

GCSE Combined Science: Trilogy

Worksheet: Test for oxygen

TIME 30 min	TOTAL 27 marks	CALCULATOR Allowed	DIFFICULTY Easy, Medium
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Topics: Test for oxygen

NAME _____	CLASS _____	DATE _____
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- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

0 1 . 1

Which test result shows that a gas is oxygen?

Tick (✓) **one** box.

A burning splint gives a squeaky pop

☐

A glowing splint relights

☐

Limewater turns milky

☐

Damp litmus paper is bleached

☐

[1 mark]

0 1 . 2

Air contains about 20% oxygen, but a test tube of air does **not** give a positive result in the test for oxygen.

Suggest why.

.....

.....

[1 mark]

0 2

0 2 . 1

Complete the sentences using words from the list.

burning glowing goes out pops relights

The test for oxygen uses a splint.

If the gas is oxygen, the splint

.....

.....

.....

.....

[2 marks]

0 2 . 2

A glowing splint held in ordinary air does not relight.

Suggest why.

.....

.....

[1 mark]

0 3

0 3 . 1

Which piece of equipment is used in the test for oxygen?

Tick (✓) **one** box.

A lit splint

☐

A glowing splint

☐

Damp litmus paper

☐

Limewater

☐

[1 mark]

0 3 . 2

State the result of a positive test for oxygen.

.....

.....

[1 mark]

0 4

A student generates oxygen by decomposing hydrogen peroxide solution with a catalyst, and wants to test the gas using a glowing splint.

0 4 . 1

Describe how the student should prepare a glowing splint from a lit splint.

.....

.....

[1 mark]

0 4 . 2

Explain why the splint must be glowing rather than still alight when testing for oxygen.

.....

.....

[1 mark]

0 5

Pondweed was placed in a beaker of water in bright light. Bubbles of gas were given off. The gas was collected in an upside-down test tube filled with water.

0 5 . 1

The gas contained a high proportion of oxygen.
Describe how to test the gas to show this. Give the result.

.....

.....

.....

.....

[2 marks]

0 5 . 2

Name the process in the pondweed that produced the oxygen.

.....

.....

.....

.....
[1 mark]

0 6

A student prepares a glowing splint, but by the time it is inserted into a test tube of gas it has stopped glowing completely (gone out). The gas in the tube is actually pure oxygen. The splint does not relight, and the student concludes that the gas is not oxygen.

0 6 . 1

Evaluate the student's conclusion.

.....

.....

.....

.....

.....

.....

[3 marks]

0 6 . 2

Suggest one change to the method that would prevent this problem.

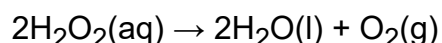
.....

.....

[1 mark]

0 7

A student added manganese(IV) oxide to hydrogen peroxide solution. The hydrogen peroxide decomposed.



The student collected the gas in test tubes over water.

0 7 . 1

Describe the test for the gas produced and give the result.

.....

.....

.....

.....

[2 marks]

0 7 . 2

The first test tube of gas collected gave a negative result in this test. The second test tube gave a positive result.
Suggest why the first test tube of gas gave a negative result.

.....

.....

[1 mark]

0 7 . 3

The second test tube of gas was left open for 10 minutes and then tested again. This time the result was negative.
Suggest why.

.....

.....

[1 mark]

0 8

A student has three test tubes of unknown gases, D, E and F, and tests each with a glowing splint.
Table 1 shows the results.

Table 1

Gas	Result
D	the splint relights and burns with a flame
E	the splint goes out
F	the splint keeps glowing but does not relight

0 8 . 1

Which gas is oxygen?
Give a reason for your answer.

.....

.....

.....

.....

[2 marks]

0 8 . 2

A student concluded that F contains a high proportion of oxygen, because the splint kept glowing rather than going out completely.
Explain why this conclusion is not correct.

.....

.....

.....

.....

[2 marks]

0 9

A student tests a test tube of ordinary air with a glowing splint. The splint does not relight.

0 9 . 1

Explain why this result does **not** show that air contains no oxygen.

.....

.....

.....

.....

[2 marks]

0 9 . 2

Suggest how the student could tell that one gas sample contains a higher percentage of oxygen than another, even though the glowing splint test alone does not measure a percentage.

.....

.....

[1 mark]

END OF QUESTIONS

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

Mark scheme

GCSE Combined Science: Trilogy · Worksheet: Test for oxygen · 27 marks

Question 1 (2 marks)

01.1 [1 mark]

Correct: A glowing splint relights

01.2 [1 mark]

- the concentration / percentage of oxygen in air is too low (to relight a glowing splint) (1)
-

Question 2 (3 marks)

02.1 [2 marks]

Answer: glowing; relights

- glowing (1)
 - relights (1)
-

02.2 [1 mark]

- the percentage / concentration of oxygen in air (about 20%) is too low (1)
-

Question 3 (2 marks)

03.1 [1 mark]

Correct: A glowing splint

03.2 [1 mark]

- the glowing splint relights / bursts into flame (1)
-

Question 4 (2 marks)

04.1 [1 mark]

- blow out the flame of a lit splint so that it glows / smoulders at the tip, without a flame (1)
-

04.2 [1 mark]

- a splint that is still burning would keep burning in ordinary air anyway, so it would not show whether the gas relights it (the glowing splint relighting is the distinctive positive test) (1)
-

Question 5 (3 marks)

05.1 [2 marks]

- put a glowing splint into the test tube of gas (1)
- the splint relights (1)

05.2 [1 mark]

Answer: photosynthesis

- photosynthesis (1)
-

Question 6 (4 marks)

06.1 [3 marks]

- the splint had already gone out before it was tested, so there was no glowing splint left to relight (1)
- the negative result is caused by a fault in the method, not because the gas was not oxygen (1)
- the student's conclusion is not valid; the test should be repeated with a properly glowing splint (1)

06.2 [1 mark]

- prepare (or re-light and re-blow-out) the splint immediately before testing, so that it is still glowing at the moment it is inserted into the gas (1)
-

Question 7 (4 marks)

07.1 [2 marks]

- put a glowing splint into the test tube (of gas) (1)
- the splint relights (1)

Notes: Do not accept 'burning splint' or 'lit splint'.

07.2 [1 mark]

- the first tube contained (mainly) air that was pushed out of the flask / delivery tube (1)

07.3 [1 mark]

- the oxygen escaped / mixed with air (so its concentration was too low) (1)
-

Question 8 (4 marks)

08.1 [2 marks]

Answer: D

- D (1)
- only D gives a positive result (the splint relights) in the test for oxygen (1)

08.2 [2 marks]

- a positive test for oxygen needs the splint to relight / burst into flame, not just continue glowing (1)
- F gives a negative result, so the test provides no evidence that F contains a high enough concentration of oxygen to relight the splint (1)

Question 9 (3 marks)

09.1 [2 marks]

- air does contain oxygen (about 20%), but the concentration is too low to relight a glowing splint (1)
- the test only gives a clear positive result when the concentration of oxygen is much higher than in air (1)

09.2 [1 mark]

- compare how vigorously / how quickly the splint relights and burns in each sample (allow: use an instrumental method to measure the oxygen concentration directly) (1)
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