13-1 What are the parts of the heart?

Objectives ▶ Describe the heart. ▶ Explain how blood moves through the heart.

TechTerms

- **atrium** (AY-tree-um): upper chamber of the heart
- **septum:** thick tissue wall that separates the left and right sides of the heart
- **valve:** thin flap of tissue that acts like a one-way door
- **ventricle** (VEN-tri-kul): lower chamber of the heart

A Muscular Organ The heart is a muscular organ. Its job is to pump blood. The heart is divided into four parts, or chambers. There are upper and lower chambers. Each upper chamber of the heart is called an **atrium** (AY-tree-um). The plural of atrium is atria. The atria receive blood. The lower chambers are called **ventricles** (VEN-tri-kuls). The ventricles pump blood out of the heart.

Identify: How many chambers does the heart have?

Blood Flow in the Heart Look at Figure 1. You can see that the heart is divided into two sides—a left side and a right side. A thick tissue wall separates the two sides of the heart. This tissue wall is called the **septum.**

Blood flows into the atria of the heart. When the atria are full of blood, they contract. This motion pumps the blood into the ventricles. Once the ventricles are full of blood, they contract. This motion pushes the blood out of the heart.

Sequence: List the flow of blood from when it enters the heart to when it leaves the heart.

Heart Valves Inside the heart, there are four valves. A valve is a thin flap of tissue. It acts like a one-way door. The valves keep the blood moving

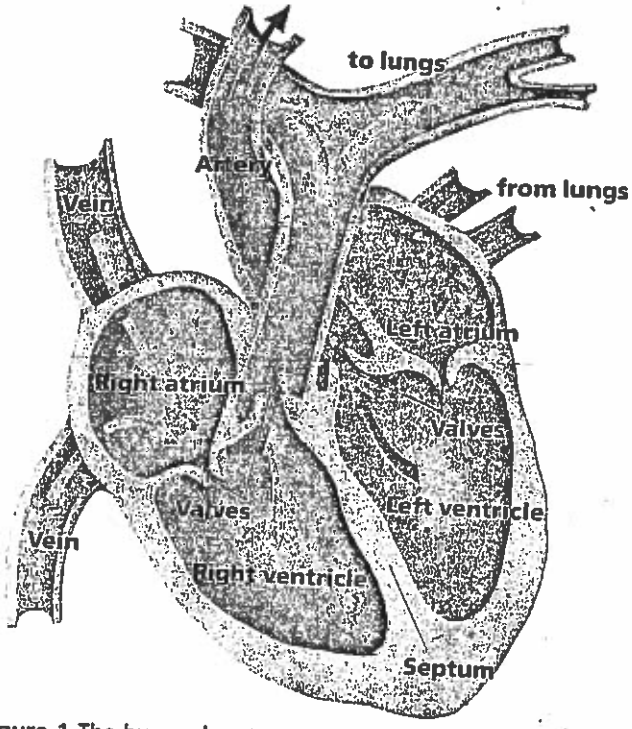


Figure 1 The human heart

in only one direction. Blood can flow only from the atria to the ventricles. Blood cannot flow backwards. Between the atria and ventricles there are valves. If the blood tries to go backwards, the valve shuts. There also are valves between the ventricles and the blood vessels. As blood leaves the ventricles, it goes through the valves.

Identify: What keeps blood from flowing backwards in the heart?

Heartbeat Your heartbeat is the rhythm of your heart pumping blood. A stethoscope (STETH-uh-skohp) is an instrument doctors use to listen to heartbeat. If you were to listen to your heartbeat, you would hear a lub-dub sound. The lub-dub sound is made by your valves opening and closing. When the valves between the atria and ventricles snap shut, they make a "lub" sound. When the valves between the ventricles and blood vessels snap shut, they make a "dub" sound.

Define: What is a stethoscope?

LESSON SUMMARY

- The heart is divided into atria, or upper chambers, and ventricles, or lower chambers.
- The septum is a thick tissue wall that separates the left and right sides of the heart.
- Blood flows from the atria to the ventricles then out into the body.
- Heart valves prevent blood from flowing backwards.
- Heartbeat is the rhythm of your heart pumping blood.

CHECK *Complete the following.*

1. The _____ divides the heart into left and right sides.
2. The upper chambers of the heart are called _____.
3. There are _____ chambers in the heart.
4. The _____ pumps blood into the body.

Answer the following.

5. Where are valves found?
6. What causes the sound of the heartbeat?

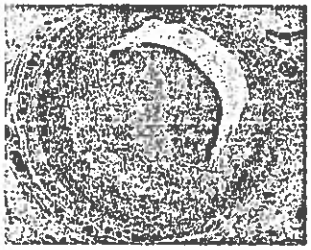
APPLY *Answer the following.*

7. **Infer:** What do you think would happen if a valve was damaged?
8. **Hypothesize:** What might cause your heartbeat to increase?

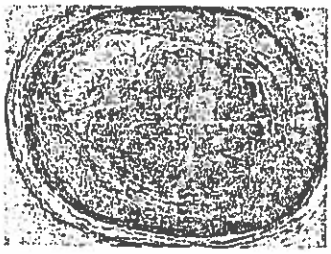
Ideas in Action

IDEA: Cholesterol is a fatlike substance found in the body. Too much cholesterol can clog your arteries. A buildup of cholesterol may be the cause of high blood pressure, heart attack, or stroke.

ACTION: Look at different food products that contain nutrition labels. Find the section of the label that lists the amount of cholesterol in the product. Which foods have a high level of cholesterol? Which foods have a low level of cholesterol? Present your findings in a table.



Artery with cholesterol



Normal artery

ACTIVITY

COMPARING ANIMAL HEART RATES

You will need a pencil and paper.

1. Study Table 1.
2. **Sequence:** List the animals according to their heart rates from fastest to slowest.
3. **Sequence:** List the animals according to their relative sizes from smallest to largest.

Table 1 Heartbeat Rates

ANIMAL	HEART RATE/MINUTE
elephant	25
mouse	1000
human	72
cat	120
cow	65
bird	570

Questions

1. a. **Analyze:** Which animal has the fastest heart rate? b. Is the animal large or small?
2. a. **Analyze:** Which animal has the slowest heart rate? b. Is the animal large or small?
3. **Infer:** Do you think there is a relationship between animal size and heart rate? Explain.
4. a. **Hypothesize:** Do you think heart rates vary among humans according to body size? b. How could you find out?