

THE HUMAN HEART AND BLOOD CIRCULATION

3.20.2019

Subject

Basic science

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. The heart and the structure
2. Its functions
3. How it functions

Objectives

Students should be able to;

1. illustrate a schematic circulatory system of a human body including heart, lungs, arteries, veins and capillaries;
2. describe the role of parts of the circulatory system;
3. conduct an experiment to increase understanding of the relationship between heart rate/pulse and exercise;

Activity Starter/Instruction

1. Obviously your students will need some basic knowledge prior to diving into this lesson series on human heart extension activities. Here are the basics you will need to start them off: The human heart has four chambers – the top two are called the atriums and the bottom two are called the ventricles. The heart is responsible for pumping blood all around the body – from your brain right down to your little toes! The heart sends oxygenated blood out to the body and de-oxygenated blood (the blood that needs to receive another load of oxygen to help the body and its working muscles function properly) off to the lungs. The human heart is in the left hand side of your chest, safely tucked away behind your rib cage for protection.
2. You can feel your heart beat in several places in your body – your chest, your wrist, and your neck (be careful getting kids to measure this last one – ensure they only measure on one side at a time and that they

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Ask students to count the beat for 15 seconds, and then multiply by four to get their beats per minute.
2. Assign different groups of students the task of investigating what happens to the human heart rate when the body is performing different sorts of work tasks. These could include: Group 1: Doing ten minutes of slow jogging around a sports field. Group 2: Doing some heavy muscle work such as pushups, dips, wall pushups or half sit ups, or doing some isometric exercises with a partner providing the resistance. Group 3: Doing some fit ball (Swiss ball) exercises. Group 4: Doing a 20 minute walk – for a bit of fun, try adding a pedometer as a science tool for measuring footsteps at the same time. Group 5: Doing a 'sit and chat' session involving, well, sitting and chatting.
3. Have students make predictions for their group's heart rate range, and

Materials Required

- science journals
- butcher paper
- markers(blue, red, black)
- Cardboard cylinders from toilet paper or paper towel rolls (*one per team of two students*)

Additional Resources

- <http://medicalarchives.jhmi.edu/ntausbio.htm>
- <https://cfmedicine.nlm.nih.gov/physicians/b>
- <https://www.aamc.org/about/medicalschoo>
- <http://www.americanheart.org/>
- <https://cfmedicine.nlm.nih.gov/activities/cir>
- <http://www.bbc.co.uk/science/humanbody/>
- <http://kidshealth.org/kid/htbw/heart.html>
- <https://cfmedicine.nlm.nih.gov/resources/le>
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Additional Notes

are very gentle).

Guided Practice

Day 2/ Lesson 2: 20 Mins

1. Have students form teams of two, and have each team draw a life-size outline of one student's body on butcher paper. Direct the students to put the paper on the floor. Have one student lie down on the paper, and the other student trace around the body in black marker. Students will draw in the parts of the circulatory system.
2. Have students put the toilet paper roll on the chest of a partner and listen. Tell students that they may move the tube around until they hear something. Ask students what they hear, and where they think the sound is coming from.
3. Explain that the sound is their hearts beating.
4. Tell students that the heart is a muscle that pumps blood around the body in a system called the circulatory system.
5. Explain that they will learn how our hearts pump blood throughout our bodies to bring the supplies and nourishment that gives us energy to do all the things that we do every day.
6. Explain to students that they will now fill their butcher paper outlines with the parts of the circulatory system.
7. Ask teams to draw the heart and lungs on their paper outlines. Give instructions that the heart is about the size of their fists and is located in

ask them to estimate how much their working heart rate will vary from their resting one.

Guided Practice

Day 3/ Lesson 3: 25 Mins

1. Before the lesson, set up a visit from a pediatrician to talk with the students about the heart, what students can do to keep their hearts healthy, and ways that hearts can be repaired.
2. Review the work that the class has been doing and the general questions that have emerged.
3. Request that that she bring her stethoscope, so children can listen to their hearts.
4. Introduce the guest pediatrician and have her engage students in a discussion about the importance of having a strong and healthy heart, and how proper exercise and healthy eating habits can promote heart health.
5. Provide the pediatrician with the butcher paper questions from earlier lessons.

the chest area, slightly to the right on the drawing. The lungs lie beneath the ribs and are slightly smaller than the rib cage that protects them.

8. Tell students to feel their ribs, so they know where the lungs are.
 9. Explain to students that they will be using red markers to draw the arteries and blue for the veins. Tell them that the blood in the veins is not blue, but blue is used to distinguish between the two different types of blood vessels.
 10. Next, ask students to use their red markers to draw in the arteries.
 11. Explain that the arteries carry blood away from the heart and reach each extremity.
 12. Have students use the blue marker to draw veins leading from the extremities back to the heart.
 13. Have students draw small dashed connections between the arteries and veins to represent capillaries.
 14. When they have finished drawing in their parts, review the circulatory system.
 15. Have students write brief descriptions of each part of the circulatory system on their body outlines.
 16. Put up a sheet of blank butcher paper and record any unanswered student questions for use with the doctor who will visit the class in the third lesson.
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