

Warm Up

	Element	Compound	Molecule
H_2O		✓	✓
Co	✓		
S_8	✓		✓
K_3PO_4		✓	✓
$NaCl \cdot 3H_2O$		✓	✓

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"

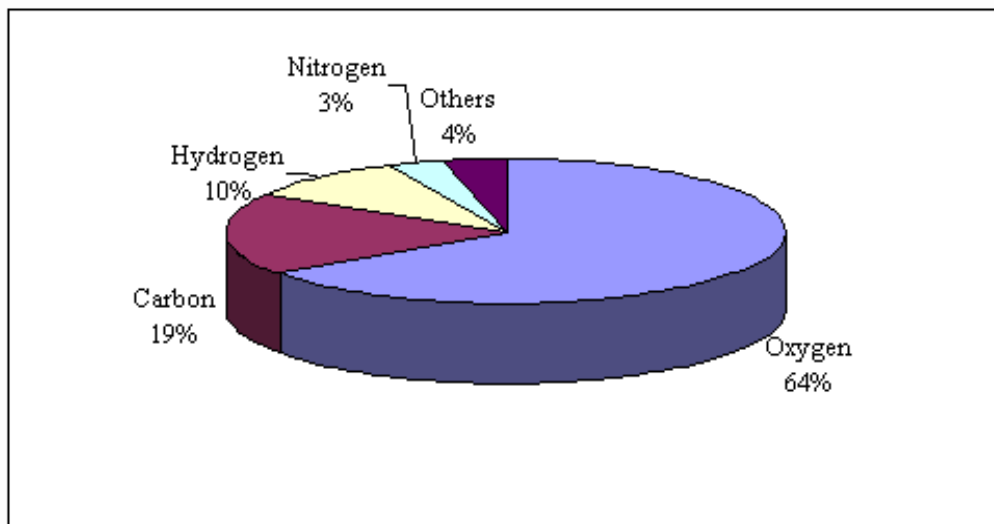
The most common elements in the human body are:

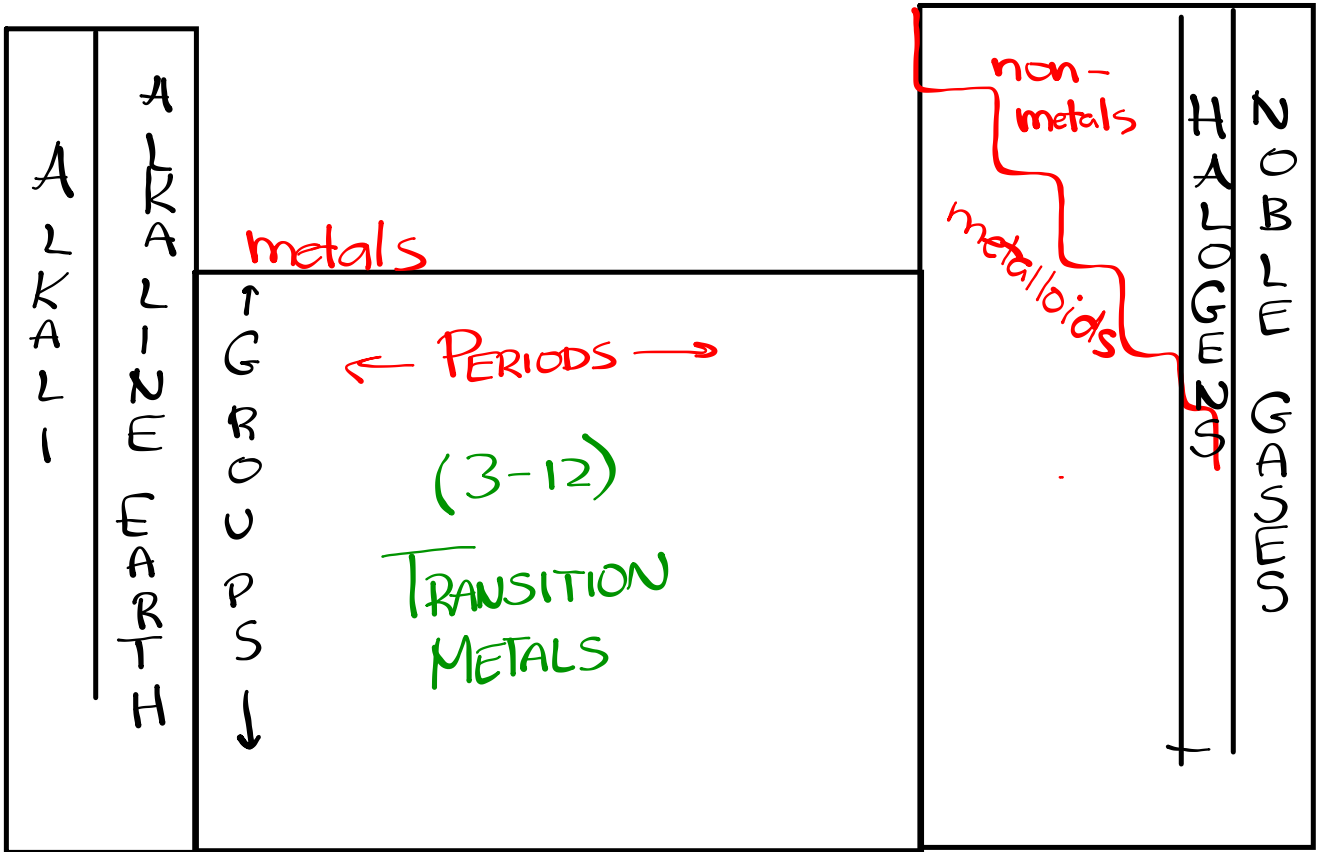
1 - oxygen - 65%

2 - carbon - 18%

3 - hydrogen - 10%

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





1-2
↘

13-18
↙

REPRESENTATIVE
ELEMENTS

|

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											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	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	89-103		Rf ¹⁰⁴	Ha ¹⁰⁵	106	107	108	109																																						
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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 Metal	 Metalloid	 Nonmetal
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Homework

Periodic Table Assignment