Life Processes: Nutrition, Respiration, Transport & Excretion

Ages 15–16 · Science

Name _____ Class _____ Date _____

A Key terms: match each term to its meaning

Write the letter of the correct meaning in the box next to each term.

1	**Autotroph**	☐	**A** Blood passes through the heart twice in each complete circuit of the body.
2	**Heterotroph**	☐	**B** Breakdown of glucose using oxygen, producing carbon dioxide, water and a large amount of energy.
3	**Aerobic respiration**	☐	**C** Breakdown of glucose without oxygen, producing less energy, plus lactic acid or ethanol.
4	**Anaerobic respiration**	☐	**D** An organism that makes its own food from simple inorganic substances, e.g. green plants.
5	**Double circulation**	☐	**E** The basic filtering unit of the kidney.
6	**Transpiration**	☐	**F** An organism that depends on food made by other organisms.
7	**Nephron**	☐	**G** Loss of water vapour from the aerial parts of a plant, mainly through stomata.

B Quick quiz

Circle the best answer, write its letter, then explain your choice in a few words.

1 What are the raw materials of photosynthesis?

a) Carbon dioxide and water **b)** Oxygen and glucose
c) Nitrogen and water **d)** Starch and oxygen

Answer: _____ Why? _____

2 Where does aerobic respiration release most of its energy?

a) Nucleus **b)** Chloroplast
c) Mitochondria **d)** Ribosome

Answer: _____ Why? _____

3 Which substance builds up in muscles during a sprint when oxygen runs short?

a) Ethanol **b)** Urea
c) Lactic acid **d)** Bile

Answer: _____ Why? _____

4 Which tissue carries water from roots to leaves?

a) Phloem **b)** Xylem
c) Epidermis **d)** Stomata

Answer: _____ Why? _____

5 What are the basic filtering units of the kidney called?

a) Alveoli **b)** Villi
c) Neurons **d)** Nephrons

Answer: _____ Why? _____

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Answer key for teachers · Ages 15–16 · Science

A Key terms

1	**Autotroph**	D	An organism that makes its own food from simple inorganic substances, e.g. green plants.
2	**Heterotroph**	F	An organism that depends on food made by other organisms.
3	**Aerobic respiration**	B	Breakdown of glucose using oxygen, producing carbon dioxide, water and a large amount of energy.
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5	**Double circulation**	A	Blood passes through the heart twice in each complete circuit of the body.
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7	**Nephron**	E	The basic filtering unit of the kidney.

B Quick quiz

1 a) Carbon dioxide and water

Plants use carbon dioxide and water, with energy from sunlight, to make glucose. Oxygen is released as a by-product.

2 c) Mitochondria

Glucose is first split in the cytoplasm, but the complete breakdown using oxygen happens in the mitochondria, which release most of the energy.

3 c) Lactic acid

When muscles lack oxygen, they break down glucose anaerobically, producing lactic acid. Many syllabuses still link this build-up to cramps, although current research points to nerve–muscle signalling as the main cause of cramps.

4 b) Xylem

Xylem carries water and dissolved minerals upward. Phloem carries food such as sucrose.

5 d) Nephrons

Each kidney contains about a million nephrons, which filter waste such as urea from the blood and reabsorb useful substances.