

PERIODIC TABLE OF THE ELEMENTS

																		NONMETALS				NOBLE GASES			
Periods	1 IA																	17 VII A	18 VIII A						
	1 H ⁺ Hydrogen																	1 H ⁺ Hydrogen	2 He Helium						
																			METALS						
																			TRANSITION ELEMENTS						
	2	3 Li ⁺ Lithium	4 Be ²⁺ Beryllium																	5 B Boron	6 C Carbon	7 N ³⁻ Nitrogen	8 O ²⁻ Oxygen	9 F ⁻ Fluorine	10 Ne Neon
	3	11 Na ⁺ Sodium	12 Mg ²⁺ Magnesium																	13 Al ³⁺ Aluminum	14 Si Silicon	15 P ³⁻ Phosphorus	16 S ²⁻ Sulfur	17 Cl ⁻ Chlorine	18 Ar Argon
	4	19 K ⁺ Potassium	20 Ca ²⁺ Calcium	21 Sc ³⁺ Scandium	22 Ti ⁴⁺ Titanium	23 V ⁵⁺ Vanadium	24 Cr ³⁺ Chromium	25 Mn ²⁺ Manganese	26 Fe ³⁺ Iron	27 Co ²⁺ Cobalt	28 Ni ²⁺ Nickel	29 Cu ²⁺ Copper	30 Zn ²⁺ Zinc	31 Ga ³⁺ Gallium	32 Ge ⁴⁺ Germanium	33 As ³⁻ Arsenic	34 Se ²⁻ Selenium	35 Br Bromine	36 Kr Krypton						
5	37 Rb ⁺ Rubidium	38 Sr ²⁺ Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd ²⁺ Palladium	47 Ag ⁺ Silver	48 Cd ²⁺ Cadmium	49 In ³⁺ Indium	50 Sn ⁴⁺ Tin	51 Sb ³⁺ Antimony	52 Te ²⁻ Tellurium	53 I Iodine	54 Xe Xenon							
6	55 Cs ⁺ Cesium	56 Ba ²⁺ Barium	57 La [†] Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt ²⁺ Platinum	79 Au ³⁺ Gold	80 Hg ²⁺ Mercury	81 Tl ³⁺ Thallium	82 Pb ²⁺ Lead	83 Bi ³⁺ Bismuth	84 Po ²⁺ Polonium	85 At ⁻ Astatine	86 Rn Radon							
7	87 Fr ⁺ Francium	88 Ra ²⁺ Radium	89 Ac [‡] Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Uun Ununilium	111 Uuu Unununium	112 Uub Ununbium	113 Uut Ununtrium	114 Uuq Ununquadium											
																		†							
																		‡							
																		†							
																		‡							

Atomic masses appearing in parentheses are those of the most stable known isotopes.

*Names and symbols are under review.

Outline ... Synthetically prepared

ORDER OF OPERATION; SYMBOLS

- | | | | |
|-------------|-----|---|------------------|
| 1. Brackets | () | < | Smaller than |
| 2. Multiply | x | > | Greater than |
| 3. Divide | ÷ | = | Equal |
| 4. Add | + | ≈ | Approximate |
| 5. Subtract | - | ≤ | Smaller or equal |
| | | ≥ | Greater or equal |

FRACTIONS, DECIMALS, PERCENTAGES

$\frac{3}{5}$ - numerator
5 - denominator

To divide, multiply the first with the reciprocal of the second fraction:

$$\frac{2}{3} \div \frac{1}{6} = \frac{2}{3} \times \frac{6}{1} = 4$$

To add or subtract different fractions, first obtain a common denominator:

$$\frac{1}{3} + \frac{2}{5} = \frac{5}{15} + \frac{6}{15} = \frac{11}{15}$$

To Multiply:

$$\frac{1}{3} \times \frac{2}{5} = \frac{1 \times 2}{3 \times 5} = \frac{2}{15}$$

1 = 1.0 = 100%	1/8 = 0.125 = 12.5%
1/2 = 0.5 = 50%	1/9 = 0.1̄ = 11.1̄%
1/3 = 0.3̄ = 33.3̄%	1/10 = 0.1 = 10%
1/4 = 0.25 = 25%	1/12 = 0.083̄ = 8.3̄%
1/5 = 0.2 = 20%	2/3 = 0.6̄ = 66.6̄%
1/6 = 0.16̄ = 16.6̄%	3/4 = 0.75 = 75%

METRIC SYSTEM

kilo	hecto	deca	BASE UNIT	deci	centi	milli
METER						
km	hm	dam	m	dm	cm	mm
1000 m	100 m	10 m	1 m	0.1 m	0.01 m	0.001 m
GRAM						
kg	hg	dag	g	dg	cg	mg
1000 g	100 g	10 g	1 g	0.1 g	0.01 g	0.001 g
LITER						
kl	hl	dal	l	dl	cl	ml
1000 l	100 l	10 l	1 l	0.1 l	0.01 l	0.001 l

CONVERSIONS

Metric system

1 m ²	= 10,000 cm ²
1 hectare (ha)	= 10,000 m ²
1 km ²	= 100 ha
1 metric ton (t)	= 1000 kg

English system

1 foot (ft)	= 12 inches (in)	1' = 12"
1 yard (yd)	= 3 feet	= 36 inches
1 mile (mi)	= 1760 yards	= 5280 feet
1 tablespoon (T)	= 3 teaspoons (t)	
1 cup (c)	= 16 T	= 8 fluid ounces (fl oz)
1 pint (pt)	= 2 c	
1 quart (qt)	= 2 pt	= 4 c = 32 fl oz
1 gallon (gal)	= 4 qt	
1 ft ²	= 144 in ²	
1 yd ²	= 9ft ²	
1 acre	= 4840 yd ²	
1 mi ²	= 640 acres	