

Fire, fuels and burning safely

Grade 8 science (Year 9 · Class 8) · Test

Name: _____ Date: _____ Class: _____ Mark: ____ / 20

This test covers the fire triangle, combustion equations, the limewater test, carbon monoxide and mass calculations. Show all working and write balanced equations clearly. You have 45 minutes and the test is worth 20 marks.

Level: Grade 8 science (Year 9 · Class 8) · **Curriculum:** MS-PS1-2

Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

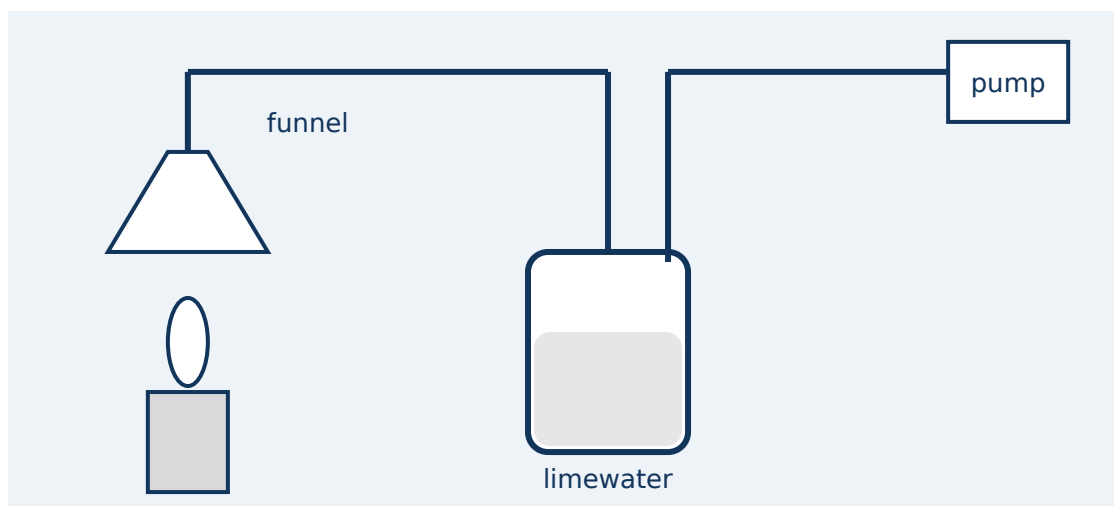
Question 1 Fire triangle (2 marks)

Name the three parts of the fire triangle and state what happens if one is removed.

Question 2 Limewater apparatus (3 marks)

The gases from burning methane are drawn through limewater as shown.

- State what you would see in the limewater. (1 mark)
- Name the gas that causes it and the white solid formed. (1 mark)
- Write the word equation for this reaction. (1 mark)



Burning gas is drawn through limewater.

Question 3 Balance ethane burning (3 marks)

Ethane burns completely: $\text{C}_2\text{H}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$.

- Balance the equation with whole numbers. (2 marks)

- b. Show that each element balances. (1 mark)

Question 4 Carbon monoxide (3 marks)

Explain why carbon monoxide is dangerous, how it forms and how its risk can be reduced.

Question 5 Mass of carbon dioxide (3 marks)

6.0 g of carbon burns with 16.0 g of oxygen and produces 22.0 g of carbon dioxide.

- Show that mass is conserved. (1 mark)
- Calculate the mass of CO_2 produced from 9.0 g of carbon. (1 mark)
- Calculate the mass of oxygen needed for 9.0 g of carbon. (1 mark)

Question 6 Complete or incomplete (2 marks)

State two differences between complete and incomplete combustion of methane.

Question 7 Candle under a jar (2 marks)

A candle goes out after a short time under a closed jar. Explain this using the fire triangle.

Question 8 Fire at the office (2 marks)

Suggest which extinguisher to use on an electrical fire, water or carbon dioxide, and explain why.