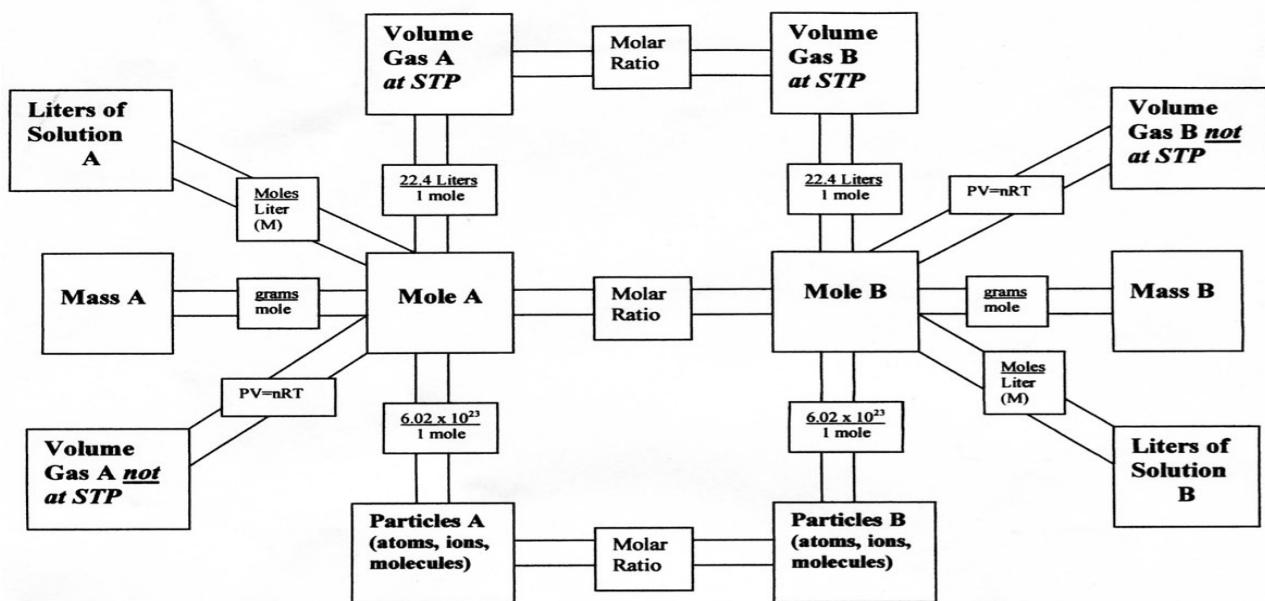


MOLAR MAP



1 hydrogen 1 H 1.0079	2 beryllium 4 Be 9.0122	3 lithium 3 Li 6.941	4 beryllium 4 Be 9.0122	5 boron 5 B 10.811	6 carbon 6 C 12.011	7 nitrogen 7 N 14.007	8 oxygen 8 O 15.999	9 fluorine 9 F 18.998	10 neon 10 Ne 20.180	11 sodium 11 Na 22.990	12 magnesium 12 Mg 24.305	13 aluminum 13 Al 26.982	14 silicon 14 Si 28.086	15 phosphorus 15 P 30.974	16 sulfur 16 S 32.065	17 chlorine 17 Cl 35.453	18 argon 18 Ar 39.948	19 potassium 19 K 39.098	20 calcium 20 Ca 40.078	21 scandium 21 Sc 44.956	22 titanium 22 Ti 47.867	23 vanadium 23 V 50.942	24 chromium 24 Cr 51.996	25 manganese 25 Mn 54.938	26 iron 26 Fe 55.845	27 cobalt 27 Co 58.933	28 nickel 28 Ni 58.693	29 copper 29 Cu 63.546	30 zinc 30 Zn 65.39	31 gallium 31 Ga 69.723	32 germanium 32 Ge 72.61	33 arsenic 33 As 74.922	34 selenium 34 Se 78.96	35 bromine 35 Br 79.904	36 krypton 36 Kr 83.80	37 rubidium 37 Rb 85.468	38 strontium 38 Sr 87.62	39 yttrium 39 Y 88.906	40 zirconium 40 Zr 91.224	41 niobium 41 Nb 92.906	42 molybdenum 42 Mo 95.94	43 technetium 43 Tc [98]	44 ruthenium 44 Ru 101.07	45 rhodium 45 Rh 102.91	46 palladium 46 Pd 106.42	47 silver 47 Ag 107.87	48 cadmium 48 Cd 112.41	49 indium 49 In 114.82	50 tin 50 Sn 118.71	51 antimony 51 Sb 121.76	52 tellurium 52 Te 127.60	53 iodine 53 I 126.90	54 xenon 54 Xe 131.29	55 cesium 55 Cs 132.91	56 barium 56 Ba 137.33	57 lanthanum 57 La 138.905	58 cerium 58 Ce 140.12	59 praseodymium 59 Pr 140.908	60 neodymium 60 Nd 144.24	61 promethium 61 Pm [145]	62 samarium 62 Sm 150.36	63 europium 63 Eu 151.964	64 gadolinium 64 Gd 157.25	65 terbium 65 Tb 158.925	66 dysprosium 66 Dy 162.50	67 holmium 67 Ho 164.930	68 erbium 68 Er 167.259	69 thulium 69 Tm 168.930	70 ytterbium 70 Yb 173.054	71 lutetium 71 Lu 174.967	72 hafnium 72 Hf 178.49	73 tantalum 73 Ta 180.948	74 tungsten 74 W 183.84	75 rhenium 75 Re 186.21	76 osmium 76 Os 190.23	77 iridium 77 Ir 192.22	78 platinum 78 Pt 195.084	79 gold 79 Au 196.967	80 mercury 80 Hg 200.59	81 thallium 81 Tl 204.38	82 lead 82 Pb 207.2	83 bismuth 83 Bi 208.98	84 polonium 84 Po [209]	85 astatine 85 At [210]	86 radon 86 Rn [222]	87 francium 87 Fr [223]	88 radium 88 Ra [226]	89-102 actinides 89-102 Ac-Lr [227-289]	103 thorium 103 Th 232.038	104 protactinium 104 Pa 231.036	105 uranium 105 U 238.029	106 neptunium 106 Np 237.048	107 plutonium 107 Pu 244.064	108 americium 108 Am [243]	109 curium 109 Cm [247]	110 berkelium 110 Bk [247]	111 californium 111 Cf [251]	112 einsteinium 112 Es [252]	113 mendelevium 113 Md [258]	114 flerovium 114 Fl [289]	115 dubnium 115 Db [261]	116 seaborgium 116 Sg [266]	117 bohrium 117 Bh [264]	118 hassium 118 Hs [269]	119 meitnerium 119 Mt [268]	120 darmstadtium 120 Ds [271]	121 roentgenium 121 Rg [272]	122 copernicium 122 Cn [285]	123 nihonium 123 Nh [286]	124 flerovium 124 Fl [289]	125 dubnium 125 Db [288]	126 seaborgium 126 Sg [291]	127 bohrium 127 Bh [294]	128 hassium 128 Hs [297]	129 meitnerium 129 Mt [296]	130 darmstadtium 130 Ds [301]	131 roentgenium 131 Rg [302]	132 copernicium 132 Cn [304]	133 nihonium 133 Nh [305]	134 flerovium 134 Fl [307]	135 dubnium 135 Db [310]	136 seaborgium 136 Sg [311]	137 bohrium 137 Bh [312]	138 hassium 138 Hs [315]	139 meitnerium 139 Mt [315]	140 darmstadtium 140 Ds [316]	141 roentgenium 141 Rg [317]	142 copernicium 142 Cn [318]	143 nihonium 143 Nh [321]	144 flerovium 144 Fl [324]	145 dubnium 145 Db [325]	146 seaborgium 146 Sg [327]	147 bohrium 147 Bh [329]	148 hassium 148 Hs [331]	149 meitnerium 149 Mt [333]	150 darmstadtium 150 Ds [335]	151 roentgenium 151 Rg [337]	152 copernicium 152 Cn [339]	153 nihonium 153 Nh [341]	154 flerovium 154 Fl [344]	155 dubnium 155 Db [347]	156 seaborgium 156 Sg [349]	157 bohrium 157 Bh [351]	158 hassium 158 Hs [353]	159 meitnerium 159 Mt [355]	160 darmstadtium 160 Ds [357]	161 roentgenium 161 Rg [359]	162 copernicium 162 Cn [361]	163 nihonium 163 Nh [363]	164 flerovium 164 Fl [365]	165 dubnium 165 Db [367]	166 seaborgium 166 Sg [369]	167 bohrium 167 Bh [371]	168 hassium 168 Hs [373]	169 meitnerium 169 Mt [375]	170 darmstadtium 170 Ds [377]	171 roentgenium 171 Rg [379]	172 copernicium 172 Cn [381]	173 nihonium 173 Nh [383]	174 flerovium 174 Fl [385]	175 dubnium 175 Db [387]	176 seaborgium 176 Sg [389]	177 bohrium 177 Bh [391]	178 hassium 178 Hs [393]	179 meitnerium 179 Mt [395]	180 darmstadtium 180 Ds [397]	181 roentgenium 181 Rg [399]	182 copernicium 182 Cn [401]	183 nihonium 183 Nh [403]	184 flerovium 184 Fl [405]	185 dubnium 185 Db [407]	186 seaborgium 186 Sg [409]	187 bohrium 187 Bh [411]	188 hassium 188 Hs [413]	189 meitnerium 189 Mt [415]	190 darmstadtium 190 Ds [417]	191 roentgenium 191 Rg [419]	192 copernicium 192 Cn [421]	193 nihonium 193 Nh [423]	194 flerovium 194 Fl [425]	195 dubnium 195 Db [427]	196 seaborgium 196 Sg [429]	197 bohrium 197 Bh [431]	198 hassium 198 Hs [433]	199 meitnerium 199 Mt [435]	200 darmstadtium 200 Ds [437]	201 roentgenium 201 Rg [439]	202 copernicium 202 Cn [441]	203 nihonium 203 Nh [443]	204 flerovium 204 Fl [445]	205 dubnium 205 Db [447]	206 seaborgium 206 Sg [449]	207 bohrium 207 Bh [451]	208 hassium 208 Hs [453]	209 meitnerium 209 Mt [455]	210 darmstadtium 210 Ds [457]	211 roentgenium 211 Rg [459]	212 copernicium 212 Cn [461]	213 nihonium 213 Nh [463]	214 flerovium 214 Fl [465]	215 dubnium 215 Db [467]	216 seaborgium 216 Sg [469]	217 bohrium 217 Bh [471]	218 hassium 218 Hs [473]	219 meitnerium 219 Mt [475]	220 darmstadtium 220 Ds [477]	221 roentgenium 221 Rg [479]	222 copernicium 222 Cn [481]	223 nihonium 223 Nh [483]	224 flerovium 224 Fl [485]	225 dubnium 225 Db [487]	226 seaborgium 226 Sg [489]	227 bohrium 227 Bh [491]	228 hassium 228 Hs [493]	229 meitnerium 229 Mt [495]	230 darmstadtium 230 Ds [497]	231 roentgenium 231 Rg [499]	232 copernicium 232 Cn [501]	233 nihonium 233 Nh [503]	234 flerovium 234 Fl [505]	235 dubnium 235 Db [507]	236 seaborgium 236 Sg [509]	237 bohrium 237 Bh [511]	238 hassium 238 Hs [513]	239 meitnerium 239 Mt [515]	240 darmstadtium 240 Ds [517]	241 roentgenium 241 Rg [519]	242 copernicium 242 Cn [521]	243 nihonium 243 Nh [523]	244 flerovium 244 Fl [525]	245 dubnium 245 Db [527]	246 seaborgium 246 Sg [529]	247 bohrium 247 Bh [531]	248 hassium 248 Hs [533]	249 meitnerium 249 Mt [535]	250 darmstadtium 250 Ds [537]	251 roentgenium 251 Rg [539]	252 copernicium 252 Cn [541]	253 nihonium 253 Nh [543]	254 flerovium 254 Fl [545]	255 dubnium 255 Db [547]	256 seaborgium 256 Sg [549]	257 bohrium 257 Bh [551]	258 hassium 258 Hs [553]	259 meitnerium 259 Mt [555]	260 darmstadtium 260 Ds [557]	261 roentgenium 261 Rg [559]	262 copernicium 262 Cn [561]	263 nihonium 263 Nh [563]	264 flerovium 264 Fl [565]	265 dubnium 265 Db [567]	266 seaborgium 266 Sg [569]	267 bohrium 267 Bh [571]	268 hassium 268 Hs [573]	269 meitnerium 269 Mt [575]	270 darmstadtium 270 Ds [577]	271 roentgenium 271 Rg [579]	272 copernicium 272 Cn [581]	273 nihonium 273 Nh [583]	274 flerovium 274 Fl [585]	275 dubnium 275 Db [587]	276 seaborgium 276 Sg [589]	277 bohrium 277 Bh [591]	278 hassium 278 Hs [593]	279 meitnerium 279 Mt [595]	280 darmstadtium 280 Ds [597]	281 roentgenium 281 Rg [599]	282 copernicium 282 Cn [601]	283 nihonium 283 Nh [603]	284 flerovium 284 Fl [605]	285 dubnium 285 Db [607]	286 seaborgium 286 Sg [609]	287 bohrium 287 Bh [611]	288 hassium 288 Hs [613]	289 meitnerium 289 Mt [615]	290 darmstadtium 290 Ds [617]	291 roentgenium 291 Rg [619]	292 copernicium 292 Cn [621]	293 nihonium 293 Nh [623]	294 flerovium 294 Fl [625]	295 dubnium 295 Db [627]	296 seaborgium 296 Sg [629]	297 bohrium 297 Bh [631]	298 hassium 298 Hs [633]	299 meitnerium 299 Mt [635]	300 darmstadtium 300 Ds [637]	301 roentgenium 301 Rg [639]	302 copernicium 302 Cn [641]	303 nihonium 303 Nh [643]	304 flerovium 304 Fl [645]	305 dubnium 305 Db [647]	306 seaborgium 306 Sg [649]	307 bohrium 307 Bh [651]	308 hassium 308 Hs [653]	309 meitnerium 309 Mt [655]	310 darmstadtium 310 Ds [657]	311 roentgenium 311 Rg [659]	312 copernicium 312 Cn [661]	313 nihonium 313 Nh [663]	314 flerovium 314 Fl [665]	315 dubnium 315 Db [667]	316 seaborgium 316 Sg [669]	317 bohrium 317 Bh [671]	318 hassium 318 Hs [673]	319 meitnerium 319 Mt [675]	320 darmstadtium 320 Ds [677]	321 roentgenium 321 Rg [679]	322 copernicium 322 Cn [681]	323 nihonium 323 Nh [683]	324 flerovium 324 Fl [685]	325 dubnium 325 Db [687]	326 seaborgium 326 Sg [689]	327 bohrium 327 Bh [691]	328 hassium 328 Hs [693]	329 meitnerium 329 Mt [695]	330 darmstadtium 330 Ds [697]	331 roentgenium 331 Rg [699]	332 copernicium 332 Cn [701]	333 nihonium 333 Nh [703]	334 flerovium 334 Fl [705]	335 dubnium 335 Db [707]	336 seaborgium 336 Sg [709]	337 bohrium 337 Bh [711]	338 hassium 338 Hs [713]	339 meitnerium 339 Mt [715]	340 darmstadtium 340 Ds [717]	341 roentgenium 341 Rg [719]	342 copernicium 342 Cn [721]	343 nihonium 343 Nh [723]	344 flerovium 344 Fl [725]	345 dubnium 345 Db [727]	346 seaborgium 346 Sg [729]	347 bohrium 347 Bh [731]	348 hassium 348 Hs [733]	349 meitnerium 349 Mt [735]	350 darmstadtium 350 Ds [737]	351 roentgenium 351 Rg [739]	352 copernicium 352 Cn [741]	353 nihonium 353 Nh [743]	354 flerovium 354 Fl [745]	355 dubnium 355 Db [747]	356 seaborgium 356 Sg [749]	357 bohrium 357 Bh [751]	358 hassium 358 Hs [753]	359 meitnerium 359 Mt [755]	360 darmstadtium 360 Ds [757]	361 roentgenium 361 Rg [759]	362 copernicium 362 Cn [761]	363 nihonium 363 Nh [763]	364 flerovium 364 Fl [765]	365 dubnium 365 Db [767]	366 seaborgium 366 Sg [769]	367 bohrium 367 Bh [771]	368 hassium 368 Hs [773]	369 meitnerium 369 Mt [775]	370 darmstadtium 370 Ds [777]	371 roentgenium 371 Rg [779]	372 copernicium 372 Cn [781]	373 nihonium 373 Nh [783]	374 flerovium 374 Fl [785]	375 dubnium 375 Db [787]	376 seaborgium 376 Sg [789]	377 bohrium 377 Bh [791]	378 hassium 378 Hs [793]	379 meitnerium 379 Mt [795]	380 darmstadtium 380 Ds [797]	381 roentgenium 381 Rg [799]	382 copernicium 382 Cn [801]	383 nihonium 383 Nh [803]	384 flerovium 384 Fl [805]	385 dubnium 385 Db [807]	386 seaborgium 386 Sg [809]	387 bohrium 387 Bh [811]	388 hassium 388 Hs [813]	389 meitnerium 389 Mt [815]	390 darmstadtium 390 Ds [817]	391 roentgenium 391 Rg [819]	392 copernicium 392 Cn [821]	393 nihonium 393 Nh [823]	394 flerovium 394 Fl [825]	395 dubnium 395 Db [827]	396 seaborgium 396 Sg [829]	397 bohrium 397 Bh [831]	398 hassium 398 Hs [833]	399 meitnerium 399 Mt [835]	400 darmstadtium 400 Ds [837]	401 roentgenium 401 Rg [839]	402 copernicium 402 Cn [841]	403 nihonium 403 Nh [843]	404 flerovium 404 Fl [845]	405 dubnium 405 Db [847]	406 seaborgium 406 Sg [849]	407 bohrium 407 Bh [851]	408 hassium 408 Hs [853]	409 meitnerium 409 Mt [855]	410 darmstadtium 410 Ds [857]	411 roentgenium 411 Rg [859]	412 copernicium 412 Cn [861]	413 nihonium 413 Nh [863]	414 flerovium 414 Fl [865]	415 dubnium 415 Db [867]	416 seaborgium 416 Sg [869]	417 bohrium 417 Bh [871]	418 hassium 418 Hs [873]	419 meitnerium 419 Mt [875]	420 darmstadtium 420 Ds [877]	421 roentgenium 421 Rg [879]	422 copernicium 422 Cn [881]	423 nihonium 423 Nh [883]	424 flerovium 424 Fl [885]	425 dubnium 425 Db [887]	426 seaborgium 426 Sg [889]	427 bohrium 427 Bh [891]	428 hassium 428 Hs [893]	429 meitnerium 429 Mt [895]	430 darmstadtium 430 Ds [897]	431 roentgenium 431 Rg [899]	432 copernicium 432 Cn [901]	433 nihonium 433 Nh [903]	434 flerovium 434 Fl [905]	435 dubnium 435 Db [907]	436 seaborgium 436 Sg [909]	437 bohrium 437 Bh [911]	438 hassium 438 Hs [913]	439 meitnerium 439 Mt [915]	440 darmstadtium 440 Ds [917]	441 roentgenium 441 Rg [919]	442 copernicium 442 Cn [921]	443 nihonium 443 Nh [923]	444 flerovium 444 Fl [925]	445 dubnium 445 Db [927]	446 seaborgium 446 Sg [929]	447 bohrium 447 Bh [931]	448 hassium 448 Hs [933]	449 meitnerium 449 Mt [935]	450 darmstadtium 450 Ds [937]	451 roentgenium 451 Rg [939]	452 copernicium 452 Cn [941]	453 nihonium 453 Nh [943]	454 flerovium 454 Fl [945]	455 dubnium 455 Db [947]	456 seaborgium 456 Sg [949]	457 bohrium 457 Bh [951]	458 hassium 458 Hs [953]	459 meitnerium 459 Mt [955]	460 darmstadtium 460 Ds [957]	461 roentgenium 461 Rg [959]	462
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*lanthanoids

****actinoids**

lanthanum 57	cerium 58	praseodymium 59	neodymium 60	promethium 61	samarium 62	europium 63	gadolinium 64	terbium 65	dysprosium 66	holmium 67	erbium 68	thulium 69	ytterbium 70
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
138.91	140.12	140.91	144.24	[145]	150.36	151.96	157.25	158.93	162.50	164.93	167.26	168.93	173.04
actinium 89	thorium 90	protactinium 91	uranium 92	neptunium 93	plutonium 94	americium 95	curium 96	berkelium 97	californium 98	einsteinium 99	fermium 100	mendelevium 101	nobelium 102
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
[227]	232.04	231.04	238.03	[237]	[244]	[243]	[247]	[247]	[251]	[252]	[257]	[258]	[259]