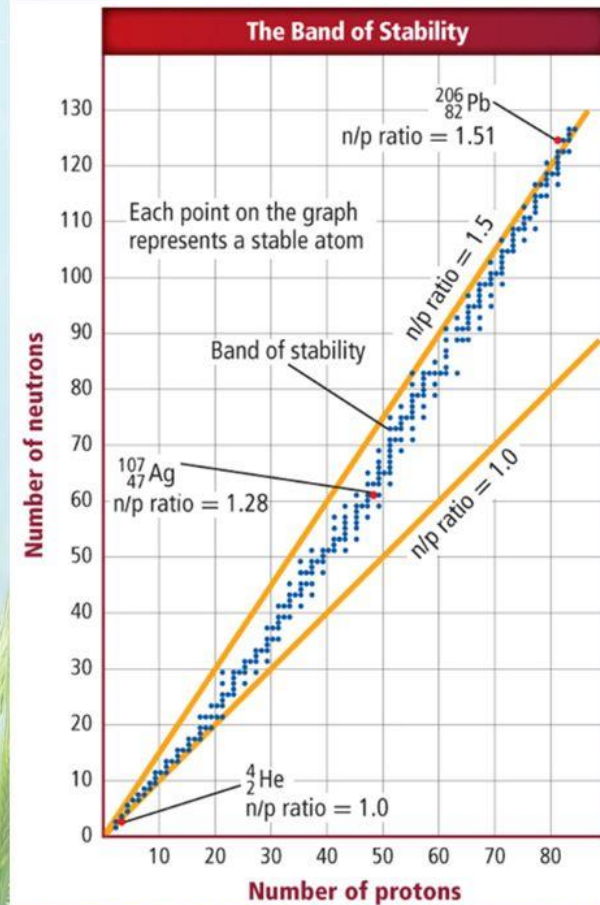


Nuclear Stability

The *Band of Stability* is the area on the graph where all stable nuclei fall. Anything outside of this band is considered radioactive and will decay to achieve stability.



Nuclear Stability

The stability of the nucleus depends upon its ratio of **neutrons** to **protons**. Too many or too few neutrons lead to an unstable nucleus.

When the number of **protons** in stable nuclei is plotted against the number of **neutrons**, a beltlike graph is obtained. This stable nuclei cluster over a range of neutron-proton ratios is referred to as the band of stability.

Stable isotopes fall **within** the band of stability and have neutron to proton ratios of nearly **1:1** at the lower range and nearly **1.5:1** at the upper range. Such isotopes tend to be stable. **Radioactive** isotopes fall **outside** of the band of stability.