

Using symbols and the periodic table

Grade 8 science (Year 9 · Class 8) · Lab answers

Model answers follow the sample results in the table. Your own readings may differ a little, but the pattern of metals conducting and non-metals crumbling should be the same.

Level: Grade 8 science (Year 9 · Class 8) · **Curriculum:** MS-PS1-1

Question 1 Sorting the samples

Copper, iron and aluminium are shiny, light the lamp brightly and flatten or bend: **probably metals**. Graphite, chalk and wax are dull, conduct poorly or not at all, and crumble or dent: **probably not metals**.

Question 2 Percentage that conduct

Conductors: copper, iron, aluminium, graphite = 4 of 6, which is $4 \div 6 \times 100 = 67\%$. Metals among them: 3 of 4 = **75 %**.

Question 3 The graphite exception

Conduction alone is not a perfect test, because graphite is a non-metal that conducts. Use several properties together. **One test is not enough**.

Question 4 Using the magnet

Only iron was attracted, so iron is magnetic. Copper and aluminium are metals that are not magnetic, so magnetism is **not a test for all metals**.

Question 5 Elements and compounds

They are not elements: chalk is a compound of calcium, carbon and oxygen, and wax is made of compounds. The periodic table lists **elements only**.

Question 6 Anomalous results

The nail may have been rusty or painted at the contact point, or the clips may have been loose. Clean the nail with sandpaper, tighten the clips and test again. **Poor contact is the likely cause**.

Question 7 Improving the test

Add an ammeter in series with the lamp and record the current in amps for each sample.

Use an ammeter.