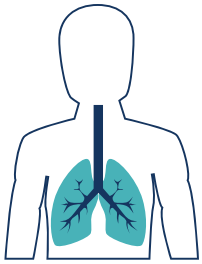


Our amazing body – Respiration system quiz

SURGEONS' HALL MUSEUMS

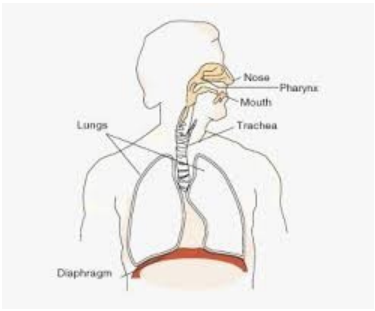
Select the option that best answers the following

1. When you breathe in, name the gas that goes from the lungs into your blood?

- Nitorgen ☐
- Oxygen ☐
- Carbon Dioxide ☐
- Hydrogen ☐

2. The diaphragm is a sheet of muscle that lies underneath your lungs. It helps you to breathe air by moving up and down. What happens to you when the diaphragm moves up at the wrong time?

- Headache ☐
- Pins and needles in the leg ☐
- Hiccups ☐
- Sneeze ☐



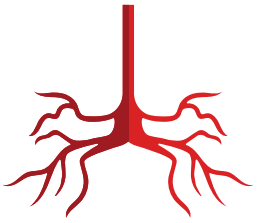
3. Blood vessels carry blood around the body. The three types of blood vessels are arteries, veins and capillaries.

a. Which blood vessels carry blood away from the heart?

Arteries ☐ Capillaries ☐ Veins ☐

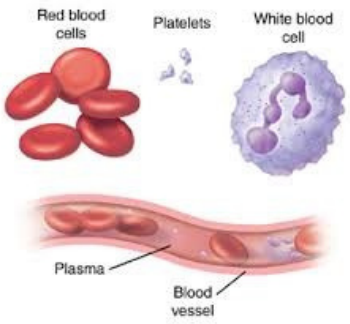
b. Which blood vessels carry blood back to the heart?

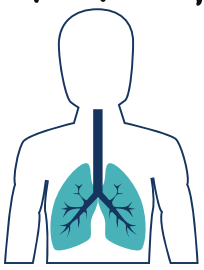
Arteries ☐ Capillaries ☐ Veins ☐



4. Human blood is made up of red blood cells, white blood cells, platelets in a yellow liquid called plasma. Which of these parts is used by the body to form a scab to help prevent bleeding when the skin is cut?

- Plasma ☐
- Red Blood Cells ☐
- White Blood Cells ☐
- Platelets ☐

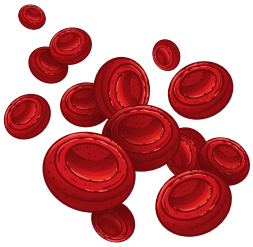




SURGEONS' HALL MUSEUMS

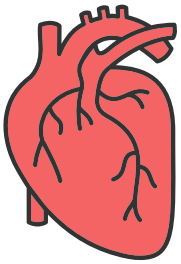
5. Red blood cells carry oxygen around your body. Name the metal that is needed by your body to make red blood cells?

- Zinc ☐
- Copper ☐
- Iron ☐
- Silver ☐



6. The organ that pumps blood around the body is the heart. How much blood is in an adult human body?

- 1 litre ☐
- 3 litres ☐
- 5 litres ☐
- 12 litres ☐

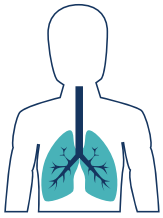


7. In a healthy human heart, doctors describe the sound made by a beating heart as a 'lub' and a 'dub' (lub-dub). What causes the lub-dub, lub-dub sound of a heart beat?

- Heart muscles squeezing ☐
- The valves in the heart closing ☐
- Blood picking up oxygen ☐
- Blood moving into the heart ☐

8. Not all animals have red coloured blood. What colour blood does a Horse-shoe crab have?

- Blue ☐
- Green ☐
- Yellow ☐
- Orange ☐



Answers and teachers notes: Our Amazing Body- Respiration System Quiz

SURGEONS' HALL MUSEUMS

1. Oxygen. The process of gas exchange takes place in the lungs. Oxygen passes from the tiny air sacs, called alveoli, in the lungs into the blood. Carbon dioxide is removed from the blood into the lungs and then exhaled (breathed out). The air breathed in is a mixture of gases including, nitrogen (78%), oxygen (21%), Carbon dioxide (0.02%) and other gases (approx.. > 1%). Note, most of the nitrogen inhaled is then exhaled again.

2. Hiccups. Hiccups are caused by involuntary contractions of the diaphragm. The diaphragm is a sheet of muscle that sits below the lungs and plays a role in breathing.The involuntary contractions changes the air pressure in the wind pipe causing the vocal cords to snap shut making the squeaky hiccup sound. To breathe in, the diaphragm contracts and flattens, along with the rib cage moving up & out makes a larger space in the chest cavity resulting in air rushing into the lungs. To breathe out, the diaphragm relaxes, forming a dome shape, along with the rib cage moving down & in makes a smaller space in the chest cavity resulting in air being forced out of the lungs.

3. a. Arteries: Arteries are blood vessels that carry blood from the heart to the organs of the body. They have thick, muscular walls to carry blood that is under high pressure from the heart pumping.
b. Veins: Veins are blood vessels that carry blood back to the heart from the organs. They have thinner walls as the blood is under less pressure and contain valves to prevent blood flowing backwards. Note: Capillaries: Capillaries are a network of tiny blood vessels around the organs that allow substances (e.g. oxygen) to pass from the blood to the organs. The tiny vessels connect the arteries to the veins.

4. Platelets: Platelets are fragments of cells that form clots and stop bleeding. They stick to breaks in blood vessels and clump together to from a clot to stop the bleeding.

5. Iron: Iron is used by the body to make the oxygen carrying chemical 'haemoglobin' contained in red blood cells. Red blood cells are made in the bone marrow and last in the body for
approx.. 120 days. The body needs a small amount the mineral iron in the diet (e.g. red meat, beans, nuts). Iron deficiency (lack of iron) in the body can cause anaemia, which has symptoms of tiredness and a lack of energy.

6. 5 litres: 5 litres of blood circulates around the body 3 times every minute. 5 litres of blood contains approx. 25 trillion red blood cells and the heart will pump 100,000 times a day to move
these cells through the blood vessels.

7. The valves in the heart closing. The heart contains valves to prevent the blood from flowing backwards. Blood is carried to the right-side of the heart by the veins. The heart then pumps the
blood to the lungs to pick up oxygen and then flows back to the left side of the heart. The heart then pumps the blood carrying oxygen out into the arteries and around the body.

8. Blue. Horse-shoe crab blood is blue due to it containing copper. Human blood is red because the oxygen-carrying chemical haemoglobin contains iron. When oxygen joins with the iron it makes the blood red (note: when iron metal joins with oxygen from the air it reacts to form red-coloured rust). Horse-shoe crab blood is highly valuable as it is used by scientists to