

Matter and Atomic Theory

Walk Around Practice Handout

ANSWERS

1-6 Name the six phase changes...

Solid to gas Sublimation	Liquid to gas Vaporization	Gas to solid Deposition
Gas to liquid Condensation	Solid to liquid Melting	Liquid to solid freezing

7	4	
8	4	
9	2	

10	Take advantage of a difference in physical properties.	
----	---	--

11 how to separate these mixtures, what processes could you use?		
	Brass metal (solid Cu + Zn)	Diff in melting points
	Salty Water	Diff in boiling points (or patience and evaporate the water)
	Sugar Water	Diff in boiling points (or patience and evaporate the water)
	Iron filings & Sand	Use a magnet, diff in magnetic attraction
	Nickel coins (solid Cu + Ni)	Use a filter because of diff in particle size
	Water & liquid ethanol	Diff in melting points
	Sand & water	Distillation apparatus to use diff in boiling points

12—18 how many atoms in each?	$(\text{NH}_4)_3\text{PO}_4$ 20	$\text{Al}(\text{ClO})_3$ 7
	$\text{Co}(\text{SCN})_3$ 10	$\text{Mn}(\text{HCO}_3)_7$ 36
	MgBr_2 3	Rb_3N 4

19. TOPIC-B: Are the indicators of a **CHEMICAL** change.

T - **TEMPERATURE CHANGE**

O - **ODOR CHANGE**

P - **PRECIPITATE**

I - (spontaneously) **IRREVERSIBLE**

C - **COLOR CHANGE**

B - **BUBBLES** of a new gas

20. The volume of 236 grams of chromium metal is _____

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}} \rightarrow \frac{7.15 \text{ g/cm}^3}{1} \frac{236 \text{ g}}{V} \rightarrow 7.15 \text{ g/cm}^3(V) = 236 \text{ g} \rightarrow V = 33.0 \text{ cm}^3$$

21	Names	Models	Details
	V	C	3
	U	B	1
	Y	F	6
	X	E	2
	W	A	4
	Z	D	5

21	Names	Models	Details
	DEMOCRITUS	NO MODEL	ATOMOS
	DALTON	BILLIARD BALL	ATOMIC THEORY
	THOMSON	PLUM PUDDING	CATHODE RAY TUBE
	RUTHERFORD	PLANETARY rough	GOLD FOIL
	BOHR	PLANETARY detailed	MATH, SPECTRA
	MODERN	WAVE MECHANICAL	ELECTRONS AS WAVES OF ENERGY AND MATTER

How many electrons are...

22. in an atom of STRONTIUM? 38

23. in an atom of PHOSPHOROUS? 15

24. in one molecule of H₂O 10

25. in one molecule of F₂ 18

26. in the 4th orbital of an atom of NIOBIUM? 12

27. in the 3rd OR 4th shell of TIN? 18

28. able to fit into the second orbital of any atom? 8

28. How many protons, neutrons and electrons are in...

29. One atom Pb-207? 82 protons, 125 neutrons, 82 electrons

30. One isotope U-235? 92 protons, 143 neutrons, 92 electrons

31. Calculate the average weighted Atomic Mass of the element "Z" using this data table. SF, and units count. SHOW WORK	Isotope	Mass in amu	Proportion found in nature
	Z-192	191.88	14.55%
	Z-195	194.85	83.84%
	Z-196	195.94	1.610%

$$(191.88 \text{ AMU})(0.1455) = 27.91854 \text{ AMU}$$

$$(194.85 \text{ AMU})(0.8384) = 163.36224 \text{ AMU}$$

$$(195.94 \text{ AMU})(0.0161) = 3.154644 \text{ AMU} \rightarrow \rightarrow \rightarrow 194.4 \text{ AMU (4 SF)}$$