

# The Human Circulatory System

**Florida Benchmark:** SC.6.L.14.5 - Identify and investigate the general functions of the major systems of the human body (e.g., digestive, respiratory, circulatory, reproductive, excretory, immune) and describe ways these systems interact with each other to maintain homeostasis.

**NGSS Standard:** MS-LS1-3 - Use argument supported by evidence for how the circulatory system functions as an interacting subsystem composed of the heart, blood vessels, and blood cells to transport nutrients and oxygen throughout the body.

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## A. GRADE LEVEL:

**B. SUBJECT:** STEM/ Science

**C. DATE:**

**D. DURATION:** 60 minutes

**E. LESSON FOCUS:** The Circulatory System

## F. MATERIALS:

- PowerPoint presentation on the circulatory system
- Diagram of the circulatory system
- Red and blue yarn (to represent oxygenated and deoxygenated blood)
- Small balls or beads (to represent oxygen and carbon dioxide molecules)
- Whiteboard and markers
- Video on how the heart pumps blood (optional)
- Worksheet (labeling circulatory system parts)
- Stethoscopes (if available)

## G. LESSON OBJECTIVES:

By the end of the lesson, students will be able to:

1. Describe the structure and function of the circulatory system.
2. Identify the main components: heart, blood vessels, and blood.
3. Explain how the circulatory system interacts with other body systems to maintain homeostasis.
4. Model the pathway of blood circulation in the body.

## H. PROCEDURES:

1. **INTRODUCTION:** (10 minutes)
  - Begin with a discussion: Ask students to place their hands over their hearts and describe what they feel.
  - Show a short video or animation of the heart pumping blood.
  - Ask guiding questions:
    - Why do we need blood to circulate?
    - What do you think happens if our circulatory system stops working?
  - Display a PowerPoint presentation and a diagram of the circulatory system.

2. **EXPERIMENT:** (15 minutes)
    - Discuss the main components of the circulatory system:
      - **Heart:** The pump of the system
      - **Blood vessels:** Arteries (carry oxygen-rich blood), veins (carry oxygen-poor blood), capillaries (exchange gases)
      - **Blood:** Carries oxygen, nutrients, and waste products
    - Conduct a simple hands-on activity:
      - Have students act as blood cells moving through the body using yarn and beads to demonstrate oxygen exchange in different organs.
  3. **OBSERVATION:** (15 minutes)
    - Continue with the PowerPoint presentation to explain the two types of circulation: **Pulmonary (lungs) and Systemic (body)**.
    - Explain how the circulatory system interacts with the **respiratory system** (oxygen exchange) and the **digestive system** (nutrient absorption).
    - Have students use stethoscopes (if available) to listen to their own or a partner's heartbeat.
    - Guide students in measuring their pulse before and after jumping or running in place for one minute.
  4. **GENERALIZATION:** (10 minutes)
    - Discuss how exercise affects circulation and heart rate.
    - Ask students to summarize in pairs how the circulatory system helps maintain homeostasis.
    - Class discussion: Review key points and clarify any misunderstandings.
  5. **ASSESSMENT:** (10 minutes)
    - **Worksheet Activity:** Label the parts of the circulatory system.
    - **Exit Ticket:** Write one thing they learned and one question they still have about the circulatory system.
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### **Note 1: Safety Considerations**

Students should handle all materials carefully. When using stethoscopes, ensure they are used properly and sanitized before and after use. If students engage in physical activity to measure pulse rate, they should only do so within their comfort level to avoid overexertion. Always be mindful of students with medical conditions and adjust activities accordingly.

### **Note 2: Accommodations for Diverse Learners**

- **For ELL students:** Provide labeled diagrams, visual aids, and simplified instructions.
- **For ESE students:** Offer step-by-step guidance and allow extra time for activities.
- **For advanced learners:** Have them research and present on circulatory system diseases.
- **For struggling learners:** Use hands-on models, peer tutoring, and interactive activities to reinforce understanding.