GLOSSARY

Blood Vessels – An elastic tubular channel, such as an artery, a vien, or a capillary, through which the blood flows.

Carbon Dioxide – A gas with many uses, a byproduct of respiratory process, after oxygen is inhaled and processed carbon dioxide is exhaled.

Cell Respiration – The exchange of oxygen and carbon dioxide between the atmosphere and the cells of the body.

Circulatory System – Consisting of the heart, blood vessels and blood, this system circulates blood throughout the body, delivering nutrients and other essential materials to cells and removes waste products.

Exhale – to breathe out.

Glucose – A sugar found in most plant and animal tissue. It circulates in the blood and is the major energy source in the body.

Inhale – To breathe in.

Oxygen – A gaseous element that is essential for life.

Respiratory System – A system of organs involved in the intake and exchange of oxygen and carbon dioxide.

Ventilation – The filling and emptying of air in the lungs; breathing.

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Show Me Science

The Wonders of Physiology

A Trip through the Circulatory System

K4589DVD

Teachers Guide

SYNOPSIS:

This program looks at how our bodies acquire and process energy for everyday life. Explore two different physiological systems that work together in order to keep our bodies running efficiently. Students will learn how our respiratory system processes oxygen and how oxygen is used within our bodies. We'll also learn about the circulatory system and how it transports oxygen throughout our bodies.

CURRICULUM UNITS:

- Anatomy
- Biology
- Health
- Physical Education
- Physiology

CAREER OPPORTUNITIES:

- Cardiologist
- Hematologist
- Nutritionist
- Phlebotomist
- Physical Therapist
- Sports Scientist

PROGRAM OVERVIEW:

Our bodies efficiently acquire and distribute oxygen through two systems – the respiratory system and the circulatory system. They each have their own specific job to perform. The respiratory system is responsible for acquiring oxygen from the air we breathe. The circulatory system is responsible for distributing the oxygen throughout our bodies. The respiratory and circulatory systems are designed to work hand-in-hand to achieve a common goal – to provide us with energy – our body's fuel for life.

ISSUES & CRITICAL THINKING:

1. Show students how to feel their pulse in order to calculate their heartbeat. Have them measure and record their resting heart rate, then do some jumping jacks and again measure and record.

2. Compare and contrast the respiratory and circulation systems. Create a chart comparing these systems.

3. Illustrate and write an explanation of the process of respiration, making sure to include vocabulary words such as red blood cells, chemical reaction, glucose, oxygen and the bloodstream.

4. Pair up students giving each one a balloon (same size) and a paper measuring tape. Instruct one to blow one big breath into the balloon. Measure and record the inflation of the balloon. Deflate. Each student should repeats three times and calculates the average. Which student was able to blow the most air into the balloon. Why?