

SECTION 6.2 CLASSIFYING THE ELEMENTS

- Use the periodic table to write the electron configuration for silicon. Explain your thinking. $1s^2 2s^2 2p^6 3s^2 3p^2$
- Use the periodic table to write the electron configuration for iodine. Explain your thinking. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^5$
- Which group of elements is characterized by an $s^2 p^3$ configuration? 17 or 7A
- Name the element that matches the following description.
 - one that has 5 electrons in the third energy level P
 - one with an electron configuration that ends in $4s^2 4p^5$ Br
 - the Group 6A element in period 4 Se
- Identify the elements that have electron configurations that end as follows.
 - $2s^2 2p^4$ O
 - $4s^2$ Ca
 - $3d^{10} 4s^2$ Zn
- What is the common characteristic of the electron configurations of the elements Ne and Ar? In which group would you find them? Full valence e⁻ 18 or 8A
- Why would you expect lithium (Li) and sulfur (S) to have different chemical and physical properties? Different valence e⁻ 1/6
- What characterizes the electron configurations of transition metals such as silver (Ag) and iron (Fe)? 5s¹/4s²

SECTION 6.3 PERIODIC TRENDS

- Explain why a magnesium atom is smaller than atoms of both sodium and calcium. Greater nuclear charge
- Predict the size of the astatine (At) atom compared to that of tellurium (Te). Explain your prediction. Larger 1 more period
- Would you expect a Cl^- ion to be larger or smaller than an Mg^{2+} ion? Explain. more levels
- Which effect on atomic size is more significant, an increase in nuclear charge across a period or an increase in occupied energy levels within a group? Explain.
- Explain why the sulfide ion (S^{2-}) is larger than the chloride ion (Cl^-). Cl^- more nuclear charge
- Compare the first ionization energy of sodium to that of potassium. Higher \uparrow
- Compare the first ionization energy lithium to that of beryllium. Higher \rightarrow
- Is the electronegativity of barium larger or smaller than that of strontium? Explain. \downarrow
- What is the most likely ion for magnesium to form? Explain. $2+$
- Arrange oxygen, fluorine, and sulfur in order of increasing electronegativity.

