**1** Which group of elements on the Periodic Table below is the least

reactive?

**A** Alkali metals

**B** Halogens

**C** Transition metals

**D** Noble gases

**2** Which element below has atoms with two valence electrons?

**A** Potassium

**B** Sulfur

**C** Magnesium

**D** Neon

**3** The chart below displays properties of four different elements.

**Properties of Elements**

Which two elements from the chart above would be most likely to be

placed in the same column of the Periodic Table?

**A** Elements 2 and 4

**B** Elements 2 and 3

**C** Elements 1 and 3

**D** Elements 1 and 4

Number of valence

electrons

Common reactions

Average atomic

mass

Melting point

Element 1 7

Reacts with water

to form oxygen gas

18.99 amu -219 oC

Element 2 4

Not highly reactive,

except with

halogens

28.08 amu 1414 oC

Element 3 7

Reacts with water

to form

hypochlorite

35.45 amu -102 oC

Element 4 3

Reacts with acids

to form hydrogen

gas

26.98 amu 660 oC

]

**2**

**5** Which one of the following best describes the transition metals?

**A** Highly reactive metals on the far left side of the Periodic Table

**B** Metals near the middle of the Periodic Table with similar

properties

**C** Highly reactive metals on the far right side of the Periodic Table

**D** Unreactive metals at the far right side of the Periodic Table

**4** Which element below is an alkali metal?

**A** Lithium

**B** Copper

**C** Aluminum

**D** Strontium

**3**

**6** As scientists began to discover more and more elements during the

1700s and 1800s, the classification of elements became a widely

discussed topic among scientists. One of the earliest ideas was called

the “Law of Triads,” which contained the following ideas:

1. There was a tendency to observe groups of three elements

(“triads”) that had similar chemical and physical properties.

2. The mass of the middle element of this triad had a mass that was

close to the average of the other two elements.

3. Nature tends to form groups of three elements with this pattern

being true of each group.

The Law of Triads was part of the history of building a Periodic Table of

the Elements, but scientific discoveries that came after this idea

emerged showed that this law illustrated an incomplete view of the

elements.

Which of the following discoveries led scientists to later believe that the

Law of Triads was incomplete?

**A** Scientists developed more accurate measurements of

temperature to determine melting points.

**B** Scientists discovered additional elements on the Periodic Table

beyond three per group.

**C** Scientists found out that there are not enough elements to

group all of them in sets of three.

**D** Scientists developed better mathematical skills.