

## Universe at ~15 minutes old

1 H	big bang fusion										2 He
3 Li											

## Universe at ~100 Million Years

1 H	big bang fusion										cosmic ray fission										2 He						
3 Li	4 Be											exploding massive stars										5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar										
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																											

## Universe at ~200 Million Years

1 H	big bang fusion										cosmic ray fission										2 He													
3 Li	4 Be	merging neutron stars										exploding massive stars										5 B	6 C	7 N	8 O	9 F	10 Ne							
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar																	
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											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																																	
										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										
										89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu																			

## The Universe at ~8 Billion Years

1 H	big bang fusion										cosmic ray fission										2 He													
3 Li	4 Be	merging neutron stars										exploding massive stars										5 B	6 C	7 N	8 O	9 F	10 Ne							
11 Na	12 Mg	dying low mass stars										exploding white dwarfs										13 Al	14 Si	15 P	16 S	17 Cl	18 Ar							
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											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																																	
										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										
										89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	Very radioactive isotopes; nothing left from stars																		