

Telling pure substances from mixtures

Grade 7 science (Year 8 · Class 7) · Test

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

This test has 8 questions and is worth 20 marks. Give units in all calculations and use full sentences when you are asked to explain. Use the ideas of pure substances, mixtures, melting and boiling points and water tests.

Level: Grade 7 science (Year 8 · Class 7) · **Curriculum:** MS-PS1-2

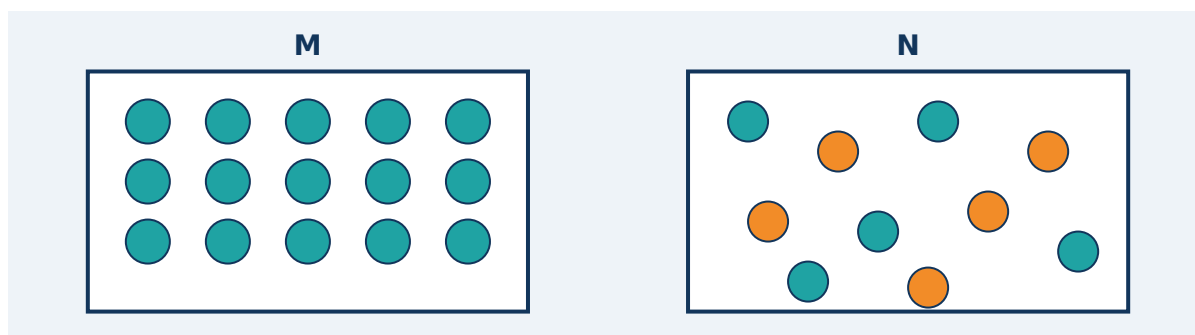
Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

Question 1 Definition (2 marks)

State what scientists mean by a pure substance and give one example.

Question 2 Reading the diagram (3 marks)

Look at the diagram.



Boxes M and N.

- Identify which box shows a pure substance. (1 mark)
- Identify which box shows a mixture and give a reason. (1 mark)
- State how the melting of the contents of box N would differ from box M. (1 mark)

Question 3 Melting data (3 marks)

A solid starts to melt at 72 °C and is fully liquid at 79 °C. The pure solid melts at 80 °C.

- Calculate the melting range. (1 mark)
- Decide whether the sample is pure and explain. (2 marks)

Question 4 Boiling salt water (3 marks)

Bilal boils salt water in Lahore and records 102 °C at sea level.

- State the boiling point of pure water. (1 mark)
- Explain what the reading shows about the liquid. (2 marks)

Question 5 Water tests (3 marks)

Wanjiru drops a few drops of a clear liquid on white anhydrous copper sulfate. It turns blue.

- State what the colour change shows. (1 mark)
- Explain why this does not prove the liquid is pure water. (1 mark)
- Describe one measurement that would help decide. (1 mark)

Question 6 Carat calculation (2 marks)

An 18-carat gold chain has a mass of 8.0 g, and 18-carat means 18 parts in 24 are gold. Calculate the mass of gold in the chain.

Question 7 Identify the solid (2 marks)

A table lists melting points: lauric acid 44 °C, stearic acid 69 °C, naphthalene 80 °C. A pure sample melts sharply at 69 °C. Identify the solid and justify your answer.

Question 8 Spot the mistake (2 marks)

A label reads 'pure mountain spring water, 410 mg of minerals per litre'. Explain why this water is not a pure substance.