



YEAR 6

The Circulatory System and Keeping Healthy

Three sections. Section C uses numbers, because heart rate is the one part of Year 6 science where an experiment gives you a figure to work with. Answer the explain questions in full sentences.

A. The parts and their jobs

- 1 Name the organ that pumps blood around the body. **The heart**
- 2 Name the three types of blood vessel. **Arteries, veins and capillaries**
- 3 Which vessels carry blood *away* from the heart? **Arteries**
- 4 Which vessels carry blood *back to* the heart? **Veins**
- 5 Which vessels are one cell thick, so that substances can pass through their walls? **Capillaries**
- 6 Name the two substances the blood carries to every cell in the body. **Oxygen and nutrients**
- 7 Name the waste gas the blood carries away from the cells. **Carbon dioxide**
- 8 Which organ does blood travel to in order to collect oxygen? **The lungs**

B. Exercise, diet and health

- 9 What happens to your heart rate during exercise? **It increases**
- 10 Explain why. **The muscles are working harder and need more oxygen and glucose, so the heart beats faster to deliver them and to carry away the extra carbon dioxide.**
- 11 Name the food group that provides the body's main source of energy. **Carbohydrates**
- 12 Name the food group needed for growth and repair. **Proteins**

- 13 Give one effect of smoking on the circulatory system. **It damages the blood vessels and reduces how much oxygen the blood can carry, so the heart has to work harder.**
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- 14 Give one reason exercise is good for the heart. **The heart is a muscle, so exercising it makes it stronger and able to pump more blood with each beat.**
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C. Heart rate calculations

- 15 A pupil's resting heart rate is 72 beats per minute. How many beats in 5 minutes?
360
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- 16 After exercise it rises to 120 beats per minute. How many more beats per minute is that? **48**
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- 17 How long would 600 beats take at 120 beats per minute? **5 minutes**
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- 18 Two pupils run the same race. One returns to a resting heart rate in 2 minutes, the other in 6. What does that suggest, and why is it not proof? **It suggests the first is fitter, because a fitter heart recovers faster. It is not proof: age, illness and how hard each one actually ran would all change the result.**
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- 19 Why should you measure a resting heart rate before exercising rather than after?
Exercise raises the rate for several minutes afterwards, so a reading taken then is not a resting rate at all.
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