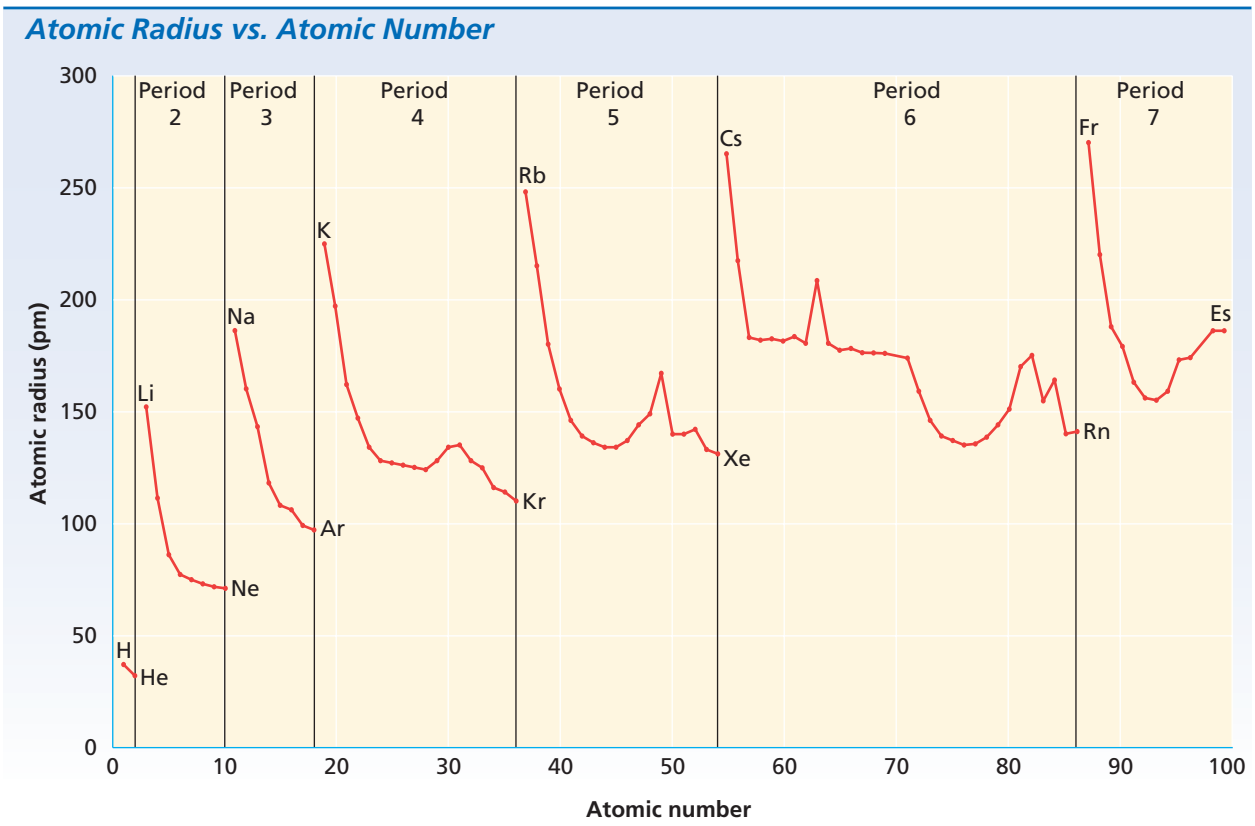

FIGURE 14 The plot of atomic radius versus atomic number shows period and group trends.

SAMPLE PROBLEM E

Of the elements magnesium, Mg, chlorine, Cl, sodium, Na, and phosphorus, P, which has the largest atomic radius? Explain your answer in terms of trends in the periodic table.

SOLUTION

All of the elements are in the third period. Of the four, sodium has the lowest atomic number and is the first element in the period. Therefore, sodium has the largest atomic radius because atomic radii decrease across a period.

PRACTICE

Answers in Appendix E

1. Which of the following elements has the largest atomic radius: Li, O, C, or F? Which has the smallest atomic radius?
2. Of the elements calcium, Ca, beryllium, Be, barium, Ba, and strontium, Sr, which has the largest atomic radius? Explain your answer in terms of trends in the periodic table.
3. Of the elements aluminum, Al, magnesium, Mg, silicon, Si, and sodium, Na, which has the smallest atomic radius? Explain your answer in terms of trends in the periodic table.

extension

Go to **go.hrw.com** for more practice problems that ask you to use periodic trends in atomic radius to predict relative sizes of atoms.

Keyword: HC6PERX