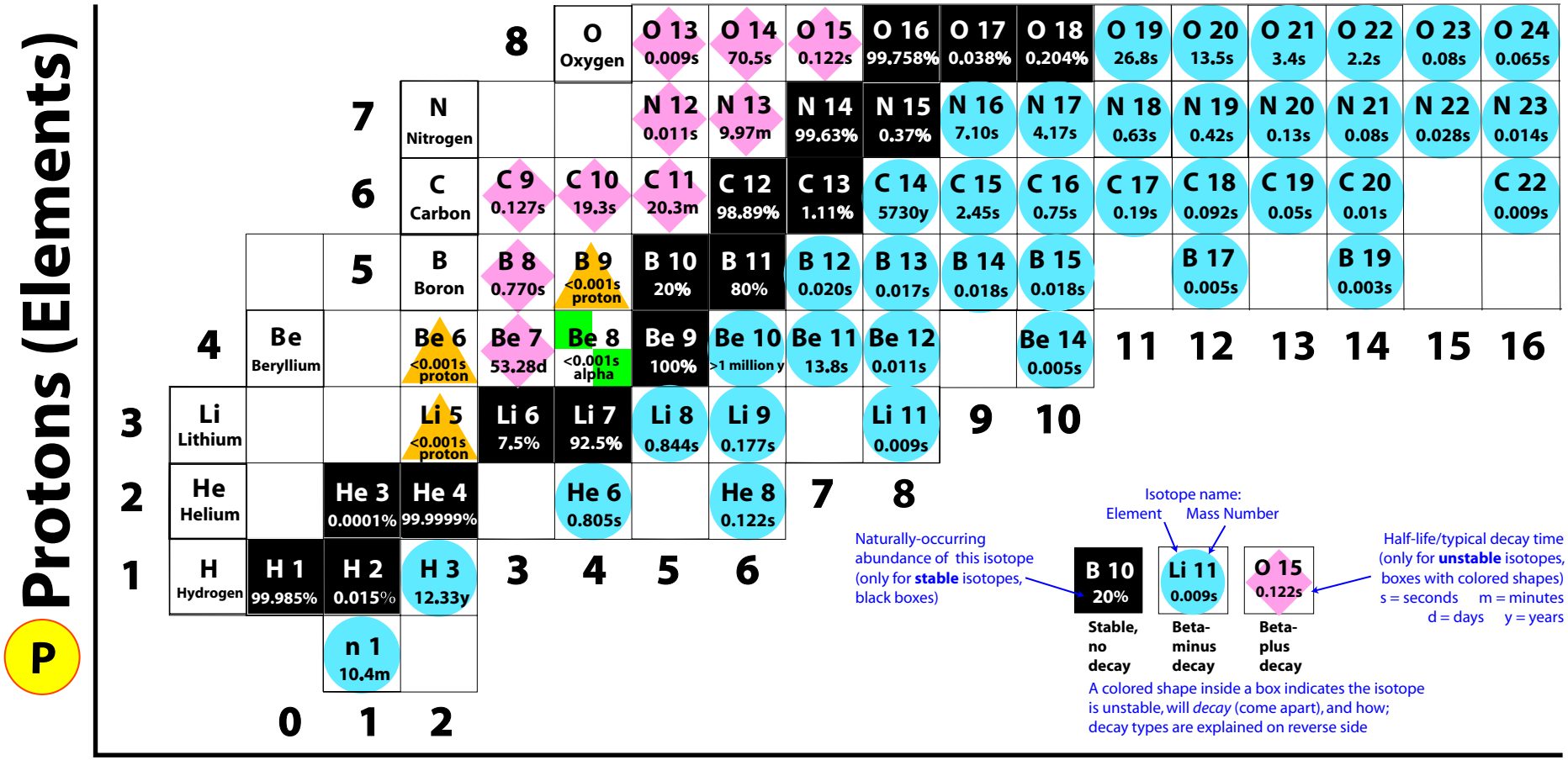
QUICK REFERENCE SHEET

Learn Nuclear Science with Marbles

A JINA/NSCL outreach service by Zach Constan www.jinaweb.org/educational-outreach/marble-nuclei-lessons Version 4.3 • January 2019

CHART of the NUCLIDES

featuring the first eight elements



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Types of radioactive decay

Be 6	Be 7	Be 8	Be 9	Be 10
<0.001s proton	53.28d	<0.001s alpha	100%	>1 million y
Yellow triangle = **proton decay**	Pink diamond = **beta-plus decay**	Green checkerboard = **alpha decay**	Black square = **stable isotope, no decay**	Blue circle = **beta-minus decay**
Nucleus ejects one proton — P	Turns a proton into a neutron, emits a positron & a neutrino — P + N	Nucleus ejects an alpha particle (two protons & two neutrons) — P P N N	% = abundance of this isotope found in nature	Turns a neutron into a proton, emits an electron & antineutrino — N + P
Isotope moves down one square on chart	Isotope moves down one square, right one square on chart	Isotope moves down 2 squares, left 2 squares on chart		Isotope moves left one square, up one square on chart