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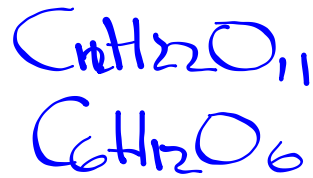
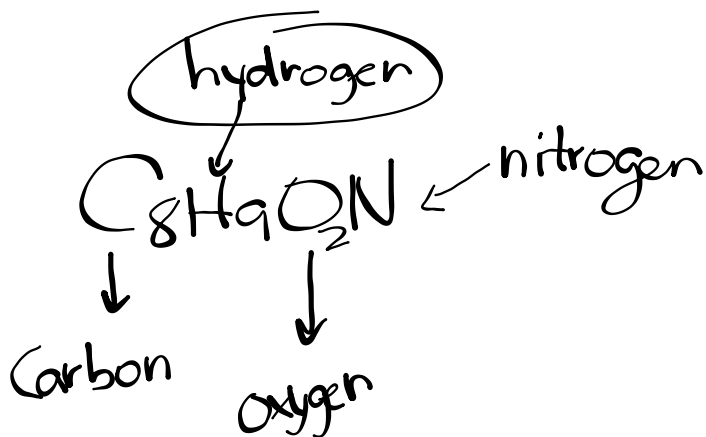


table sugar - mixture

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"

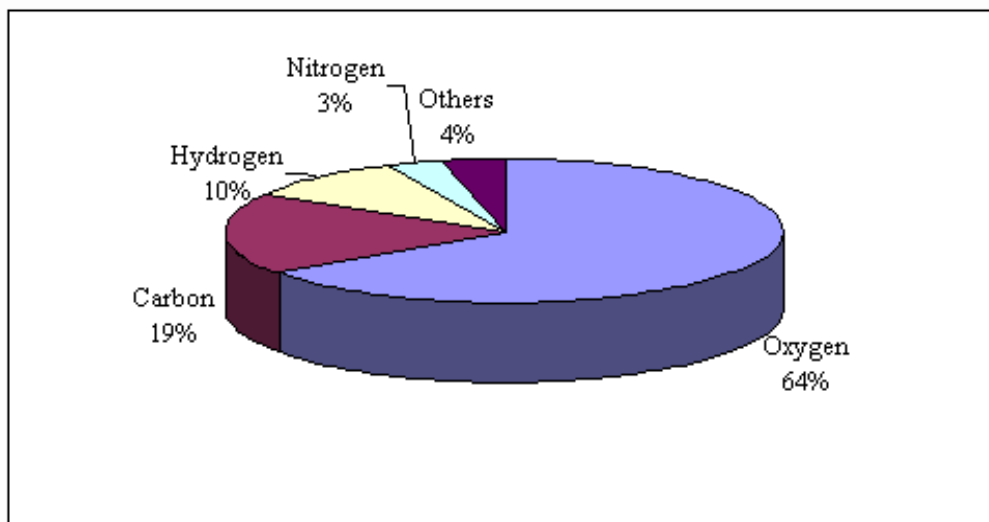
The most common elements in the human body are:

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.

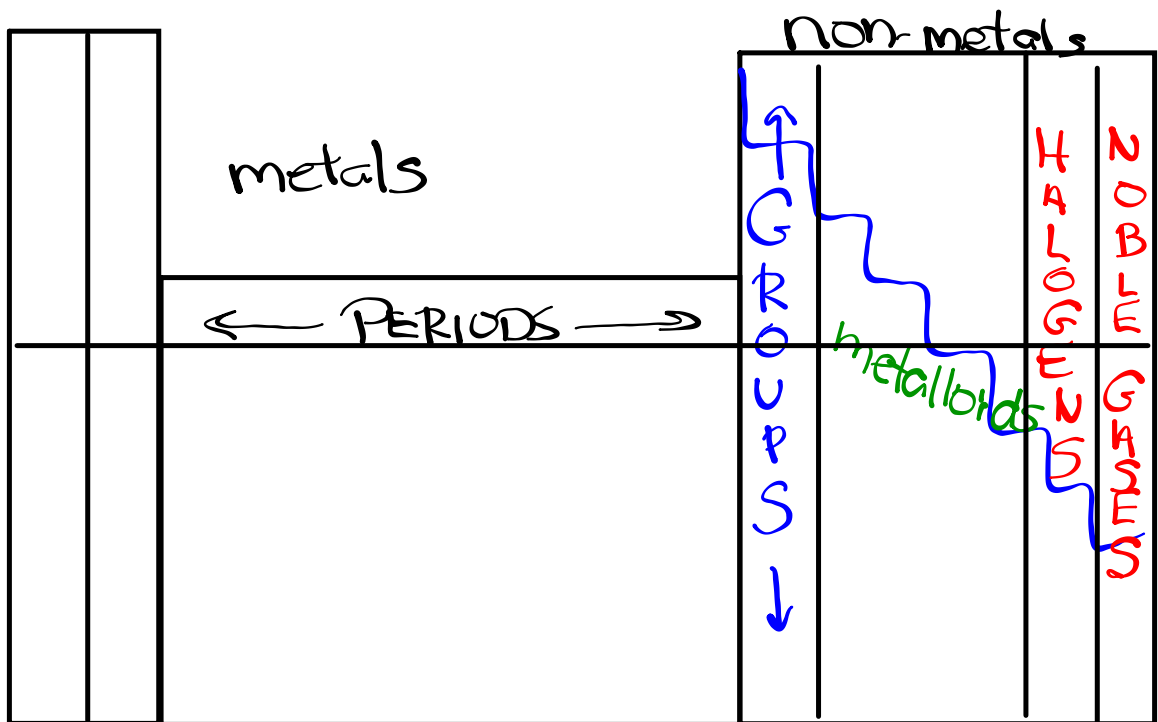
Alkaline Earth Metals - elements found in group 2. They are light, reactive metals that form oxide coatings.

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

	1A																		8A	
1	H																			He
2	Li	Be																		Ne
3	Na	Mg																		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					

dual properties
 Metals
 Nonmetals and Noble gases

Periodic Table of the Elements

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

 Metal	 Metalloid	 Nonmetal
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Homework

Periodic Table Assignment

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Element Name	Atomic Number	Element Symbol	Group Number	Period Number	SATP State
radium					
			1	6	
	19				
antimony					
		S			
			9	4	
barium					
	28				
		U			
			17	2	
	30				