

## Nuclear Stability

**Nuclear Stability Table**

Mass n+p	n	Charge p	Element	Stable x=yes	Radioactive decay particle Emitted
1	1	0	Neutron	.	$\beta^-$
1	0	1	Hydrogen	X	
2	1	1	Deuterium	X	
3	2	1	Tritium	.	$\beta^-$
3	1	2	Helium	X	
4	2	2	Helium	X	
5	3	2	Helium	.	n
5	2	3	Lithium	.	p
6	3	3	Lithium	X	
7	4	3	Lithium	X	
7	3	4	Beryllium	.	$\beta^+$
8	5	3	Lithium	.	$\beta^-$ - then $2\alpha$ 's
8	4	4	Beryllium	.	$2\alpha$ 's
8	3	5	Boron	.	$\beta^+$ + then $2\alpha$ 's
9	6	3	Lithium	.	$\beta^-$ - or $n+2\alpha$ 's
9	5	4	Beryllium	X	
9	4	5	Boron	.	$p + 2\alpha$ 's

10	6	4	Beryllium	.	$\beta^-$
10	5	5	Boron	X	
10	4	6	Carbon	.	$\beta^+$
11	7	4	Berllium	.	$\beta^-$
11	6	5	Boron	X	
11	5	6	Carbon	.	$\beta^+$
12	7	5	Boron	.	$\beta^-$
12	6	6	Carbon	X	
12	5	7	Nitrogen	.	$\beta^+$
13	8	5	Boron	.	$\beta^-$
13	7	6	Carbon	X	
13	6	7	Nitrogen	.	$\beta^+$
14	8	6	Carbon	.	$\beta^-$
14	7	7	Nitrogen	X	
14	6	8	Oxygen	.	$\beta^+$
15	9	6	Carbon	.	$\beta^-$
15	8	7	Nitrogen	X	
15	7	8	Oxygen	.	$\beta^+$
16	9	7	Nitrogen	.	$\beta^-$
16	8	8	Oxygen	X	
16	7	9	Florine	.	$\beta^+$

17	10	7	Nitrogen	.	$\beta^-$
17	9	8	Oxygen	X	
17	8	9	Florine	.	$\beta^+$
18	11	7	Nitrogen		$\beta^-$
18	10	8	Oxygen	X	
18	9	9	Florine		$\beta^+$

### Selected Stable Isotopes

<b>n+p</b>	<b>n</b>	<b>p</b>	<b>Element</b>
16	8	8	Oxygen
17	9	8	Oxygen
18	10	8	Oxygen
19	10	9	Florine
54	28	26	Iron
55	30	25	Manganese
56	30	26	Iron
57	31	26	Iron
58	32	26	Iron

89	50	39	Yttrium
90	50	40	Zr
91	51	40	Zr
92	52	40	Zr
93	52	41	Nb (only stable isotope for Nb)
94	54,52	40,42	Zr AND Mo
95	53	42	Mo
96	56,54	40,42	Zr AND Mo
97	55	42	Mo
98	56,54	42,44	Mo AND Ru
99	55	44	Ru
100	58,56	42,44	Mo AND Ru
.		43	No stable isotope of 43-Tc
127	74	53	Iodine
197	118	79	Gold
206	124	82	Lead
207	125	82	Lead

208	126	82	Lead
209	126	83	Bismuth
210 -		.	No stable isotopes above 209