**Circulatory System – Guided Notes**

**(Outcome 21)**

**Name: Date:**

**Function of the Circulatory System**

* Function: the circulatory system transports , , and around our body

How does it do this?

* 🡪 is the muscle that pumps blood around the body
* 🡪 are the tubes that carry blood throughout the body
* Diagram

  Description automatically generated 🡪 is the combination of liquid and specialized cells that carry gasses, nutrients, and waste throughout the body

**Blood Vessels**

**Arteries**

* – carry blood  from the heart
* Strong, thick tubes with smooth and connective muscles to keep blood moving
* valves

***Extension:*** *why is it essential that arteries are thick and strong?*

A picture containing shape

Description automatically generated

**Veins**

* – tubes with valves that bring blood  the heart
* Walls of veins (like arteries) contain connective and smooth muscles push blood through veins
* valves 🡪 **one-way** only

***Extension:*** *why do veins have valves but arteries do not?*



**Valves of the Heart**

* valves act to keep blood moving in the correct direction
* prevent of blood
* "lub dub"
  + lub - the first sound which is the sound of the mitral and tricuspid valves closing
  + dub - the second sound which is the sound of the aortic and pulmonary valves closing

***Extension:*** *why do valves only exist in veins and not arteries?*

**4 Valves in the Heart**

1. 🡪 prevents backflow of blood from the pulmonary artery to right ventricle
2. 🡪 prevents backflow of blood from right atrium to right ventricle
3. 🡪 prevents backflow of blood from left ventricle to aorta
4. 🡪 prevents backflow of blood from left atrium to left ventricle

**Diagram

Description automatically generatedCapillaries**

* – deliver oxygen and nutrients to the cells
* Tiny, thin-walled tubes
* Absorb waste (urea) and carbon dioxide
* Transport wastes  from the cells

***Extension:*** *why do capillary walls need to be small and thin?*

Diagram

Description automatically generated**Arteries 🡪 Capillaries 🡪 Veins**

**Diagram

Description automatically generated**

**The Heart**

* Approximately the size of a clenched fist
* Beats an average of 72 times per minute
* Protected by a sac of tissue called the
* Two layers of epithelial and connective tissue that are on either side of a layer of muscle called the
* separates right and left side of the heart
* – circulates blood from the heart
* - oxygen rich blood pumped from the heart

**Heartbeat**

1. Contractions begin in a small group of cardiac muscle fibres called the sinoatrial node

**SA Node = pacemaker of the heart**

1. Impulse spreads from SA node to the atria
2. Impulse picked up by atrioventricular node ()
3. Impulse is carried to a network of fibres in the ventricles 🡪

* Rate of heartbeat (heart rate) depends on the body's need for oxygen
* Need more oxygen 🡪 heart beats
* Do not need more oxygen (homeostasis) 🡪 heart beats

***Extension:*** *do both the atrium and ventricles contract at once? why or why not?*

***Extension:*** *what effect would exercise have on your heart rate?*