

Name _____ Hour _____ Date _____

Periodic Table Relationships

In each of the following sets of terms, three of the terms are related. One term does not belong. Read each group of terms, identify the characteristics common to three of the terms, and then underline the term that does not belong. Write your reason for your choice next to the terms.

1. Vertical column, group, period, family
2. Days of the week, phases of the moon, months of the year, grades in school
3. Sodium, alkali metal, 2 valence electrons, Family IA
4. Symbol, atomic number, name of element, density
5. Atomic mass, melting point, density, flammability
6. Families, periods, seven, horizontal rows
7. High melting point, positive ion, nonmetal, shiny
8. Metal, boron, silicon, antimony
9. Transition element, lose or share electrons, gold, chlorine
10. Nonmetals, poor conductors, lose electrons, negative ions
11. Inactive metal, alkaline earth metal, magnesium, Family IIA
12. Helium, halogen, neon, argon
13. Sodium, aluminum, sulfur, fluorine
14. Complete outer energy level, noble gas, gains 1 electron, unreactive
15. Halogen, chlorine, arsenic, bromine
16. Family VA, oxygen family, 6 valence electrons, gains 2 electrons
17. Actinoid series, elements 89- 102, Family IIA, period 7

ELEMENT CODE

Each numbered exercise contains element clues that will help you fill in the blanks and learn the identity of the missing word. Use the symbol for the element in each blank space.

1. a. transition metal number 24
b. a common solid halogen
c. Family IIIA bears this name
_____ a baby's bed _____
2. a. An active alkaline earth metal with 56 protons
b. the alkali metal of period 3
c. the metal element that makes up table salt
_____ a delicious yellow fruit _____
3. a. the first of the alkali metals
b. the first element in Family VIA
c. a period 2 nonmetal with 5 valence electrons
_____ the king of the jungle _____
4. a. element with atomic number 31
b. the last of the alkaline earth metals
c. Mendeleev predicted the existence of this metalloid
_____ a place to park the car _____
5. a. The first element in the actinoid series
b. period 2 nonmetal with 6 valence electrons
c. the last of the noble gases
_____ a squirrels treat _____
6. a. a transition metal used in incandescent light bulbs
b. period 4, Group VIA element
c. the second element in Group VA
d. period 3 element with 6 valence electrons.
_____ watch out for a nest of these _____

WHO AM I

The following chart contains clues about the identities of some of the elements in the periodic table. Read each description and then identify the area of the periodic table by name (Alkali, halogen, etc....) In the next column, write the symbol for the possible identity of the element being described.

	AREA	Symbol
1. I have very good ability to conduct electricity. I am never found alone in nature. When I combine with other elements, I usually give up my one valence electron. I am the only element in my group with a one letter symbol.	_____	_____
2. I do not conduct electricity and am usually found in the gaseous state. I do not bond well with other elements. I can be found in some bulbs used in signs.	_____	_____
3. I am a gas, but I combine very easily with many other elements. I usually form ionic bonds. I frequently form a -1 ion in those ionic bonds. I am the lightest element in my group.	_____	_____
4. I am a very tough, durable element. I can give up two electrons, but I sometimes give up more than two when bonding. I am the main element found in steel.	_____	_____
5. I am never found alone or unbonded in nature. I most commonly form a $+2$ ion when bonding. I have the second highest number of protons in my family.	_____	_____
6. In my family the elements are all metals except for me. I have three valence electrons.	_____	_____
7. Although I am in a family of nonmetals, I am found as a solid. If I combine with calcium, two atoms of me but only one atom of calcium are required.	_____	_____
8. I usually form covalent bonds. I have five valence electrons. I have the highest atomic mass in my group.	_____	_____
9. In my family there are nonmetals, metalloids, and metals. I have the same number of protons as the sum of the protons in the two elements directly above me on the periodic table.	_____	_____
10. Elements in my family usually form covalent bonds. We have two fewer valence electrons than noble gases. I am almost twice as heavy as the lightest element in my group.	_____	_____