Atomic Radius Trends Worksheet

Scoring guide · one credit per question · review written work against each rubric

Atomic Radius Trends

Question 1

Choice (2)

Sodium is below lithium in Group 1. Its occupied electrons extend into a higher principal energy level.

Question 2

Their valence electrons occupy the same principal energy level. Chlorine has more protons and a greater effective nuclear attraction on those electrons, drawing its electron cloud closer.

Question 3

Choice (1)

Atoms in the next period down occupy one more principal energy level.

Question 4

Potassium is larger. It is one row below sodium in Group 1 and has an additional occupied principal energy level.

Atom Model Scale

Question 5

Choice (2)

Mg is 141 pm, corresponding to 14.1 mm.

Question 6

166 pm − 121 pm = 45 pm.

Question 7

Choice (3)

Na and Al are both in Period 3. The radius drops from 166 to 121 pm.

Question 8

The source gives K a radius of 203 pm and Na a radius of 166 pm, so at the same scale the K model should be larger. The observed reversal is consistent with the labels being switched.