

Lessons TB AT	Key Knowledge	Practical	Assessment
<p>Explain how a mass spectrometer works and interpret mass spectra.</p> <p>Write electron configurations for atoms and ions using orbital method.</p> <p>Describe and explain trends in ionisation energies for period</p>	<p>3.1.1 Atomic structure</p> <p>3.1.1.2 Mass number and isotopes</p> <p>Mass number (A) and atomic (proton) number (Z).</p> <p>Students should be able to:</p> <ul style="list-style-type: none"> determine the number of fundamental particles in atoms and ions using mass number, atomic number and charge explain the existence of isotopes. The principles of a simple time of flight (TOF) mass spectrometer, limited to ionisation, acceleration to give all ions constant kinetic energy, ion drift, ion detection, data analysis. The mass spectrometer gives accurate information about relative isotopic mass and also about the relative abundance of isotopes. Mass spectrometry can be used to identify elements. Mass spectrometry can be used to determine relative molecular mass. Students should be able to: interpret simple mass spectra of elements calculate relative atomic mass from isotopic abundance, limited to mononuclear ions. <p>3.1.1.3 Electron configuration</p>		<p>End of topic test</p> <hr/> <p>Maths focus</p> <p>Calculation of Mr from spectra</p> <p>Interpretation of spectra</p> <hr/> <p>Key stage 4</p> <p>GCSE Chemistry</p> <p>- The structure of atoms (although this is revisited here).</p> <p>GCSE Physics</p> <p>- The structure of atoms (although this is revisited here).</p> <p>- The effect of a force on moving objects.</p>

<p>3 and group 2.</p>	<p>Electron configurations of atoms and ions up to $Z = 36$ in terms of shells and sub-shells (orbitals) s, p and d. Ionisation energies.</p> <p>Students should be able to:</p> <ul style="list-style-type: none">• define first ionisation energy• write equations for first and successive ionisation energies• explain how first and successive ionisation energies in Period 3 (Na–Ar) and in Group 2 (Be–Ba) give evidence for electron configuration in sub-shells and in shells.		<p>- The effect of a magnetic field on a moving, electrically charged particle (Separate Science)</p>
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