

Human Body Systems

Digestion, nutrition, breathing, the skeleton and muscles, circulation and respiration.

Name _____ Date _____ Class _____

Learning objective: I can describe how the main human body systems work and how they are linked.

✓ I can name organs and their jobs ✓ I can explain a balanced diet ✓ I can explain gas exchange

1 The digestive system Match each organ to its job.

1 mouth	☐	A makes enzymes that are released into the small intestine
2 oesophagus	☐	B completes digestion and absorbs nutrients into the blood
3 stomach	☐	C teeth chew food and saliva starts to digest starch
4 liver	☐	D absorbs water from undigested food
5 pancreas	☐	E makes bile, which helps break down fats
6 small intestine	☐	F churns food with acid and enzymes
7 large intestine	☐	G muscular tube carrying food to the stomach

2 A balanced diet Complete the table.

Nutrient	Why the body needs it	Example food
carbohydrates	main source of energy	bread, pasta, rice
lipids (fats)		
protein		
vitamins and minerals	keep the body healthy, e.g. vitamin C, iron	
fibre		
water		drinks, fruit

3 Breathing and gas exchange Use the word bank.

Word bank: diaphragm heart stomach alveoli diffuses

- Air travels down the trachea, into the bronchi and bronchioles, and reaches tiny air sacs called _____.
- Oxygen _____ from the alveoli into the blood, and carbon dioxide moves the other way.
- When you breathe in, the ribs move up and out and the _____ contracts and flattens.

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4 Quick quiz Circle the correct answer.

- 1 Which blood vessels carry blood away from the heart?
☐ (A) veins ☐ (B) arteries ☐ (C) capillaries
- 2 Where are nutrients absorbed into the blood?
☐ (A) stomach ☐ (B) large intestine ☐ (C) small intestine
- 3 Muscles that work in pairs, like the biceps and triceps, are called...
☐ (A) antagonistic ☐ (B) voluntary ☐ (C) skeletal
- 4 Which part of the skeleton protects the heart and lungs?
☐ (A) skull ☐ (B) ribcage ☐ (C) pelvis
- 5 What is the word equation for aerobic respiration?
☐ (A) glucose + oxygen → carbon dioxide + water ☐ (B) carbon dioxide + water → glucose + oxygen
☐ (C) glucose → lactic acid

5 Explain it

- 1 Explain how the biceps and triceps work together to bend and straighten the arm. [3 marks]

- 2 Smoking damages the tiny hairs (cilia) in the airways. Explain why smokers often cough. [2 marks]

- 3 Enzymes are biological catalysts. Why does the body need enzymes to digest food? [2 marks]

- 4 Capillaries have walls only one cell thick. Explain why this is useful. [2 marks]

Answer Key

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Question	Answers
1 The digestive system	1 C; 2 G; 3 F; 4 E; 5 A; 6 B; 7 D
2 A balanced diet	lipids (fats) – Why the body needs it: store of energy and insulation , Example food: butter, oil, nuts protein – Why the body needs it: growth and repair , Example food: meat, fish, eggs, beans vitamins and minerals – Example food: fruit and vegetables fibre – Why the body needs it: keeps food moving through the gut , Example food: wholegrain cereals, vegetables water – Why the body needs it: needed for all cells and chemical reactions
3 Breathing and gas exchange	1 alveoli; 2 diffuses; 3 diaphragm
4 Quick quiz	1 B (arteries); 2 C (small intestine); 3 A (antagonistic); 4 B (ribcage); 5 A (glucose + oxygen → carbon dioxide + water)
5 Explain it	1. To bend the arm the biceps contracts and the triceps relaxes; to straighten it the triceps contracts and the biceps relaxes. Muscles can only pull, so they work in an antagonistic pair. 2. Cilia normally sweep mucus and dirt out of the airways; when they are damaged, mucus builds up and coughing is the only way to remove it. 3. They break large, insoluble molecules (starch, proteins, fats) into small, soluble molecules quickly enough to be absorbed into the blood. 4. Substances such as oxygen, glucose and carbon dioxide can diffuse quickly over the short distance between the blood and the body cells.

Teaching note: accept equivalent wording and other sensible example foods. Note that arteries carry blood away from the heart, and veins carry blood back to it.