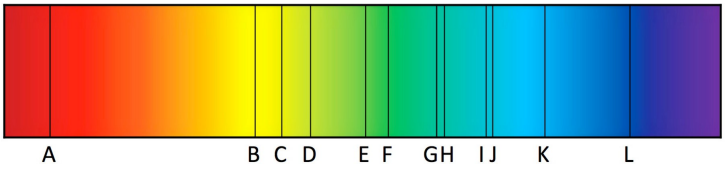


2018

Stellaments

Aim To identify five absorption lines in the spectrum of a star.

Materials 1 stellar spectrum 1m rule

Method Use the position of line 'C' in the spectrum, originating from transitions in carbon atoms between energy levels 7 and 8 (see over) to find the letters that identify the transitions from:

H (4→2) He (4→7) Li (4→5) Be (6→8) B (6→7)

Conditions The five letters must be given in the correct order.

Time Limit 25 minutes

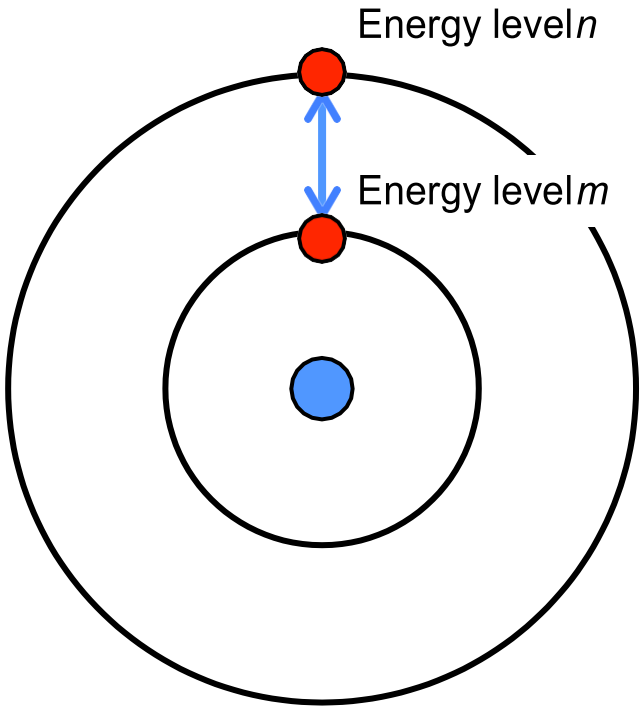
Ranking The ranking order will be determined by the time taken to correctly identify the five lines in the spectrum.

Team ☐ ***Result*** ☐

Do not write below this line

Rank ☐

Bohr model of the atom



An electron transition between energy levels *n* and *m* of an atom with atomic number *Z* will absorb or emit a photon with energy *E* given by

$$E \propto Z^2 \left(\frac{1}{n^2} - \frac{1}{m^2} \right)$$