

9 Periodicity (Period 3) – Part 1 — Answers

Answers

Work through these after trying the questions yourself.

9.1 Properties repeat in a regular pattern across each period of the table.

9.2 It gets smaller; the nuclear charge rises while the outer electrons stay in the same shell with similar shielding, so they are pulled in more tightly.

9.3 (a) giant metallic \ (b) giant covalent (giant molecular) \ (c) simple molecular.

9.4 It is giant covalent, so strong covalent bonds throughout the structure must be broken, which needs a lot of energy.

9.5 They are simple molecular, so only the weak intermolecular forces between molecules need to be broken.

9.6 Both have their outer electrons in the same (third) shell with similar shielding, but chlorine has more protons than sodium. Its higher nuclear charge pulls the outer electrons in more tightly, so chlorine's atoms are smaller — sodium's are larger.