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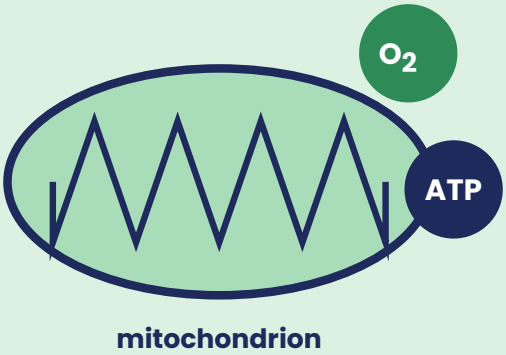
Year 10–11 • GCSE & IGCSE Biology

Respiration



mitochondrion

Exam-Style Worksheet

Exam-style questions on aerobic and anaerobic respiration, oxygen debt, exercise and practical investigations.

Aerobic | Equation | Anaerobic | Oxygen debt | Exercise | Practicals

KEY IDEAS IN THIS WORKSHEET

YEAR 10–11

Name: _____ Class: _____

Date set: _____ Date due: _____

What's inside

Section A	Aerobic respiration	**12 marks**
Section B	Anaerobic respiration	**14 marks**
Section C	Exercise and investigation	**14 marks**
Section D	Respiration in other organisms	**5 marks**

Instructions

- Answer all questions in the spaces provided.
- Show your working in calculations.
- Marks for each question are shown in [ ].
- Use the word and equation boxes to help you.

Total score

/ 45

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Respiration Worksheet

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

Section A — Aerobic respiration [12 marks]

Word box: 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]**

.....

.....

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

.....

.....

.....

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]**

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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. Explain why. **[2]**

Section D Respiration in other organisms [5 marks]

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

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

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END OF WORKSHEET **Total: _____ / 45**