

LESSON PLAN

SUBJECT : BIOLOGY

TOPIC: Body Fluids and Circulation (Chapter 18)

Pre-content/Content/ Post-Content	Learning Outcome/Objectives	
Pre-Content Structure of heart, double circulation, Blood & Lymph – basic functions Content Blood, Blood Groups, Coagulation, Lymph, Circulatory Pathways, Cardiac Cycle, ECG, Disorders Post-Content To carry out blood tests, to understand the genetics behind ABO Blood grouping	General	Specific
	The Students will be able to: Understand the importance of checking the blood groups/ quality of blood, before blood transfusion Understand that a proper lifestyle helps prevent/ slows the onset of coronary heart diseases Familiarise themselves with the several techniques of diagnosis Comprehend the importance of ethics in the field of medicine	Students will be able to- List the components of blood Differentiate between erythrocytes, leucocytes and thrombocytes Know the relation between antigens on RBCs and the four blood groups Make a flow chart showing steps of coagulation of blood draw diagram of heart describe the conducting system of the heart explain cardiac cycle Make an ECG and explain Discuss cardio vascular diseases

Homework and Assignments:

To answer questions from NCERT text book

Draw labelled diagram of Human heart

Distinguish between a normal and abnormal ECG

Teacher's Activity	Students' Activity	Teacher's Observation And Remedial
Teacher will- show the slide of human blood smear and ask about the different components of blood, organise Classroom activity on-What is your blood group? -with reference to table 18.1 (NCERT text book) write the steps of blood coagulation on the smart board help recall structure of the heart Activity based Learning on feeling the radial pulse; to relate it with heart beat (Annexure 1) On the diagram of the heart, students will be asked to mark the parts responsible for origin and conduction of heart beat; will be given stethoscope to hear the 2 heart sounds explain Cardiac Cycle ask students to bring an old report along with the ECG ; show ECG on You Tube encourage students to undergo training on use of sphygmomanometer discuss Cardio Vascular Diseases	Students will- respond by naming the formed elements and plasma along with their functions tell their blood groups and relate it to the presence of antigen present on the RBCs understand and note down name all the parts of the heart, along with the direction of blood flow note the arterial pulse /measure the heart rate mark SA Node, AV Node, Bundle of His, left and right Bundle branches, Purkinje fibres learn about Joint Diastole, Atrial Systole and Ventricular Systole study the ECG and compare with book diagram measure blood pressure of their classmates discuss by giving inputs	Students draw and write about the different components of blood in their files Students can state why in earlier times not all blood transfusions were successful Students answer related questions They are able to draw labelled diagram of heart They complete the observation table and draw conclusion based on their observations Students answer questions like- why atrial contraction precedes ventricular contraction They are able to listen to the heart sounds Students try to understand the steps and can differentiate between systole and diastole Students watch keenly They compare the blood pressure of some of their friends and discuss about hypertension Students try to remember all the points

Teaching Aids : Interactive Classroom- computer, Smartboard.

Methodology/Innovative Methods: Activity based learning, Laboratory Method, Computer-Aided Instruction, Medical Kit, Collaborative Learning (Use of sphygmomanometer from the nurse) Discussion Method.

Interdisciplinary Links: English, Physics, Chemistry, Medicine, Genetics, Maths

Vice-Principal

Principal

ANNEXURE 1

Activity –Let me Check my Pulse

Subject	Biology
Class	XI
Chapter	Circulation of body fluids
Topic	Arterial pulse
Duration	40 minutes
Nature of the Activity	In pairs

What will I learn? (Learning Outcome)- to feel the pulse; to associate that the blood flowing through the artery with pressure helps it to pulsate; the effect of exercise/games- on the pulse rate; the relation between pulse rate and heart rate

Skills- Observing, Calculating, Infering

What I have to do?- Check the radial pulse before and after exercise

What do I require?- Stop watch, pen, paper

What do I need to know?-Cardiac cycle, heart beat, heart rate; that the radial artery passes down the thumb side of forearm

➤ **Teacher's activity-**

- Give instructions for the activity
- Give directions as to how to feel the pulse, by keeping the index and middle fingers on the thumb side of the wrist, while supporting the wrist with the thumb
- For measuring heart rate (heart beats per minute)- pulse rate can be measured, as heart rate and pulse rate reflect the same

➤ **How will I proceed?**

➤ **Student's activity-**

1. To be ready with note pad, pen, stop-watch
2. To place the index and middle fingers on the thumb side of the wrist, while supporting the wrist with the thumb and feel the pulse
3. To start counting the pulsations when the partner starts the stop watch
4. To continue for a minute and note the number of pulsations
5. To do on the spot jogging for 5 minutes and note the pulse rate. For better results, one should note for the first 10 seconds and multiply by 6
6. To take turns and repeat the same with the partner
7. To compare the two readings

8. Compile all the readings, compare and discuss

What do I observe?

	Pulse rate (at rest)	Pulse rate (after exercise)
Student 1		
Student 2		
Student 3		
Student 4		

What have we learnt?

Pulse rate increases, upon doing exercise

What would I like to know ?

Arteries are deep-seated, whereas veins are superficial, then how can one feel the arterial pulse?

Which other parameters can help find about a healthy heart?

How to use a stethoscope?

Let me Evaluate myself-

1. What is pulse rate?
2. What is the average pulse rate for a healthy person?
3. Find out the time required for completing different phases of a cardiac cycle.
4. How can a trainer help a sportsperson in maintaining a healthy exercise regime?
5. What can a doctor conclude regarding the health condition of a patient, by checking the pulse rate?