Which of the following elements is found in group 2, period 3 of the periodic table?

A. Boron
B. Calcium
C. Aluminum
D. Magnesium

Your teacher presents you with an unlabeled sample of an element. Which of the following might you use to determine whether the sample is a metal or a nonmetal?

A. microscope
B. Bunsen burner
C. conductivity test
D. Distillation apparatus

Based on their location in the periodic table, which two elements are expected to show similar properties?

A. carbon and silicon
B. lithium and fluorine
C. calcium and oxygen
D. aluminum and sulfur

Arrange the elements in order of increasing effective nuclear charge, beginning with the element with the lowest value.

Gallium Arsenic Potassium Krypton Calcium

From left to right across a period for main-group elements, the effective nuclear charge

A. Increases
B. Decreases
C. Remains the same
D. Increases and then Decreases

Na is ..... As Na+

A. The same size as
B. Smaller than
C. Larger than

Based on their relative positions on the periodic table, which of these atoms has the highest first ionization energy?

A. Br
B. Cl
C. F
D. I

Would you expect the shielding effect to be greater in bromine than in chlorine?

A. No, because they are both in the same period.
B. Yes, because bromine has a lower atomic number.
C. Yes, because there are more filled energy levels in bromine.
D. No, because chlorine loses an electron more easily than bromine.

Place each periodic trend description into the appropriate box, indicating whether the trend described is increasing or decreasing.

Atomic radius down a group

Ionization energy across a period

Ionic radius across a period

Electron affinity down a group

Increases	Decreases