

Quick Quiz

Topic	Answers				Marks
	Q1	Q2	Q3	Q4	
8Ca	A	C	A	D	4
8Cb	C	A	C	B	4
8Cc	B	D	D	A	4
8Cd	A	B	C	C	4
8Ce	B	A	D	C	4

End of Unit Test Mark Scheme Standard (S)

Question	Part	Step	Answer	Mark scheme
1	a	1st	Any two of: oxygen/air, glucose/food, energy.	2 marks
	b	1st	Any one of: she will get hotter/her breathing rate increases/her pulse rate (or heart rate) increases/she gets tired/her muscles ache.	1 mark
	c	1st	it makes her muscles ache/she runs out of breath	1 mark
2		1st and 4th	W trachea X lung Y diaphragm Z bronchus (do not accept misspellings)	4 marks – 1 for each correct
3	a	2nd	C bar chart	1 mark
	b	2nd	B Breathing rate increases.	1 mark
	c	6th	The astronaut needs more oxygen (from the air); for increased levels of aerobic respiration; because he/she needs more energy.	2 marks – 1 mark for each point up to a maximum of 2
4	a	3rd	water and carbon dioxide	1 mark – both substances needed for the mark
	b	4th	use limewater carbon dioxide turns it from clear to cloudy/milky Or: use hydrogen carbonate indicator carbon dioxide turns it from pink/red to orange/yellow	2 marks – 1 mark for each point
	c	3rd	A oxygen	1 mark

End of Unit Test Mark Scheme Higher (H)

Question	Part	Step	Answer	Mark scheme
1		4th	A pink C yellow E yellow B yellow D yellow F pink	2 marks – 1 mark for 3 to 5 answers correct; 2 marks for all correct
2	a	4th	C lactic acid	1 mark
	b	7th	tar – coats the lungs/irritates the lungs which causes reduction in surface area Or: carbon monoxide – prevents red blood cells carrying so much oxygen which reduces supply of oxygen from blood Or: nicotine – narrows arteries which causes reduced blood flow/oxygen supply	2 marks – 1 mark for cause and 1 mark for effect due to that cause, up to a maximum of 2
3		6th	oxygen dissolves in the plasma plasma leaks out to become tissue fluid the oxygen diffuses from the tissue fluid into the cells	3 marks – 1 mark for each point
4		6th	the pressure inside the iron lung is reduced the pressure is higher outside the iron lung and so air flows into the lungs	2 marks – 1 mark for each point
5		4th	use limewater carbon dioxide turns it from clear to cloudy/milky Or: use hydrogen carbonate indicator carbon dioxide turns it from pink/red to orange/yellow	2 marks – 1 mark for each point
6	a	6th	His cells have increased their (aerobic) respiration/he needs more energy. A faster flow of blood will deliver more oxygen to the cells.	2 marks – 1 mark for each point
	b	7th	Any two of: lactic acid being turned into glucose in the liver requires additional energy from aerobic respiration; replenishing oxygen stores in blood; replenishing oxygen stores in muscles; additional aerobic respiration required to operate rib muscles and diaphragm at a faster rate (faster breathing rate); additional aerobic respiration required to heart muscles at a faster rate (faster pulse rate).	2 marks – 1 mark for each point to a maximum of 2

Question	Part	Step	Answer	Mark scheme
7		7th	Any two of: large surface area; good blood supply; short distance and moist to aid diffusion; high concentration gradient.	2 marks – 1 mark for each point to a maximum of 2
8		7th	Mucus produced by goblet cells traps dirt/dust/germs/microorganisms. Cilia sweep mucus out of lungs.	2 marks – 1 mark for each point to a maximum of 2
9	a	5th	glucose → lactic acid	1 mark
	b	5th	D liver	1 mark
	c	6th	When they need to release more energy than they can by using aerobic respiration alone.	1 mark
	d	7th	more energy is released from glucose by aerobic than anaerobic this means there is more energy for muscle contraction (accept: more ATP instead of more energy)	2 marks – 1 mark for each point to a maximum of 2

Final Step Calculation

Marks	Step
0–4	3rd or below
5–7	4th
8–11	5th
12–15	6th
16–20	7th
21+	8th

Quick Check answers

Quick Check	Answers
8Ca	Student's own work.
8Cb	Student's own notes and annotations. They should clearly show the functions of the organs and how they allow efficient gas exchange.
8Cb WS	<p>1 a Dan's b He has not repeated his measurements.</p> <p>2 Fletch: 60 cm³; Jaela: 10 cm³; Shona: 280 cm³. Students should show their working.</p> <p>3 a Jaela's b It has the smallest range.</p> <p>4 a Fletch: 478 cm³ (a better answer would round this to 480 cm³); Jaela: 387.5 cm³ (a better answer would round this to 390 cm³) b To estimate the true value from a set of repeated readings.</p> <p>5 Students circle 140 in Shona's results.</p>
8Cc	Student's own work.
8Cd	<p>1 aerobic respiration in plants and animals</p> <p>2 aerobic respiration</p> <p>3 limewater</p> <p>4 a The indicator in tube 2 will be yellow as the aerobic respiration of the snail will have produced carbon dioxide. The indicator in tube 3 will be pink because there has not been a respiring organism in the water. b gills c one of: they both have a large surface area, they both have a rich supply of blood, they both have a small distance across which gases can diffuse</p> <p>5 a leaf b through stomata</p>

Quick Check	Answers
8Ce	<p>True:</p> <p>Anaerobic respiration means respiring without oxygen. Anaerobic respiration uses glucose. The energy from respiration is transferred to molecules of ATP. Anaerobic respiration releases less energy than aerobic respiration. EPOC is the need for additional oxygen after strenuous exercise. Anaerobic respiration produces lactic acid. One reason you breathe heavily after strenuous exercise is to fill up oxygen stores. $\text{glucose} \rightarrow \text{carbon dioxide} + \text{water}$ When you inhale, muscle movements cause the pressure inside the chest to be reduced. Aerobic respiration releases energy. Aerobic respiration uses oxygen. Aerobic respiration produces carbon dioxide. Oxygen is carried by haemoglobin. The breathing rate goes up when you exercise. Carbon monoxide stops red blood cells carrying so much oxygen. The pulse rate goes up when you exercise. Carbon dioxide turns limewater milky. Fish use gills for gas exchange.</p> <p>False:</p> <p>Anaerobic respiration uses oxygen. $\text{glucose} \rightarrow \text{lactic acid} + \text{oxygen}$ Anaerobic respiration occurs in mitochondria. Anaerobic respiration stops muscles getting tired too quickly. You can do 'anaerobic exercise' for long periods of time. Aerobic respiration produces glucose. Aerobic respiration uses carbon dioxide. The word equation for combustion is different to the one for aerobic respiration. The movement of air in and out of the lungs is called respiration. The pulse rate goes down when you exercise. Aerobic respiration produces oxygen. Aerobic respiration only occurs in animals. Gas exchange occurs by diffraction. Aerobic respiration uses up energy. The air contains about 78% oxygen. Carbon dioxide is carried by white blood cells.</p>