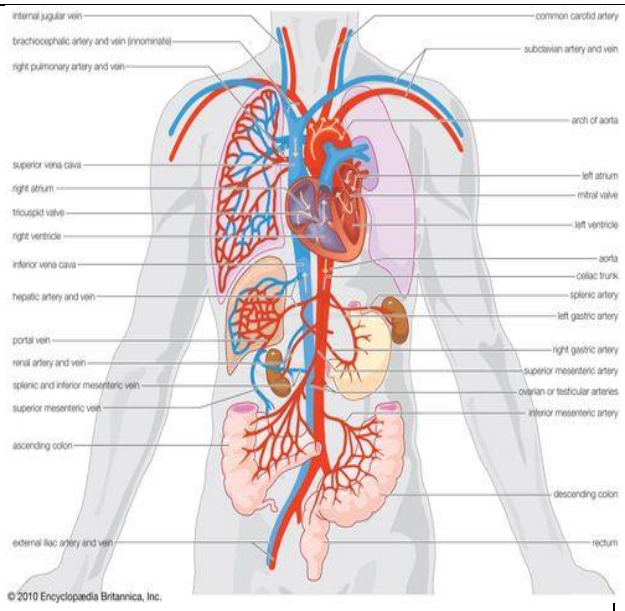
Strand:	Systems	**Sub-Strand:**	The Human body system

BASIC 9

WEEKLY LESSON PLAN – WEEK 7

Content Standard:	B9.3.1.1 Demonstrate understanding of the blood circulatory system, health problems associated with the system and its relationship with the respiratory system in humans				
Indicator (s)	B9.3.1.1.1 Explain the concept of the circulatory system, state the function of each part of the system and the health challenges associated with it		**Performance Indicator:** Learners can apply strategies to prevent diseases of the circulatory system.		
Week Ending	25-10-2024				
Class	B.S.9	**Class Size:**		**Duration:**	
Subject	Science				
Reference	Science Curriculum, Teachers Resource Pack, Learners Resource Pack, Textbook				
Teaching / Learning Resources	Poster, video and Pictures		**Core Competencies:**	• Critical Thinking and Problem Solving (CP), • Communication and Collaboration (CC), • Digital literacy (DL)	

DAY/DATE	**PHASE 1 : STARTER**	**PHASE 2: MAIN**	**PHASE 3: REFLECTION**
MONDAY	Discuss meanings of terminologies and keywords in the lesson. **Terminologies;** • Circulatory system • Blood vessel • Cardiovascular • Oxygen • Metabolic • Respiratory • Lungs • heart	1. Learners brainstorm to explain circulatory system. 2. Assist Learners to identify the major components of the circulatory system. 3. Discuss with the Learners about the functions of blood in the human system. 4. Show learners pictures and videos of how blood circulates in the human system. **The circulatory system consists of four major components:** • heart • arteries • veins • blood	Assist Learners to describe how blood regulates human body temperature. **Exercise;** 1. What is Circulatory System? 2. State 4 components of the circulatory system.



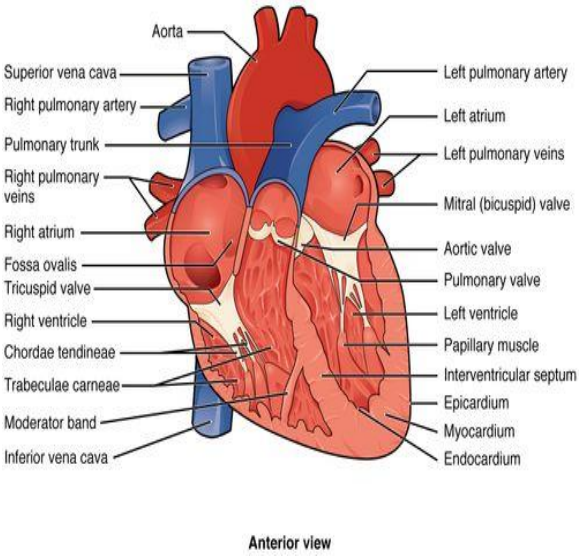
How the circulatory system works

Oxygen enters the bloodstream through tiny membranes in the lungs that absorb oxygen as it's inhaled. As the body uses oxygen and processes nutrients, it creates carbon dioxide, which your lungs expel as you exhale.

The circulatory system works thanks to constant pressure from the heart and valves throughout the body. This pressure ensures that veins carry blood to the heart and arteries transport it away from the heart. (Hint: To remember which one does which, remember that that "artery" and "away" both begin with the letter A.)

There are three different types of circulation that occur regularly in the body:

- **Pulmonary circulation.** This part of the cycle carries oxygen-depleted blood away from the heart, to the lungs, and back to the heart.
- **Systemic circulation.** This is the part that

		carries oxygenated blood away from the heart and to other parts of the body. • **Coronary circulation.** This type of circulation provides the heart with oxygenated blood so it can function properly.	
THURSDAY	Show Learners video on how the various components of the human circulatory system work.	1. Learners brainstorm to explain the functions of the components of the human circulatory system. 2. Assist Learners to describe the mammalian heart. 3. Draw and label the longitudinal section of a mammalian heart.  Anterior view **The heart and its function** About the size of two adult hands held together, the heart rests near the center of the chest. Thanks to consistent pumping, the heart keeps the circulatory system working at all times. **Heart wall** There are three layers of the heart wall. The epicardium is the heart wall's outer layer, the myocardium is the middle — and muscular —	Through questions and answers, conclude the lesson. **Exercise;** Draw and label the parts of the Mammalian heart.

		layer, and the endocardium is the heart's innermost layer. **Chambers** The heart has four chambers: the right and left atria, and the right and left ventricles. Together, they make up the heart's internal cavity. The four chambers play an important role in circulation. The atria receive blood from the veins, while the ventricles push blood out of the heart. Because the ventricles have to be much stronger to perform this pumping activity, their myocardial layers are thicker than those of the atria. **The arteries and their function** Arteries carry blood away from the heart. The artery walls have three layers: tunica intima (inner), tunica media (middle), and tunica externa (outer). The middle layer is usually the thickest. It's made up of smooth muscle that changes the size of the artery to regulate blood flow. There are three main types of arteries. They get smaller and smaller the further they are from the heart. ***Elastic arteries***	

		The aorta and pulmonary arteries are the elastic arteries. They receive blood directly from the heart and need to be elastic to accommodate the surge and contraction as blood pushes through with each heartbeat. The aorta is the body's most important artery. Pulmonary arteries take deoxygenated blood from the right ventricle to the lungs. They're the only arteries that carry deoxygenated blood. ***Muscular arteries*** The muscular arteries move blood from the elastic arteries through the body. They're made of smooth muscle, which can expand and contract as blood flows. The femoral and coronary arteries are two examples of muscular arteries. ***Arterioles*** The smallest arteries are the arterioles, which move blood from the muscular arteries to the capillaries. The capillaries connect the arteries, which take blood *from* the heart, and the veins, which take blood *to* the heart. The number of capillaries in a body system depends on the amount of material exchange. Skeletal muscle, the liver, and the kidney all have a large number of capillaries because their body systems need a lot of oxygen and nutrients. The cornea of the eye is one area that has no capillaries.	

		The veins and their function The blood moves back to the heart through veins. The blood travels from the capillaries into the venules, which are the smallest veins. As the blood moves closer to the heart, the veins get larger and larger. Like the arteries, veins have walls made up of layers called the tunica intima, tunica media, and tunica externa. There are some important differences between the arteries and veins: • In veins, the walls have less smooth muscle and connective tissue. • The walls of veins are thinner than artery walls. • Veins have less pressure and can hold more blood than arteries	
FRIDAY	Review Learners knowledge on the previous lesson.	1. Discuss with the Learners on the symptoms of poor blood circulation. 2. Learners brainstorm to identify 5 causes of diseases of the circulatory system. 3. Assist Learners to mention examples of diseases of the circulatory system. 4. Show Learners pictures and videos of how diseases of the circulatory system are prevented. **Symptoms of poor circulation** There are many symptoms of poor circulation, including: • chest pain • dizziness or feeling faint • shortness of breath	Learners in small groups to discuss about conditions that affect the circulatory system of the human body. **Exercise;** 1. State 5 symptoms of poor blood circulation. 2. Explain 5 causes of diseases of the circulatory system.

		• pain, weakness, or numbness in the limbs • swollen limbs • slow or rapid heartbeat, or palpitations • fatigue The symptoms depend on the type of circulatory condition. As an example, peripheral arterial disease can cause leg and foot problems like: • leg cramping while walking or resting • cold feet or legs • change of leg color • change in toenail color or thickness • loss of hair on the legs and feet • ulcers (sores) that don't heal on the legs and feet **Conditions that affect the circulatory system** There are several conditions that can affect the heart and circulatory system, including: • **Peripheral arterial disease.** In peripheral arterial disease, blood flow in the arteries of the legs is restricted. This is usually due to buildup of plaque in the arteries. • **Arteriosclerosis.** In arteriosclerosis, plaque buildup in the blood vessels becomes calcified and hard. The arteries are less flexible, leading to higher blood pressure, stroke, heart damage, and kidney damage. • **Heart attack.** During a heart attack, a blockage of blood flow to the heart	

		muscle leads to death of heart muscle tissue. It's also known as a myocardial infarction. • **Angina.** In angina, the heart muscle isn't getting enough blood. This leads to crushing chest pain, fatigue, nausea, and shortness of breath. • **Mitral valve conditions.** In mitral valve prolapse, mitral valve stenosis, or mitral valve regurgitation, problems with the mitral valve cause oxygenated blood in the heart to flow backward, or blood flow to be slowed down or constricted. • **Arrhythmias or dysrhythmias.** These terms are both used to describe a heart rate that's abnormal. • **Ischemia.** In ischemia, there's not enough blood flow in the heart, and muscles don't get enough oxygen. • **Aortic disease.** This group of conditions affects the aorta. One example is aortic aneurysm, where the aorta is weak and bulges out.	

Name of Teacher: **School:** **District:**