

**Topic/Objectives:** 11-1 Blood Composition; (1) Describe the general characteristics of blood, and discuss its major functions; (2) Explain the significance of red blood cell counts; (3) Summarize the control of red blood cell production

**Name:**

**Date:**

**Period:**

**Essential Question:** What are the major components of blood and their functions?

**Questions:**

**Notes:**

Blood, a type of \_\_\_\_\_ tissue, is a complex mixture of cells, chemicals, and fluid.

\_\_\_\_\_ transports substances throughout the body, and helps to maintain a stable internal environment.

The blood includes red blood cells, white blood cells, \_\_\_\_\_, and plasma.

**Blood Volume and Composition**

- A blood \_\_\_\_\_ is normally 45% cells and 55% plasma.
- Plasma is a mixture of water, amino acids, proteins, carbohydrates, lipids, vitamins, hormones, electrolytes, and cellular wastes.

**Red Blood Cells**

- Red blood cells (\_\_\_\_\_) are biconcave disks that contain one-third oxygen-carrying hemoglobin by volume.
- When oxygen combines with hemoglobin \_\_\_\_\_ oxyhemoglobin results.
- Deoxygenated blood (deoxyhemoglobin) is \_\_\_\_\_.
- Red blood cells \_\_\_\_\_ their nuclei during development and so cannot reproduce or produce proteins.

**Red Blood Cell Counts**

- The typical red blood cell count is \_\_\_\_\_ - \_\_\_\_\_ million cells per cubic mm for males and \_\_\_\_\_ - \_\_\_\_\_ million cells per cubic millimeter for females.
- The number of red blood cells is a measure of the blood's \_\_\_\_\_ -carrying capacity.

**Red Blood Cell Production and Its Control**

- In the embryo and fetus, red blood cell production occurs in the yolk sac, liver, and spleen; after birth, it occurs in the \_\_\_\_\_.
- The average life span of a red blood cell is \_\_\_\_\_ days.
- The total number of red blood cells remains relatively constant due to a negative feedback mechanism utilizing the hormone \_\_\_\_\_, which is released from the kidneys and liver in response to the detection of low oxygen levels.

