

# The cardiovascular-respiratory system

## ■ The cardiovascular system

It is the transport system of the body by which food, oxygen, water and other essential substances are carried to tissue and its **waste** products are carried away. It consists of three parts:

- the **blood**, which is the fluid in which materials are carried to and from tissue;
- the **heart**, which is the driving force which **propels** blood;
- the **blood vessels**, the routes by which the blood travels to, through and from tissue back to the heart.

Blood is a connective tissue because nearly half of it is made of cells which move freely in the liquid portion of the blood, known as **plasma**.

The heart is a **muscular pump** that drives the blood through the blood vessels. A little bigger than a **fist**, it is a hollow organ.

The blood vessels can be classified into three groups: **arteries**, which carry blood from the ventricles (pumping chambers of the heart)

to the capillaries in organs and tissue; **veins**, which **drain** capillaries in the tissues and organs and return the blood to the heart; **capillaries**, which **allow** exchanges between the blood and body cells and between the blood and air in **lung** tissue.

## ■ The respiratory system

The fundamental function of the respiratory system is to provide **oxygen**, which is needed to obtain energy from food, to the individual tissue cells and to remove **carbon dioxide**. The respiratory system is an intricate arrangement of spaces and **passageways** that conduct air into the **lungs**. These spaces include the nasal cavity, the pharynx, the larynx, the trachea and the lungs with their tubes and **sacs**.

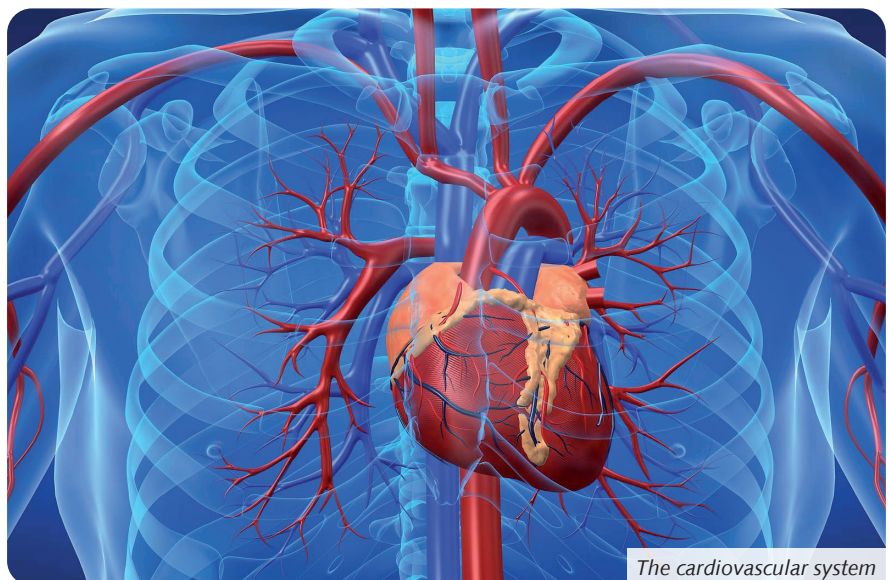
**Ventilation** is the movement of air into and out of the lungs, as in breathing. There are two phases of ventilation:

- **inhalation**, the drawing of air into the lungs;
- **exhalation**, the expulsion of air from the lungs.

### GLOSSARY



**to allow** /ə'laʊ/: *permettere*  
**blood vessel** /blʌd 'vesl/:  
*vaso sanguigno*  
**carbon dioxide** /'kɑ:bən  
 daɪ'ɒksaɪd/: *anidride*  
*carbonica*  
**to drain:** *drenare*  
**exhalation:** *espirazione*  
**fist:** *pugno*  
**inhalation:** *inspirazione*  
**lung:** *polmone*  
**passageway:** *passaggio*  
**to propel** /prə'peɪl/: *spingere*  
*avanti*  
**pump:** *pompa*  
**sac:** *alveolo (polmonare)*  
**waste:** *scorie*



The cardiovascular system

1 Answer the following questions.

1. What does the cardiovascular system transport?
2. What is the difference between blood and a blood vessel?
3. What is plasma?
4. How can we classify blood vessels?

2 Look at the picture of a human heart and complete the following text.

The heart is made up of two atria, the  
 1. .... and the 2. ....  
 ....., and two ventricles, the  
 3. .... and the 4. ....  
 ..... At the top there is the  
 5. ...., while at the bottom there is  
 the 6. ....  
 There are four valves. On the left we can see the  
 7. .... and 8. ....  
 ....., while on the right there are the  
 9. .... and the 10. ....  
 ..... There is also a 11. ....  
 artery and a 12. ....  
 on the right.

