

## TEKS

- 4B** Investigate and explain cellular processes, including homeostasis, energy conversions, transport of molecules, and synthesis of new molecules
- 5B** Examine specialized cells, including roots, stems, and leaves of plants; and animal cells such as blood, muscle, and epithelium
- 10A** Describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals
- 10C** Analyze the levels of organization in biological systems and relate the levels to each other and to the whole system

## instructional content:

- ✦ Function of Circulatory System
- ✦ Components of Blood
  - Types of Cells
  - Plasma
- ✦ Types of Blood Vessels
- ✦ Structure of Heart
  - Blood Flow
  - Two Pathways
- ✦ Function of Respiratory System
- ✦ Anatomy of Respiratory System
  - Path of Air
  - Gas Exchange
- ✦ Interactions of Circulatory and Respiratory Systems in Homeostasis

## learning outcomes students will:

- Use all content and scientific process skills learned earlier in the course
- State the function of the circulatory and respiratory systems
- Identify the main substances transported by blood
- Describe the components of blood and state the function of each
- Compare the structures and functions of the three types of blood vessels.
- Summarize the path that blood flows through the heart
- Distinguish pulmonary circulation from systemic circulation
- Explain why blood flows in a one way path through the heart
- Summarize the path that air follows as it enters the body
- Describe how the diaphragm and rib muscles are involved in breathing
- Explain how diffusion allows for gas exchange in the alveoli
- Explain how the circulatory and respiratory system interact to maintain homeostasis



Incorporate scientific process skills during the instruction of all Biology concepts. Look for this icon at [wardsci.com/TEKS](http://wardsci.com/TEKS) for more information on scientific process skills.

## Recommended Ward's Science products with item numbers for easy online searching:

### science tools:

[Basic Heart Model 810910](#)  
[3B® Youth Heart Model 813010](#)  
[Ward's Student Classroom Dissection Set 149999](#)  
[Ward's DataHub: Biology/Chemistry 9200503](#)  
[Ward's DataHub Universal Sensor Adapter 9200514](#)  
[Vernier EKG Sensor 175277](#)  
[Vernier Gas Pressure Sensor 175279](#)  
[Vernier Oxygen Sensor 175284](#)  
[Vernier Respiration Monitor Belt 175286](#)  
[Vernier Spirometer 175287](#)

[Bowles Stethoscope 158840](#)  
[Student Blood Pressure Set 6066810](#)  
[White Blood Cell \(sm\) Human 936539](#)  
[Human Blood \(sm\) wr 936540](#)  
[Ward's Simulated ABO Blood Typing Lab Activity 360022](#)  
[Lung Demonstration Apparatus 6227600](#)  
[Functional Lung Model 817000](#)  
[Altay® Lung Pathology Model 813357](#)  
[Lung Volume Bag Set 145051](#)  
[Spirometer 145072](#)

### instructional resources:

[3B® Anatomical Charts 330658](#)  
[Visual Learning Guides: Human Body 330477](#)  
[Ward's Sheep Heart Dissection Lab 622090](#)  
[Human Heart Walk-Thru 177064](#)