

## Mrs H's BOHR MODEL OF THE ATOM

<u>What</u>	<u>How it is shown in the model</u>
Electrons are bound in atoms	Electrons are people, usually on the ground but can be excited to climb a ladder!
Electrons are found in certain orbits	Students are only found on rungs of ladders or free of the ladder and running around the roofs
Energy levels get closer together, the energy difference between levels decreases as <b>you go further away from the nucleus</b>	Our model should have the ladder rungs getting closer together the further up the ladder you go. Presently Mrs H hasn't managed to source this!
Electrons cannot be between energy levels	Students have only one leg and no arms, they are unable to hold on between two of the rungs of the ladder.
Electrons rapidly return to a lower energy level	Students have acrophobia
An electron has 0J of energy when it is <b>ionised and free of the influence of the nucleus</b>	When the electron is on the platform at the top of the ladder it is "ionised" and free from the electron
Electrons are excited	Students absorb the energy from the ball s and move to another rung of the ladder.
Electrons can lose energy, when they <b>give off a photon, moving down one or more E levels</b>	Students lose energy when they emit a ball, of the correct size to totally correspond to a jump to another rung of the ladder
Photons have different energies given by the formula: $E=hf$ where $h=$ $f$	Different size balls, beach ball more E than a marble Beach ball higher frequency, higher energy, lowest wavelength, Marble, higher wavelength, lower energy, lowest frequency, $h=$ Planck's constant $6.63 \times 10^{-34}$ Js $f=$ frequency (Hz)
Electrons have negative energy when <b>they are bound by the nucleus.</b>	Students have negative energies when on the ground or on the ladder (0J at the very top platform)
Electrons can gain their energy in two ways <ul style="list-style-type: none"> <li>Collision with another electron</li> <li>Absorption of a photon</li> </ul>	Ryan colliding with another student, one of the students would need to be free. Catching a ball of a specific size!
Absorption spectra are examples of <b>photons being absorbed by electrons to excite them to a higher energy level</b>	Students catching a ball and getting excited!
Emission spectra are examples of <b>photons being emitted when electrons move to a lower energy level</b>	Student throwing away a ball and moving to a lower rung on the ladder
Electrons have kinetic energy when <b>they are free from the influence of nucleus</b>	Students have $E_k$ when they get enough energy to take them beyond the top platform of the ladder
A photon will not be absorbed if <b>it is the wrong energy to move the electron to a specific energy level</b>	Balls are no good if they don't provide the right energy to move the electron to another rung of the ladder or give it sufficient energy to free it