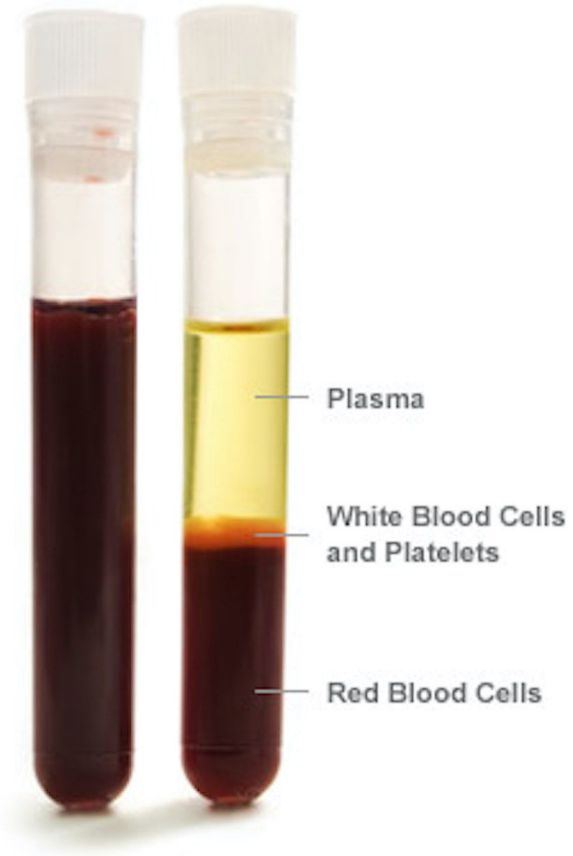
Name: _____ Date: _____

It's red and a little thicker than water. Blood is a fluid that has several vital functions for any animal whose body contains it. The heart pumps blood through all the blood vessels in the body. As blood travels through this circulatory system, it brings all body parts what they need, such as oxygen, water, and nutrients. Blood also supports the body's responses to illness and injury.

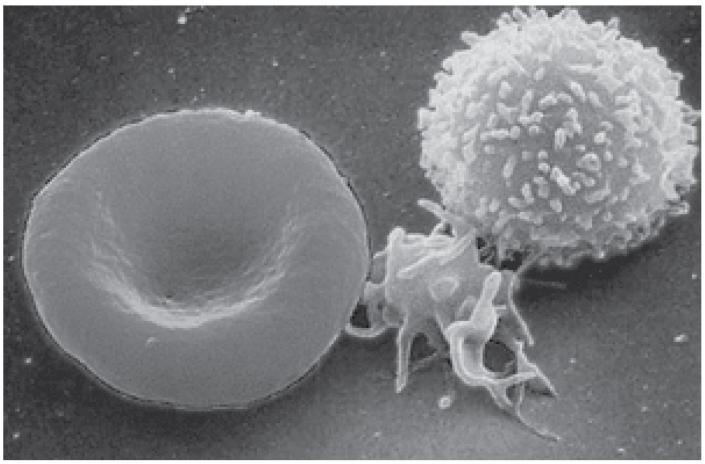
Blood is a mixture of blood cells, water, food, vitamins, and electrolytes (different types of salts a body needs). In humans, blood cells make up about 45 percent of the volume of blood. The other 55 percent is blood plasma. The blood plasma itself is a yellowish liquid that is about 92 percent water. About 7 percent of blood plasma is food such. Vitamins and electrolytes make up the other 1 percent of blood plasma. One of the most important jobs of the blood plasma is to transport nutrients to various parts of the body. Blood plasma also carries waste products away from parts of the body.



When blood is drawn from a body, all of its parts are mixed together. However, after it sits still for a while, the lighter blood plasma rises to the top and the heavier blood cells settle toward the bottom.

There are three main structures found in that heavier part of the blood that each serve different functions: red blood cells, white blood cells, and platelets. Most of the blood cells are red blood cells. Red blood cells have a round, flat, flexible shape with a dent in the middle on each side. They carry oxygen from the lungs throughout the body. The blood also contains white blood cells, which aid in responding to diseases and infections. White blood cells generally have a sphere-like shape and are often, but not always larger than red blood cells. The stain used on most slide preparations makes the insides of white blood cells appear dark purple.

Finally, the job of the platelets is to help clot the blood - to help it form a "plug" when a blood vessel has been broken or injured. Platelets stretch out tentacle-like arms and stick together on and around a damaged area. This helps prevent the blood from leaking out. When blood forms a clot on the surface of wounded skin and dries out to cover and protect the wound, it's called a scab. By volume, red blood cells make up much more of the blood than white blood cells or platelets. Altogether, white blood cells and platelets make up only about 1 percent of the blood's volume. The image here was taken with a high-powered electron microscope.



In the body, blood cells move around freely in the blood plasma. The food and other components of the plasma are too small to see even with a microscope.

Sources:

Blood Basics. (2020). Retrieved October 22, 2020, from https://www.hematology.org/education/patients/blood-basics

Hirsch, L., M.D. (2019, January). Blood (for Teens) - Nemours KidsHealth. Retrieved October 22, 2020, from https://kidshealth.org/en/teens/blood.html

Dean, L. *Blood Groups and Red Cell Antigens* [Internet]. Bethesda (MD): National Center for Biotechnology Information (US); 2005. Chapter 1, Blood and the cells it contains. Available from: https://www.ncbi.nlm.nih.gov/books/NBK2263/

American Red Cross. (2020). Blood Components. Retrieved October 22, 2020, from https://www.redcrossblood.org/donate-blood/how-to-donate/types-of-blood-donations/blood-components.html

James, G. N. (2016, April 6). Platelets. Retrieved October 29, 2020, from https://www.ouhsc.edu/platelets/Platelets/platelets%20intro.html