

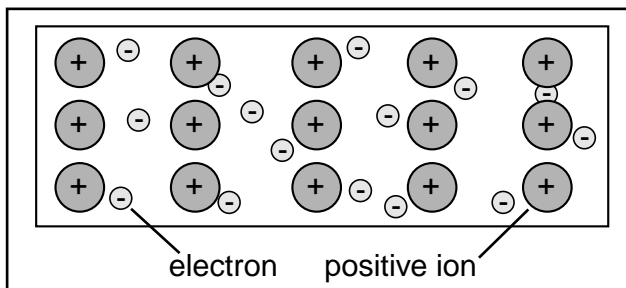
Name: \_\_\_\_\_

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1 Which of these is NOT a cation?

- A  $\text{Na}^+$
- B  $\text{Cl}^-$
- C  $\text{Mg}^{2+}$
- D  $\text{K}^+$

Use the diagram below to answer question 2.



2 The diagram represents the arrangement of atoms in a metallic solid. Scientists believe that electrons in the outer energy levels of the bonding metallic atoms are free to move from one atom to the next. Because they are free to move, these electrons are often referred to as —

- A delocalized electrons
- B lattice electrons
- C malleable electrons
- D valence electrons

3 An atom with the electron configuration  $1s^22s^22p^63s^23p^64s^2$  is most likely —

- A a metal that forms a positive ion
- B a metal that forms a negative ion
- C a nonmetal that forms a positive ion
- D a nonmetal that forms a negative ion

Use the table below to answer question 4.

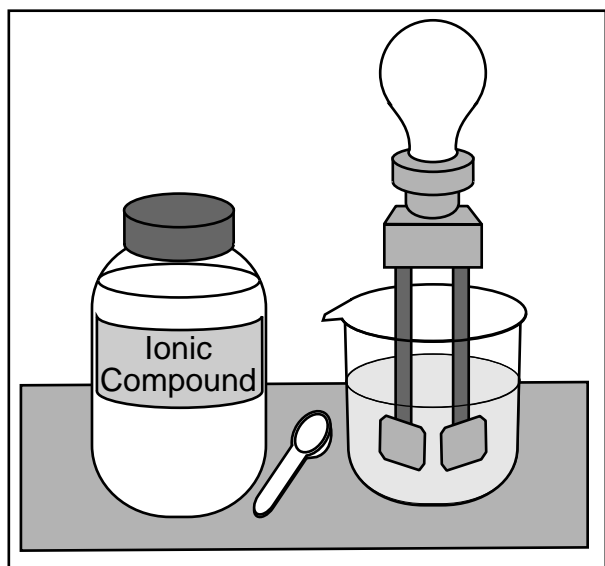
Compound	Lattice Energy (kJ/mol)
NaCl	-769
KBr	-671
LiF	-1030
MgO	-3795

4 The table shows the lattice energy for some ionic compounds. Based on these data, which of these compounds would require the most energy to separate the bonded ions?

- A NaCl
- B KBr
- C LiF
- D MgO

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Use the diagram below to answer question 5.



- 5 This apparatus was most likely designed to show that —
- A the formation of an ionic compound is an exothermic reaction
  - B ionic compounds are electrolytes
  - C ions have an electrical charge
  - D water is a good conductor of electricity
- 6 When atoms of sodium (Na) and chlorine (Cl) combine to form salt (NaCl), an ionic crystal is formed. The  $\text{Na}^+$  ion is smaller than the Na atom, while the  $\text{Cl}^-$  ion is larger than the Cl atom. Why?
- A The Na and the Cl atoms both lost electrons.
  - B The Na and the Cl atoms both gained electrons.
  - C The Na atom lost an electron, while the Cl atom gained an electron.
  - D The Na atom gained an electron, while the Cl atom lost an electron.
- 7 What is the chemical formula for a compound formed from calcium ions ( $\text{Ca}^{2+}$ ) and chloride ions ( $\text{Cl}^-$ )?
- A CaCl
  - B  $\text{Ca}_2\text{Cl}$
  - C  $\text{CaCl}_2$
  - D  $\text{Ca}_2\text{Cl}_2$
- 8 Most transition metals have more than one oxidation number because —
- A they may lose d electrons when forming positive ions
  - B they may lose f electrons when forming ions
  - C their electron arrangements are unstable
  - D their electrons are closer to the nucleus

