GCSE and IGCSE Biology: Respiration Worksheet

Year 10-11 · GCSE (AQA 4.4) and Cambridge IGCSE 0610 topic 12 · Exam-style questions

Name: ..... **Class:** ..... **Date:** ..... **Score:** / 45

Section A: Aerobic respiration [12 marks]

glucose | oxygen | carbon dioxide | water | mitochondria | energy | ATP | enzymes

1 Use words from the box to complete the sentences. You may use a word once, more than once or not at all.

(a) Respiration is the chemical reaction that releases ..... from food molecules in all living cells. **[1]**

(b) Aerobic respiration happens in the ..... and uses ..... . **[2]**

(c) The word equation for aerobic respiration is: ..... + oxygen ⟶ ..... + water (+ energy). **[2]**

2 Write the balanced symbol equation for aerobic respiration. **[2]**

.....

.....

3 Respiration is not the same as breathing. Explain the difference. **[2]**

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4 Give three uses of the energy released by respiration. **[3]**

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.....

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Section B: Anaerobic respiration [14 marks]

5 Complete the table to compare anaerobic respiration in muscles and in yeast. **[6]**

	Muscle cells	Yeast cells
Word equation		
Products		
Everyday use or effect		

6 Compare the amount of energy released by aerobic and anaerobic respiration. **[2]**

7 Explain why anaerobic respiration happens in muscles during hard exercise. **[3]**

8 Explain what the oxygen debt is and how it is repaid. **[3]**

Section C: Exercise and investigation [14 marks]

9 Describe the effects of exercise on (a) breathing rate and (b) heart rate. Explain why they change. **[4]**

10 A student measures her pulse before and after exercise. Describe a method to do this, including one control variable. **[4]**

11 Describe an experiment to show that yeast produces carbon dioxide during respiration. **[4]**

12 In the yeast experiment, a layer of oil is added on top of the mixture. Why? **[2]**

Section D: Respiration in other organisms [5 marks]

13 Explain why germinating seeds produce heat. **[2]**

14 Describe how the gas exchange in the lungs supports respiration. **[3]**