Organising isotopes

Education in Chemistry
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This activity accompanies the above article 'The hunt is on'.

Below is a list of the most stable isotopes of the first 20 elements in the periodic table. In this activity, stability is defined as an element that exists for 10 days or more. These isotopes may exist in tiny amounts.

^{1}H ^{2}H ^{3}H
^{3}He ^{4}He
^{6}Li ^{7}Li
^{7}Be ^{9}Be ^{10}Be
^{10}B ^{11}B
^{12}C ^{13}C ^{14}C
^{14}N ^{15}N
^{16}O ^{17}O ^{18}O
^{19}F
^{20}Ne ^{21}Ne ^{22}Ne
^{22}Na ^{23}Na
^{24}Mg ^{25}Mg ^{26}Mg
^{26}Al ^{27}Al
^{28}Si ^{29}Si ^{30}Si ^{32}Si
^{31}P ^{32}P ^{33}P
^{32}S ^{33}S ^{34}S ^{35}S ^{36}S
^{35}Cl ^{36}Cl ^{37}Cl
^{36}Ar ^{37}Ar ^{38}Ar ^{39}Ar ^{40}Ar ^{42}Ar
^{39}K ^{40}K ^{41}K
^{40}Ca ^{41}Ca ^{42}Ca ^{43}Ca
^{44}Ca ^{45}Ca ^{46}Ca ^{48}Ca

Task: Organise the isotopes into a graph. On the x axis (horizontal) plot the atomic number of the element – you'll need to look this up on the periodic table. On the y axis (vertical) plot the isotope mass (scale from 0 to 50). You might want to use different colours for each of the isotopes to make your graph easy to read.

Extension task: Organise the isotopes into a graph to show the relationship between the number of protons and the number of neutrons in the isotope.

Criteria you need to follow for a graph

- ✓ Axes and plotted points in pencil
- ✓ Axes labels and scale in pen
- ✓ Sensible scale
- ✓ Plotted points cover at least half the paper