is made up of two different areas, called **chambers**. Therefore, the heart has **four** chambers. The two **upper** chambers are called **atria** and the two **lower** chambers are called **ventricles**. Blood passes from the atria to the ventricles.

1. ATRIA

- These are the two **upper** chambers of the heart (the left and the right atrium). Blood from the **veins enters** the heart here.

2. VENTRICLES

- These are the two **lower** chambers of the heart. Blood **leaves** the heart from here and travels through **arteries**.



A **valve** connects each atrium ...

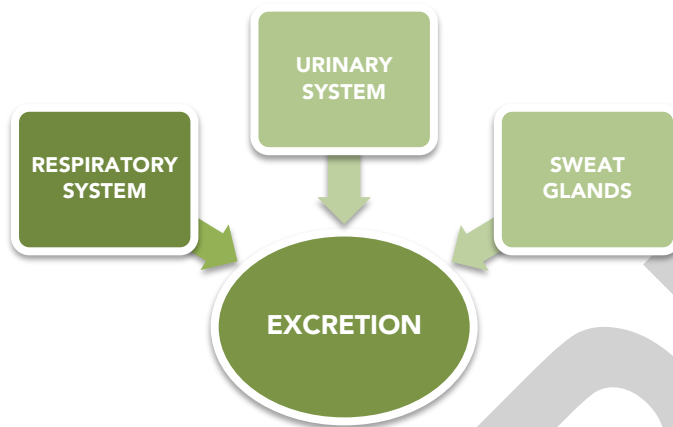
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2. THE EXCRETORY SYSTEM

2.1. EXCRETION

Bodily functions produce **waste substances** that pass into the blood. If waste accumulates, it can harm the body.

Excretion is the elimination of waste substances from the **blood**. This process is carried out by the **respiratory system** and the **excretory system**, which is made up of the **urinary system** and the **sweat glands**.



BREATHE IN, BREATHE OUT

The **respiratory system** is involved in both nutrition and excretion. It obtains the oxygen we need to live when we breathe in. When we breathe out, it eliminates carbon dioxide, a waste substance produced in our body.

2.2. THE URINARY SYSTEM

The **urinary system** produces and expels urine. It is the main way in which body gets rid of waste from blood. It is made up of:

KIDNEYS

- The **kidneys** are two oval-shaped organs located in the lower back, at both sides of the spinal column. They contain thousands of tiny tubes that **filter the blood** and retain waste substances which make up urine.

URETERS

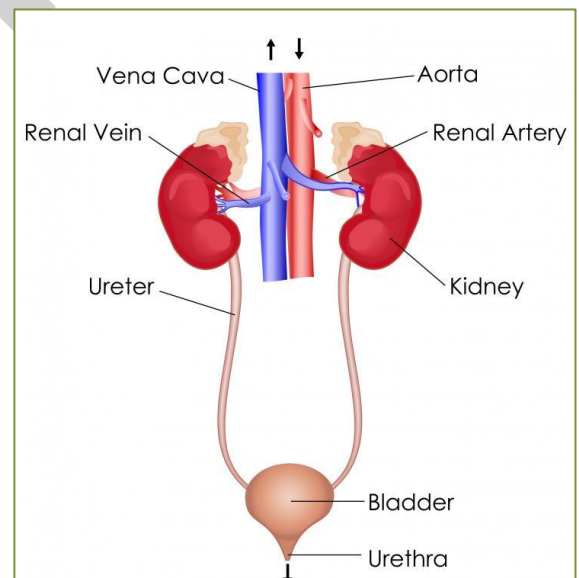
- The **ureters** are two tubes that carry urine from the kidneys to the bladder.

BLADDER

- The **bladder** is a **muscular** organ that stores urine until it is expelled from the body.

URETHRA

- The **urethra** is a tube. Urine is expelled through this tube.



The normal capacity of the bladder is 400- 600 ml

SAMPLE

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