

ACTIVITY NO. – 6- Blood Circulation in Human Heart

Subject	Science
Class	X
Chapter/Unit	Life Processes
Topic	Transportation in Human Beings
Time	40 min (2 consecutive days for 4 groups)
Nature of Activity	Group

What will I learn (Learning Outcome)?

Students will develop the concept of blood circulation in heart

Skills: Applying, Analyzing, Creating

What I have to do? To develop the concept of transportation in human beings through collaborative approach.

What do I require? Handouts with dialogues(for the chambers in heart/ blood vessel), 40 Placards for a class of 40 students, Chart of Human heart

What do I need to know? Heart is a muscular organ in most animals, which pumps blood through the blood vessels of the circulatory system. Its size is approximately the same as the size of a closed fist. It sits in the chest, slightly to the left of center. As the heart contracts, it pumps blood around the body.

Teacher's Activity

- Teacher will
 - brief the activity.
 - show and explain the structure of heart with the help of chart.
 - divide the students in to 4 groups with 10 students in each group
 - assign roles to each group as-
 1. Narrator
 2. Right auricle
 3. Right ventricle
 4. Left auricle
 5. Left ventricle
 6. Venacava
 7. Aorta
 8. Pulmonary artery
 9. Pulmonary vein
 10. Septum
 - provide handouts for their role to each student in all the groups, a day before the activity.
 - prepare 40 placards with the ten roles written four times.
 - provide 10 placards per group to be worn by the students according to their roles.

How will I proceed?

➤ Student's Activity

Students will present their dialogues in front of the class, one by one according to the following sequence.

1. Student 1- Narrator
2. Student 2- Pulmonary vein
3. Student 3-Left Auricle
4. Student 4- Left Ventricle
5. Student 5- Aorta
6. Student 6- Venacava
7. Student 7-Right Auricle
8. Student 8- Right Ventricle
9. Student 9- Pulmonary artery
10. Student 10- Septum

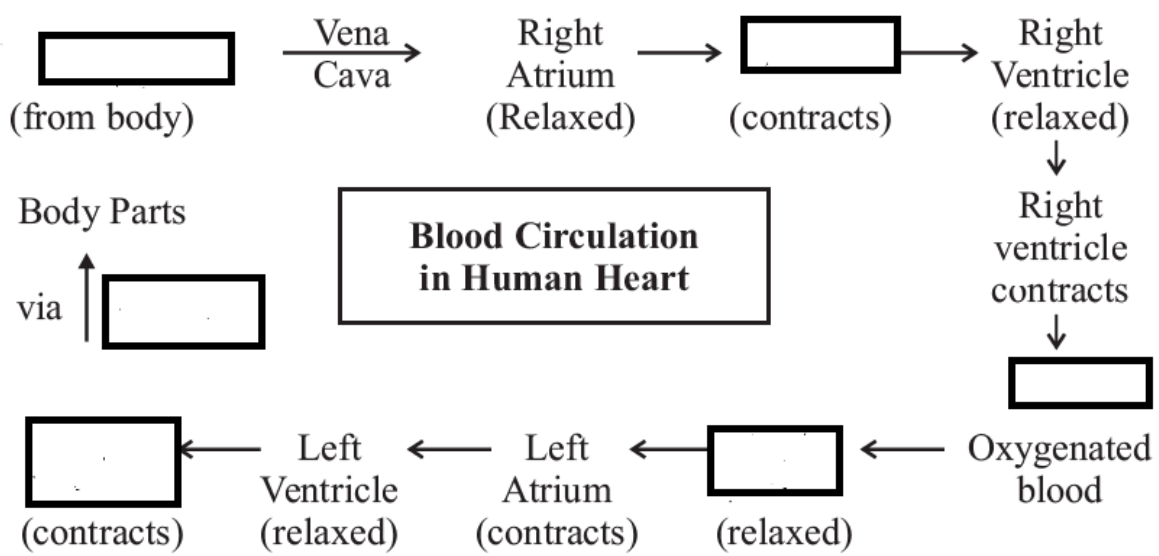
What have I observed?

Put a tick in the right column

S. No.		A-RightAuricle B-Venacava	A-Left Auricle B-Pulmonary Vein	A-Right Ventricle B-Pulmonary arthey	A- Left ventricle B- Aorta
1.	This chamber A which receives oxygenated blood from lungs through this blood vessel B				
2.	This chamber A pumps deoxygenated blood to the lungs through blood vessel B				
3.	This chamber A receives CO ₂ rich blood from the body through blood vessel B				
4.	This chamber A pumps O ₂ rich blood to the body through blood				

	vessel B				
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What have I learnt?



What am I curious to learn?

Let us explore the mechanism of blood circulation in organisms with open circulatory system.

Let me evaluate myself

1. Name the blood vessels entering the heart and leaving the heart.
2. Why is circulatory system also known as transport system?
3. The walls of the left ventricle are thicker than the walls of all the chambers.
Give reason.
4. Schematically represent blood circulation in human body.
5. Draw a well labeled diagram of Human Heart.

Dialogues for Role-play

1. Student 1- Narrator- Today we are going to meet the chambers of Heart- Right auricle,
Right ventricle, Left auricle and Left ventricle, blood vessels-Venacava,
Aorta
Pulmonary artery, Pulmonary vein and the partition between the chambers-
Septum.
They are going to talk about mechanism of blood circulation . Let's start with
Pulmonary vein.
2. Student 2- Pulmonary vein- Do you know, I am the only vein which carries
oxygenated blood.
I get pure oxygenated blood from lungs. I am called pulmonary which means
'pertaining to the lungs'. I carry oxygen rich blood from lungs to the upper
left chamber of the heart – left auricle.

(Student 2 will point towards Student 3)
3. Student 3-Left Auricle- Yes, I receive blood from my friend pulmonary vein.
I relax when I am collecting oxygen rich blood from pulmonary vein. Then I
contract, while I transfer the blood to left ventricle located below me. Over to
left ventricle
4. Student 4- Left Ventricle- I am the bottom left chamber of the heart. I expand
when I collect oxygenated blood from left auricle. I then contract to pump
blood out to the body through Aorta. Since ventricles have to pump blood to
various organs, we have thick muscular walls than atria.
5. Student 5- Aorta- Left ventricle pumps oxygen-rich blood into me. I am the
main artery. The blood travels from me to larger and smaller arteries and into
the capillary network. There the blood drops off oxygen, nutrients and other
important substances and picks up carbon dioxide and waste products. The
deoxygenated blood is now collected in veins.
6. Student 6- Venacava- Finally I transfer the impure CO₂ rich blood into the
upper right chamber of the heart i.e. Right auricle. I function as inferior and
superior venacava . Inferior vena cava carries blood from the lower part of
the body. The superior vena cava collects blood from the head and the arms.
7. Student 7-Right Auricle- I am the upper right chamber of the heart. I receive
deoxygenated blood from venacava. I expand while collecting the blood and
then contract and transfer it to the chamber positioned below me- Right
Ventricle.

8. Student 8- Right Ventricle- I am the lower right chamber of the heart. I collect blood from right auricle. I expand while collecting the blood and contract to pump the blood in to the lungs through pulmonary artery.
9. Student 9- Pulmonary artery- Do you know I am the only artery which carries deoxygenated blood. I get impure deoxygenated blood from right ventricle. I carry CO₂ rich blood from the lower right chamber of the heart – right ventricle to the lungs for oxygenation. So, blood becomes pure and Oxygen rich in the lungs.
10. Student 10- Septum- I separate the atria and ventricles and form a barrier between the heart chambers. This prevents mixing of oxygenated and deoxygenated blood. Such separation allows highly efficient supply of oxygen to the body.