

1. Word Matching

h meltingi solutionc viscosityb sublimationd condensinge malleabilityg compoundk electronl atomic numberf nucleusj mechanical mixture ^{heterogeneous mixture}a carbon dioxide

a) a gas that is frozen to make dry ice

b) a change in state from gas to solid, or from solid to gas

c) a physical property that describes how a liquid flows

d) a change in state from gas to liquid

e) the ability of a substance to be formed into shapes

f) contains the protons and the neutrons in an atom

g) contains more than one element

h) a change in state from solid to liquid

i) pop (Sprite, Coke) is an example

j) fruit loops and sand are an example

k) carries a negative charge; not in the nucleus

l) the same as the number of protons in an atom

2. Does each of the following statements describe a physical or chemical property?

a) Copper metal can be bent into different shapes malleablephysicalb) A steel blade can scratch glass hardnessphysicalc) Alcohol boils at 60°C boiling pointphysicald) Under a magnifying glass, sugar appears to be made of tiny cubes ^{shape}physical

3. List four clues that a chemical change has occurred:

1. colour change2. bubbles of gas3. precipitate4. heat or light is give off5. new smell

4. True and False

F Combustibility is the ability of a substance to react with acidsT Sugar disappearing in water is an example of a solution homogeneous (looks like one thing)F Raisins in Raisin Bran are an example of a solutionT Tearing a piece of paper is a physical change T Burning a piece of paper is a chemical change

5. What type of (physical or chemical) change occurs:

a) mixing salt and pepper: Change:	P	Why?	change of form
b) burning a log: Change:	C	Why?	colour change
c) demolishing a car: Change:	P	Why?	change of shape/form
d) baking a cake: Change:	C	Why?	colour change bubbles of gas new smell

6. Classify each of the following substances as an element, a compound, a homogeneous mixture (solution) or a heterogeneous (mechanical) mixture. In each case, explain the reason for your choice.

Substance:	Element, compound, solution or mechanical mixture? ^{homogeneous} → heterogeneous	Explanation:
A cup of tea with sugar	solution homogeneous mixture	more than one thing - can't see the parts
Neon gas Ne	element	one type of atom
Salad dressing	heterogeneous mixture or mechanical mixture	can see the different parts
Carbon dioxide gas CO ₂	compound	more than one element

7. Find the number of atoms in the following compounds:

a) NaHClO₃ has 3 oxygen atoms

b) CO₂ has 2 oxygen atoms

c) NaNO₃ has 0 hydrogen atoms

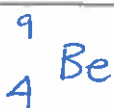
d) Fe(NO₃)₂ has 2 nitrogen atoms

8. Complete this table

Name of Substance	Chemical Formula	Compound or Element?	Elements present	How many atoms of each element?
helium gas	He	element	He	1 He atom
Calcium phosphate	Ca(PO ₄) ₂	compound	Ca, P, O	1 Ca 2 P 8 O
iron (II) nitrate	Fe(NO ₃) ₂	compound	Fe, N, O	1 Fe 2 N 6 O
sulfur trioxide	SO ₃	compound	S, O	1 S atom 3 O atoms

9. Draw Bohr-Rutherford diagrams for the following elements. Include the standard atomic notation of each element below.

Beryllium (Be) - atomic number 4
- mass number 9

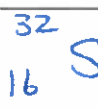


dots
p 4
e 4
n $9-4=5$



2, 8, 8

Sulfur (S) - atomic number 16
- mass number 32



p 16
e 16
n $32-16=16$



10. Fill in the missing information.

* = same

Element	Symbol	Atomic Number *	Mass Number	No. of Protons *	No. of Neutrons	No. of Electrons *
beryllium	Be	4	9	4	$9-4=5$	4
carbon	C	6	12	6	$12-6=6$	6
silicon	Si	14	28	14	$28-14=14$	14
potassium	K	19	39	19	$39-19=20$	19

11. Use the combining capacities provided to write the name and chemical formula for each compound.

a)

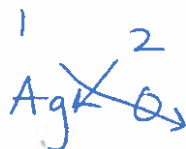
Element	Combining Capacity
Mg	2
Br	1



MgBr_2
magnesium bromide

b)

Element	Combining Capacity
Ag	1
O	2



Ag_2O
silver oxide

