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Resource ID#: 128829

Primary Type: Lesson Plan

Heart Rate Activity: Body Positions and Physical Activity

This is a activity that should be used after a full introduction/lesson for the cardiovascular and circulatory system has been completed. Students should be able to determine how physical body changes affect the heart rate and blood flow.

General Information

Subject(s): Science, Health Education, Physical Education

Grade Level(s): 7, 8, 9, 10, 11, 12

Intended Audience: [Educators](#)

Instructional Time: 1 Hour(s)

Suggested Technology: Basic Calculators, Overhead Projector, Assistive Technology

Keywords: cardiovascular system, heart, heart rate, heart anatomy, heart valves, heart anatomy and physiology, oxygen-rich blood, blood flow

Instructional Component Type(s): [Lesson Plan](#), [Worksheet](#), [Problem-Solving Task](#)

Resource Collection: FCR-STEMLearn Diversity and Ecology

Attachment

[Cardiovascular_System.pptx](#)

[Heart_Rate_Student.docx](#)

[Heart_Rate_Teacher.docx](#)

Lesson Content

Lesson Plan Template: General Lesson Plan

Learning Objectives: What should students know and be able to do as a result of this lesson?

Students will be able to demonstrate their understanding of how physical activity affects the heart rate and blood flow through the cardiovascular system.

Prior Knowledge: What prior knowledge should students have for this lesson?

Students should have been introduced to the background of the cardiovascular system and the direction of blood flow through the heart.

Guiding Questions: What are the guiding questions for this lesson?

How does body position affect heart rate?

Is heart rate higher when standing or sitting? Why?

How does physical activity affect heart rate?

Teaching Phase: How will the teacher present the concept or skill to students?

The teacher will go over the attached PowerPoint stopping for the students to answer questions throughout. The PowerPoint can also be used as a key for the exit slip on the last slide.

The teacher will explain all steps of the lab prior to beginning. It is very important to explain how to find the pulse prior to beginning the lab. The easiest would be for the student to place their thumb under their chin with the remaining four free fingers up. Rotate the thumb to the left, allowing the fingers to follow and the

index/middle fingers should fall on the pulse spot on the neck.

Guided Practice: What activities or exercises will the students complete with teacher guidance?

The students should work through the attached lab titled "Heart Rate Student." The key to the lab is attached as "Heart Rate Teacher." The teacher should circulate the room to check on student progress.

Independent Practice: What activities or exercises will students complete to reinforce the concepts and skills developed in the lesson?

The students will complete the lab follow-up questions independently.

Closure: How will the teacher assist students in organizing the knowledge gained in the lesson?

The exit slip prompt on the last slide of the PowerPoint will provide the closure for the lesson as well as act as the summative assessment.

Summative Assessment

The last slide of the attached PowerPoint contains an exit slip question for the end of the lesson: List 6 factors that affect blood flow and a 1 sentence explanation of how it is affected by each.

Formative Assessment

There are several assessment opportunities throughout the attached PowerPoint that the teacher can use to assess student understanding throughout the lesson. The students can answer using whiteboards or on a sheet of paper.

Feedback to Students

Throughout the lesson, the teacher can provide verbal feedback to the students. This can happen as students answer questions during the PowerPoint and as the teacher circulates the room while the students complete the lab.

Accommodations & Recommendations

Accommodations:

Students with physical disabilities and are unable to change positions as needed can use data collected from other students. They should be consistent with using the same classmate for all measurements.

Extensions:

A possible extension could be for students to graph their results and graph the results of other groups. They can also analyze the results and determine their own theories as to how body types may have affected the data.

Suggested Technology: Basic Calculators, Overhead Projector, Assistive Technology

Special Materials Needed:

- stopwatch (students can use their phones or a clock)
- chair
- space to lie down
- enough free space around the perimeter of the classroom for students to walk around

Source and Access Information

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Access Privileges: Public

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Aligned Standards

Name	Description
SC.912.L.14.36:	Describe the factors affecting blood flow through the cardiovascular system.