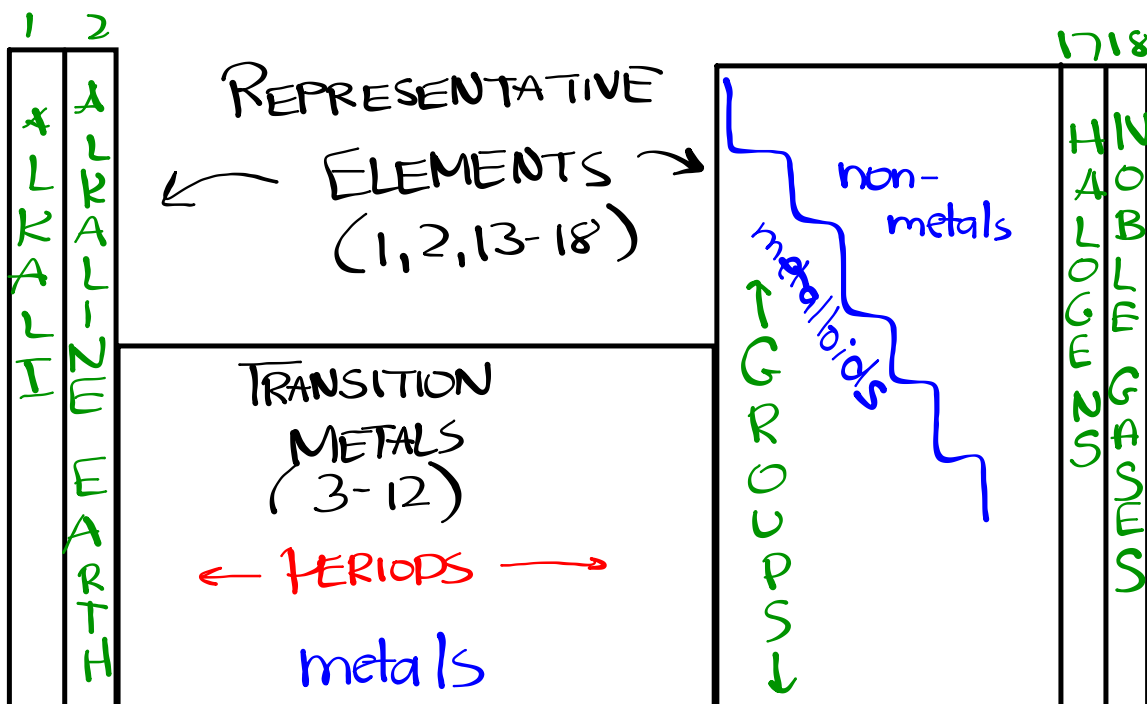


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Compound mixture

- (24) table sugar - mixture
tap water - mixture
Cough syrup - mixture
nitrogen - element



Elements

Metals - substances that are shiny, bendable and good conductors of electricity and heat.

Ex. gold

Nonmetals - are not shiny, brittle and are not good conductors.

Ex. sulfur (S)

Most nonmetals are gases

Ex. oxygen

Metalloids - elements that have properties that are similar to metals and nonmetals.

SUMMARY

⇒ Metals and nonmetals separated by the "staircase line"

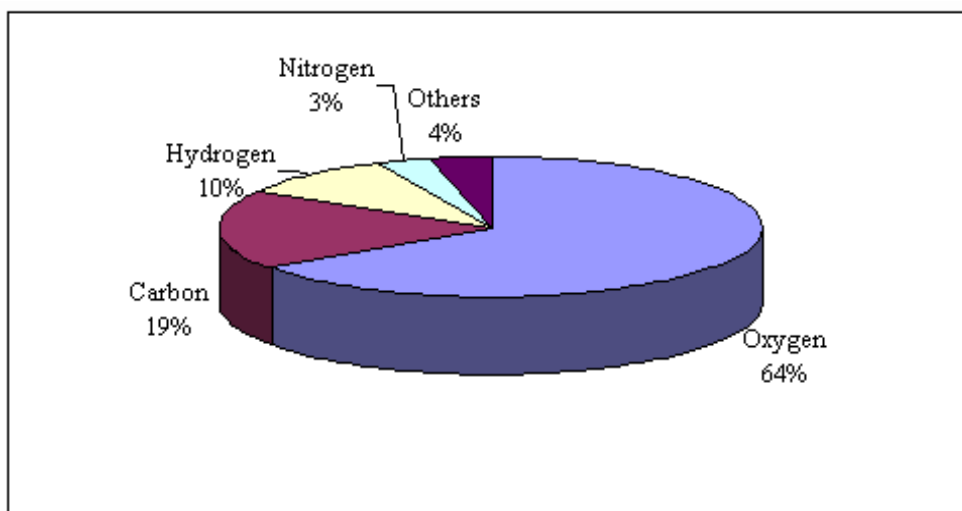
The most common elements in the human body are:

1 - oxygen - 65%

2 - carbon - 18%

3 - hydrogen - 10%

<http://www.freeinfosociety.com/site.php?postnum=658>



Traditional Groups

Alkali Metals - elements found in group 1. They normally are soft, silver-colored metals that react readily with water forming basic solutions.

Alkaline Earth Metals - elements found in group 2. They are light, reactive metals that form oxide coatings.

Halogens - elements in group 17
- are extremely reactive nonmetals.

Noble Gases - elements in group 18
- very unreactive gases.

Representative Elements - are elements in group 1,2,13 to 18. These elements best follow the periodic law and are often used to demonstrate theories.

Transition Elements - elements found in groups 3 to 12 ("D block")
- elements whose electrons enter inner shells as atomic number increases

Periodic Law

PERIODIC LAW - when elements are arranged in order of increasing atomic mass, chemical and physical properties form a pattern that repeats at regular intervals.

The organization of Mendeleev's periodic table was based upon placing elements with similar properties in columns in the table.

The table was successful in being accepted because it allowed the prediction of the properties of elements that had not yet been found.

Family - or **group** of elements

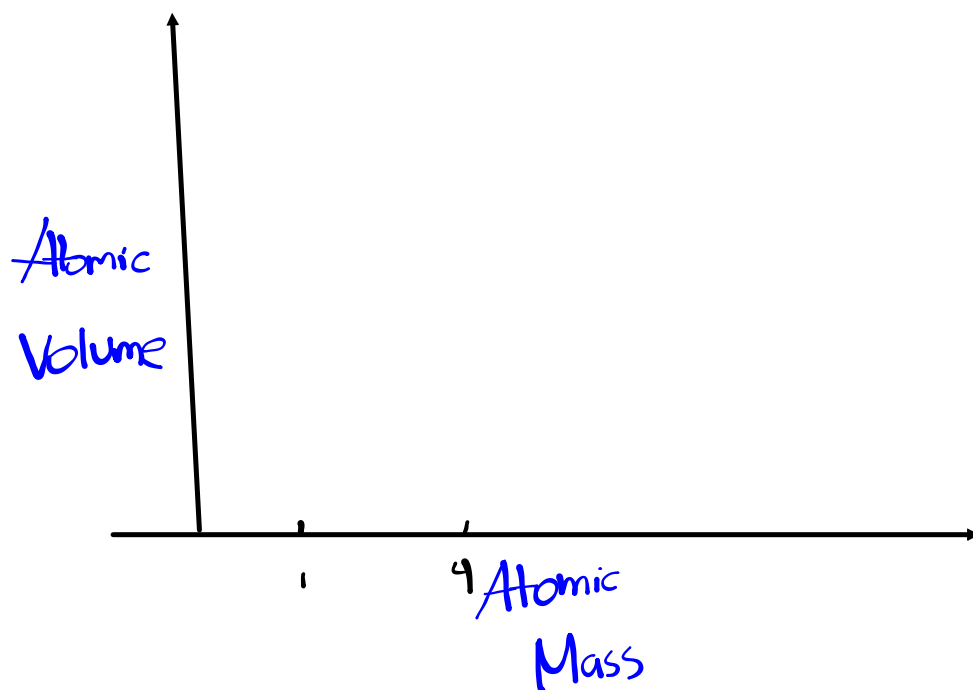
- a vertical column in the periodic table.
- elements having similar chemical properties. Ex. Group 1

Period - a horizontal row of elements.

- elements whose properties change from metallic to nonmetallic as you move from left to right on the periodic table.

Reactivity of metals increases as you go down and left

Reactivity of nonmetal increases as you move up and right



Metals (pink)

Nonmetals and Noble gases (green)

dual properties (purple)

	1A																		8A	
1	H																			He
2	Li	Be																		Ne
3	Na	Mg	3B	4B	5B	6B	7B	8B		1B	2B	3A	4A	5A	6A	7A				Ar
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br			Kr
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I			Xe
6	Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At			Rn
7	Fr	Ra		Unq	Unp	Unh	Uns	Uno	Une											
6	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu					
7	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr					

Periodic Table of the Elements

I	II	Transition Metals										III	IV	V	VI	VII	0														
H ¹																	He ²														
Li ³	Be ⁴											B ⁵	C ⁶	N ⁷	O ⁸	F ⁹	Ne ¹⁰														
Na ¹¹	Mg ¹²	IIIB	IVB	VB	VIB	VII B	VIII B			IB	II B	Al ¹³	Si ¹⁴	P ¹⁵	S ¹⁶	Cl ¹⁷	Ar ¹⁸														
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr														
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe														
55 Cs	56 Ba	57-71	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn														
87 Fr	88 Ra	89-103	104 Rf	105 Ha	106	107	108	109																							
Lanthanides		<table border="1"> <tr> <td>57 La</td> <td>58 Ce</td> <td>59 Pr</td> <td>60 Nd</td> <td>61 Pm</td> <td>62 Sm</td> <td>63 Eu</td> <td>64 Gd</td> <td>65 Tb</td> <td>66 Dy</td> <td>67 Ho</td> <td>68 Er</td> <td>69 Tm</td> <td>70 Yb</td> <td>71 Lu</td> </tr> </table>															57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu																	
Actinides		<table border="1"> <tr> <td>89 Ac</td> <td>90 Th</td> <td>91 Pa</td> <td>92 U</td> <td>93 Np</td> <td>94 Pu</td> <td>95 Am</td> <td>96 Cm</td> <td>97 Bk</td> <td>98 Cf</td> <td>99 Es</td> <td>100 Fm</td> <td>101 Md</td> <td>102 No</td> <td>103 Lr</td> </tr> </table>															89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr
89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr																	

 Metal	 Metalloid	 Nonmetal
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Homework

Periodic Table Assignment

p. 160 #1-7

Parts of an Atom

Atom - is electrically neutral.

- is composed of a nucleus containing protons and neutrons, and electrons that surround the nucleus.

Atomic Number- is the number of protons found in the nucleus of an atom.

Protons - are subatomic particles possessing a positive charge.

Neutrons - are subatomic particles possessing a neutral charge.

Electrons - are subatomic particles possessing a negative charge.
For an atom, the electrons are equal to the atomic number.

Isotope - is a form of an element in which the atoms have the same number of protons as all other forms of that element, but it has **different number of neutrons and therefore a different atomic mass**

Mass Number - is the sum of the number of protons and neutrons.

Carbon - 6 protons and 6 neutrons has a mass number of 12.

Another isotope of ^{12}C is ^{13}C , which has 6 protons and 7 neutrons.

Isotope Notation:

	LOCATION	ELECTRICAL CHARGE	RELATIVE SIZE
PROTONS	nucleus	+ive	1 a.m.u.
NEUTRONS	nucleus	no charge	1 a.m.u.
ELECTRONS	outside nucleus	-ive	"massless"