

Subject	Year	Term
Chemistry	12	1 and 2
Topic		
3.1.1 Periodicity.		
Content (Intent)		
Prior Learning (Topic) KS3 Y8 properties of elements KS4 Y11 C1 Atomic structure and the periodic table, C2 Bonding, Structure and properties of matter		
<p>The structure of the periodic table</p> <p>(a) the periodic table as the arrangement of elements:</p> <ul style="list-style-type: none"> (i) by increasing atomic (proton) number (ii) in periods showing repeating trends in physical and chemical properties (periodicity) (iii) in groups having similar chemical properties <p>Periodic trend in electron configuration and ionisation energy</p> <p>(b) (i) the periodic trend in electron configurations across Periods 2 and 3 (see also 2.2.1 d)</p> <ul style="list-style-type: none"> (ii) classification of elements into s-, p- and d-blocks <p>(c) first ionisation energy (removal of 1 mol of electrons from 1 mol of gaseous atoms) and successive ionisation energy, and:</p> <ul style="list-style-type: none"> (i) explanation of the trend in first ionisation energies across Periods 2 and 3, and down a group, in terms of attraction, nuclear charge and atomic radius (ii) prediction from successive ionisation energies of the number of electrons in each shell of an atom and the group of an element <p>Periodic trend in structure and melting point</p> <p>(d) explanation of:</p> <ul style="list-style-type: none"> (i) metallic bonding as strong electrostatic attraction between cations (positive ions) and delocalised electrons (ii) a giant metallic lattice structure, e.g. all metals No details of cubic or hexagonal packing required. <p>(e) explanation of the solid giant covalent lattices of carbon (diamond, graphite and graphene) and silicon as networks of atoms bonded by strong covalent bond</p> <p>(f) explanation of physical properties of giant metallic and giant covalent lattices, including melting and boiling points, solubility and electrical conductivity in terms of structure and bonding</p> <p>(g) explanation of the variation in melting points across Periods 2 and 3 in terms of structure and bonding (see also 2.2.2 o).</p>		
Future Learning (Topic) KS5 Y13 5.2.1 Lattice enthalpy		
How will knowledge and skills be taught? (Implementation)	How will your understanding be assessed & recorded (Impact)	
Written PowerPoint presentation, notes, written examples, model answers and past paper questions.	- 1 x standard homework (Level given. Written feedback. Response expected.)	

-1 x end of topic test (Level given. Verbal feedback to class and individuals.)

How can parents help at home?

Look at the topic specific resources on the VLE

Use appropriate websites: MachemGuy, Allery Chemistry, Chemistry World – by Royal Society of Chemistry, ChemGuide.

Take an interest! Ask your children what they have learnt and be curious about their learning.

Helpful further reading/discussion

Reading

Textbook pages 92-106

The Science of Everyday Life
by Marty Jopson

Why Chemical Reactions

Happen by Keeler and

Wothers

Vocabulary Lists

Ionisation

Atomic number

Nuclear attraction

Electron configuration

Ionisation energies

Cation

Anion

Giant metallic lattice

Giant covalent

Nuclear charge

Careers Links

Analytical chemist

Chemical engineer

Clinical biochemist

Forensic scientist

Pharmacologist

Process chemist

Quality control analyst

Research scientist

Science writer

Site chemist

Teacher or lecturer

Degrees;

Chemistry

Biochemistry

Biomedical science

Biological sciences

Medicine

Research chemist

Veterinary medicine