CONCEPT: BAND OF STABILITY: ELECTRON CAPTURE & POSITRON EMISSION

- Either **Electron Capture** or **Positron Emission** happens for isotopes in the _____ corner of the N/Z plot.
  - □ Since either process is possible, predicting which one predominates is beyond the scope of this course.

Neutron-to-Proton Plot

Electron Capture

$$^{131}_{55}Cs + {}^{0}_{-1}e \longrightarrow {}^{131}_{54}Xe$$

(parent nuclide) (daughter nuclide)

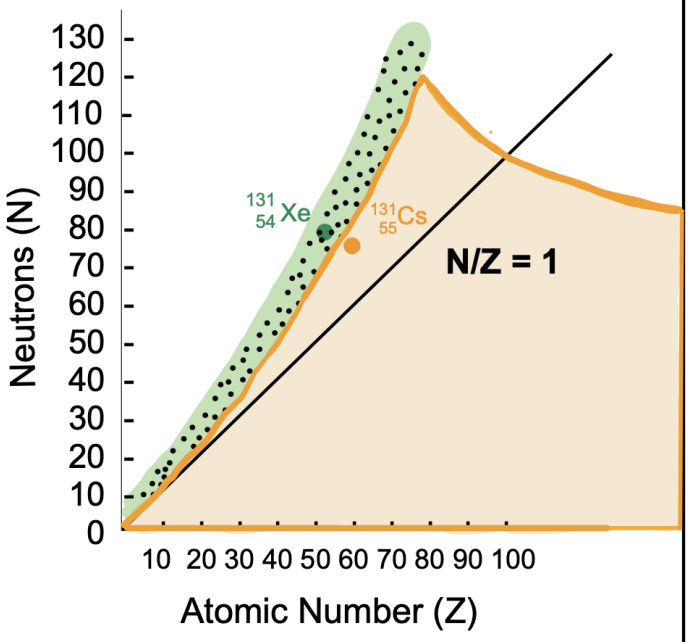
Positron Emission

$$^{131}_{55}Cs \longrightarrow {}^{131}_{54}Xe + {}^{0}_{+1}e$$

(parent nuclide) (daughter nuclide)

□ These isotopes have an _____ of p^+

□ The end result is the same: Conversion of p^+ into ____



EXAMPLE: Provide the identity of the daughter nuclide created from the electron capture of strontium-80.

a) Krypton-83 b) Bromine-81 c) Rubidium-80 d) Radon-80

PRACTICE: Provide the identity of the daughter nuclide created from the positron emission of strontium-80.

a) Yttrium-78 b) Radon-81 c) Zirconium-82 d) Rubidium-80