

Name _____

**Day
1**

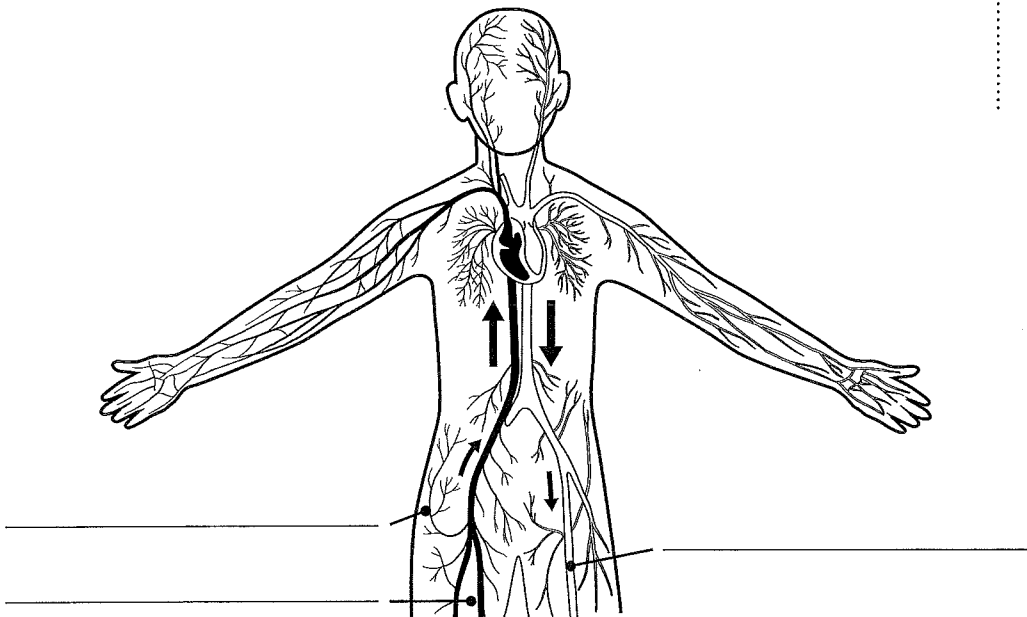
Weekly Question

How do people give blood without running out of it?

Blood is the link between every cell in your body. Working together with the heart, lungs, muscles, brain, and digestive system, blood transports oxygen and nutrients everywhere they are needed. Blood also shuttles the waste products produced by cells to places in the body where the waste can be eliminated.

Blood is part of your body's **circulatory system**. This system includes the heart, which pumps blood throughout the body, and the **blood vessels**, such as the arteries and veins. Blood leaves your heart through the arteries. Tiny vessels called capillaries (KAP-ih-LAIR-eez) allow blood to reach each cell and connect the arteries to the veins, which return blood to the heart.

- A.** Judging by the direction that the blood is flowing in the diagram, label the *artery*, *capillary*, and *vein*.



- B.** Name the two main functions of blood.

1. _____
2. _____

Daily Science

**Big
Idea 1**



WEEK 4

Vocabulary

blood vessels

BLUD VESS-ulz
tubes that transport
blood throughout
the body

**circulatory
system**

SER-kew-lih-tor-ee
SISS-tum
the system of
organs that pump
blood throughout
the body

Name _____

Daily Science

Big Idea 1

WEEK 4

Day 2

Weekly Question

How do people give blood without running out of it?

Blood is a liquid connective tissue made of cells suspended in a watery fluid called **plasma**. Plasma brings dissolved nutrients to cells and carries the cells' waste products away.

Blood contains three types of cells. Red blood cells, which give blood its color, account for 99% of all blood cells. Red blood cells transport oxygen to all body cells. White blood cells, on the other hand, are far fewer in number but have the important job of attacking infection. **Platelets**, which are the third type of blood cell, are not really cells at all but are fragments of larger blood cells. These small, irregularly shaped bodies collect at the site of an injury and help blood to clot, or form a scab.

Vocabulary

plasma

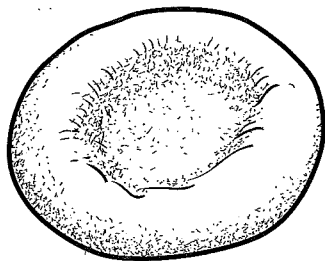
PLAZ-muh

fluid containing dissolved nutrients and waste

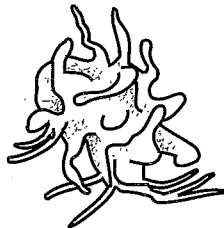
platelets

PLAYT-lits

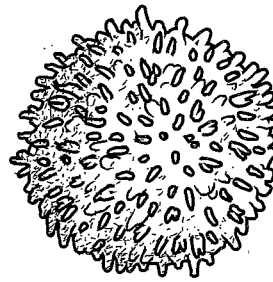
particles in blood that help make blood clot



red blood cell



platelet



white blood cell

Answer the questions.

1. Which part of your blood transports nutrients? _____
2. Which cells help you get over a cold? _____
3. Which cells help heal a cut? _____
4. Why is blood red? _____
5. What would happen to someone without platelets? _____

Name _____

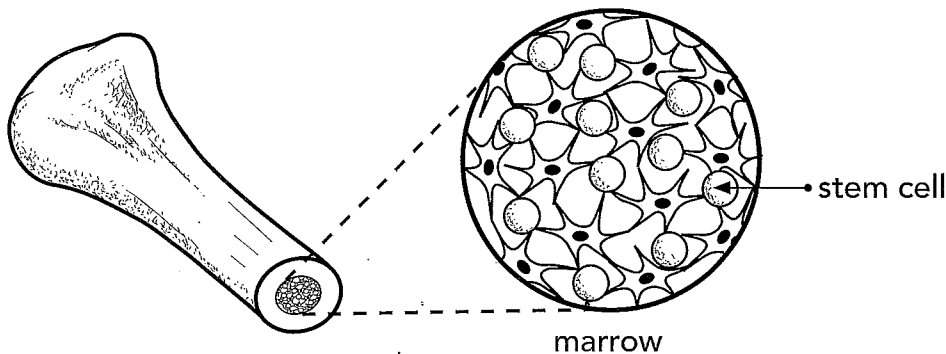
**Day
3**

Weekly Question

**How do people give blood
without running out of it?**

Blood is essential for life. So what happens when we lose blood? Our bodies actually lose blood all the time—not just from cuts and injuries, but also because blood cells in the body live only for a few days or, at most, a few months. Because of this, our bodies are continuously producing new blood.

Blood cells start out as **stem cells** located in your bone **marrow**. Bone marrow is a spongy, gel-like material inside certain bones, such as your leg and hip bones. Bone-marrow stem cells become the red blood cells, white blood cells, and blood platelets you need to stay healthy. More than 100 billion new blood cells are created in the bone marrow every day.



A. Write true or false.

1. Plasma starts out as stem cells. _____

2. Bone marrow is contained in all the bones of the body. _____

3. Blood cells can die after a few days. _____

B. If the body makes 100 billion new blood cells each day, approximately how many blood cells can it make each hour? _____

C. Use words from the passage to complete the sentence.

Bone _____ contains _____ cells, which become _____ cells.

Daily Science

**Big
Idea 1**



WEEK 4

Vocabulary

marrow

MARE-oh
soft tissue found
inside certain
bones

stem cells

STEM selz
cells that can
become other
types of cells

Name _____

**Day
4**

Weekly Question

How do people give blood without running out of it?

Even though blood is constantly replenished in the body, losing too much blood suddenly can endanger a person's life. That's why people donate blood, which can be stored and used for such emergencies.

The human body contains about 5 quarts of blood. Blood donors typically give 1 unit, which is about 1 pint, or 10% of the blood they have. Their body is able to replace the blood fairly quickly. Liquid plasma is fully restored within a day or two. The blood cells take a few weeks to regenerate in the bone marrow and return to normal levels.

Donating blood gives the gift of health. For some people, it is the gift of life.

Use the chart to answer the questions about how donated blood is used.

Reason for Needing Blood	Blood Parts Needed		
	Red blood cells	Platelets	Plasma
Accident	4–100 units	none	none
Liver transplant	10–40 units	10–30 units	20–25 units
Open-heart surgery	2–6 units	1–10 units	2–4 units
Cancer treatment	10–20 units	10–15 units	none

1. Which part of donated blood is most frequently used? _____
2. Which medical event can require the most units of blood? _____
3. How many total units of blood parts does a liver transplant require? _____
4. What is the minimum number of blood parts needed for open-heart surgery? _____



Name _____

**Day
5**

Weekly Question

**How do people give blood
without running out of it?**

Daily Science

**Big
Idea 1**



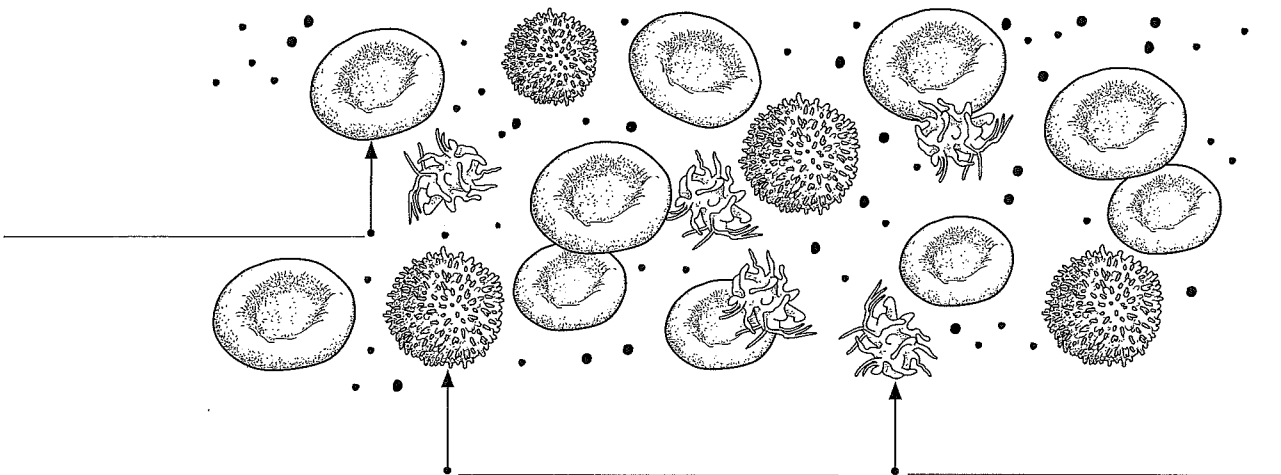
WEEK 4

A. Use the words in the box to complete the paragraph.

marrow stem cells blood vessels
plasma platelets circulatory system

Blood is pumped through the body's _____,
which is made up of _____ such as veins, arteries, and
capillaries. Blood contains a liquid substance called _____,
as well as red blood cells, white blood cells, and _____.
Blood is made in the bone _____ and comes from
non-specialized cells called _____.

B. Label a *red blood cell*, *white blood cell*, and *platelet*.



C. Why is it important for people to donate blood?