

Study Guide for Chemistry Test (Atoms to Elements)

Draw the modern atomic model of the atom. **Label nucleus, electron cloud, electrons, protons, and neutrons.**



Write what you know of the following:

Protons	Neutrons	Electrons
Where?	Where?	Where?
Charge?	Charge?	Charge?
How to find the number of protons:	How to find the number of neutrons:	How to find the number of electrons:

Why is the electron cloud a foggy, cloudy area instead of neat round circular orbits?

Elements, Compounds & Mixtures

Part 1: Read the following information on elements, compounds and mixtures. Fill in the blanks where necessary.

Elements:

- A pure substance containing only one kind of _____.
- An element _____ be separated into simpler materials (except during nuclear reactions).
- Over 100 existing elements are listed and classified on the _____.

Compounds:

- A pure substance containing two or more kinds of _____.
- The atoms are _____ combined in some way. Often times (but not always) they come together to form groups of atoms called molecules.
- Compounds _____ be separated by physical means. Separating a compound requires a chemical reaction.

- The properties of a compound are usually different than the properties of the elements it contains.

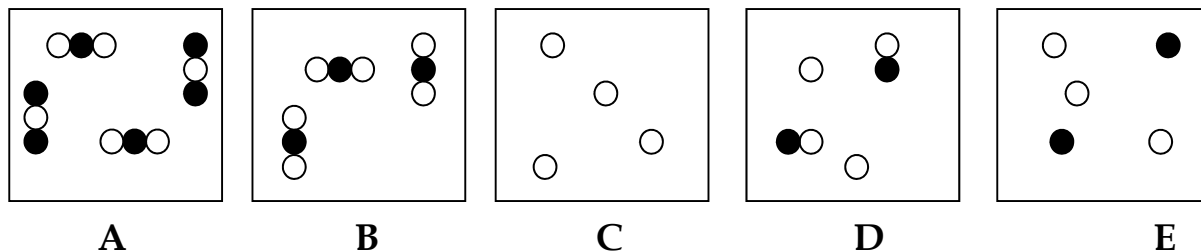
Mixtures:

- Two or more _____ or _____ NOT chemically combined.
- No reaction between substances.
- Mixtures can be uniform (called _____) and are known as solutions.
- Mixtures can also be non-uniform (called _____).
- Mixtures can be separated into their components by chemical or physical means.
- The properties of a mixture are similar to the properties of its components.

Part 2: Classify each of the following as elements (E), compounds (C) or Mixtures (M). Write the letter X if it is none of these.

_____ Diamond (C)	_____ Sugar (C ₆ H ₁₂ O ₆)	_____ Milk
_____ Air	_____ Sulfuric Acid (H ₂ SO ₄)	_____ Gasoline
_____ Krypton (K)	_____ Bismuth (Bi)	_____ Uranium (U)
_____ Water (H ₂ O)	_____ Alcohol (CH ₃ OH)	_____ Pail of garbage
_____ Ammonia (NH ₃)	_____ Salt (NaCl)	_____ Ink
_____ Wood	_____ Bronze *	_____ Titanium (Ti)
_____ Dry Ice (CO ₂)	_____ Baking Soda (NaHCO ₃)	_____ Popcorn

Part 3: Match each diagram with its correct description. Diagrams will be used once.



- ___ 1. Pure Element – only one type of atom present.
- ___ 2. Mixture of two elements – two types of uncombined atoms present.
- ___ 3. Pure compound – only one type of compound present.
- ___ 4. Mixture of two compounds – two types of compounds present.
- ___ 5. Mixture of a compound and an element.

Physical properties of metals	Chemical properties of metals

Physical properties of metalloids	Chemical properties of metalloids

Physical properties of nonmetals	Chemical properties of nonmetals

Define: malleability:_____

Luster:_____

Ductility:_____

Brittleness:_____

Semiconductor:_____

Valence electrons:_____

Calculate the number of protons, neutrons, and electrons for the following elements:

Lithium (Li)	Tungsten (W)	Zirconium (Zr)	Scandium (Sc)	Potassium (K)
# protons:	# protons:	# protons:	# protons:	# protons:
# neutrons:	# neutrons:	# neutrons:	# neutrons:	# neutrons:
# electrons:	# electrons:	# electrons:	# electrons:	# electrons:

Matching: Every letter is used once

1. _____ Elements of life
2. _____ Magnetic and radioactive
3. _____ Inert
4. _____ Highly reactive to metals
5. _____ Highest reactivity of all metals
6. _____ Semiconductors
7. _____ Second highest reactivity of metals
8. _____ Strongest metals

A. Alkali Metals

B. Alkaline Earth Metals

C. Transition Metals

D. Lanthanides and Actinides

E. Metalloids

F. Other nonmetals

G. Halogens

H. Noble Gases

Bohr diagram for Lithium:

	# valence electrons
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Bohr diagram for Nitrogen:

	# valence electrons
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Short Answer Questions:

1. Describe some of the trends of the periodic table. What is a row called? What is a column called? Which directions do metallic properties increase? Atomic masses? Atomic numbers?

2. Contrast metals and nonmetals by describing three ways in which they are different. Then, identify one example of a metal and one example of a nonmetal.

HAVE YOUR COLORED PERIODIC TABLE READY FOR YOUR TEST ON THURSDAY