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| **Term** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 1** |  | **PROTONS, NEUTRONS & ELECTRONS IN ATOMS**   * Describe the locations, charges and masses of the three main subatomic particles * Define atomic number * Define mass number * Describe the size of the nucleus in relation to the size of the atom * Explain what isotopes are and how they affect an element’s atomic mass * Determine the number of protons, neutrons & electrons in an atom | **T1**  IC *1. The structure of the atom* p.1-3  **Lab1**  [STAWA *Exp 10: Metal crystals* p.32](Experiments/1.1.%20STAWA%20Experiment%2010-%20Metal%20Crystals.pdf)  **Lab2**  [*Beanium Isotope Lab*](Experiments/1.2%20Beanium%20Isotope%20Lab.pdf) (Experiments folder)  **ICT**  *Build an Atom*  [***http://www.orau.org/center-for-science-education/files/build-an-atom/***](http://www.orau.org/center-for-science-education/files/build-an-atom/)  ***(will only take about 10 minutes)***  *Isotopes and Atomic Mass (PhET sim)*  ***(Resources folder)*** |  |
| **Term 3** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 2** |  | **VALENCE ELECTRONS**   * Define valence electrons * Indicate the number of valence electrons for selected atoms   **COMPOUNDS & BONDING**   * Explain the difference between an element, a compound & a mixture * Distinguish between ionic, covalent & metallic bonding | **T1**  IC *2. Electrons* p.6-10  IC *3. Bonding* p.14-17  **Lab1**  [STAWA *Exp 1: Mixtures* p.10](Experiments/2.1%20STAWA%20Experiment%201%20-%20Mixtures.pdf)  **Lab2**  [Nelson *Exp 3.1: Comparing the properties of a compound with those of its component elements* p.169](Experiments/2.2%20Nelson%20Experiment%203.1%20-%20Comparing%20properties.pdf)  **ICT**  *Lewis Valence Electron Dot Structures*  [***https://www.texasgateway.org/resource/lewis-valence-electron-dot-structures***](https://www.texasgateway.org/resource/lewis-valence-electron-dot-structures)  *Salts and solubility (PhET sim)*  [***https://phet.colorado.edu/en/simulation/legacy/soluble-salts***](https://phet.colorado.edu/en/simulation/legacy/soluble-salts)  ***(Worksheet in Resources folder)*** |  |
| **Term 3** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 3** |  | **COMPOUNDS & BONDING**   * Given a formula, classify a compound as ionic, covalent or metallic * List properties of metallic compounds | **T1**  Ox *3.7 Metals form unique bonds* p.82-83  IC *3. Bonding* p.14-17  **Lab1**  [Nelson *Exp 3.2: Comparing different types of substances* p.187](Experiments/3.1%20Nelson%20Experiment%203.2%20-%20Comparing%20different%20types%20of%20substances.pdf)  **Lab2**  [Ox *Challenge 3.7 Modelling alloys* p.199](Experiments/3.2%20Oxford%20Challenge%203.7%20Modelling%20alloys.pdf)  **ICT**  *Chemical bonding: Metallic bonds*  [***https://www.texasgateway.org/resource/chemical-bonding-metallic-bonds***](https://www.texasgateway.org/resource/chemical-bonding-metallic-bonds) |  |
| **Term 3** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 4** |  | **NAMES & CHARGES OF IONS**   * Describe how atoms form an ionic bond * Indicate the most likely number of electrons the atom will gain or lose when forming an ion * Describe what polyatomic ions are * Write the correct formula for ionic compounds * Give the correct name for ionic compounds given its formula * List properties of ionic compounds | **T1**  Ox *3.5 Metal cations and non-metal anions combine to form ionic compounds* p.78-79  IC *3. Bonding* p.14-15  IC *4. Writing correct formula* p.20-26  **Lab1**  [Ox *Skills Lab 3.5 Ionic compounds* p.198](Experiments/4.1%20Oxford%20Skills%20lab%203.5-Ionic%20compounds.pdf)  ([Answers here](Experiments/4.1%20Oxford%20Skills%20lab%203.5-Ionic%20compounds%20ANSWERS.pdf))  **Lab2**  [Ox *Experiment 3.5 Conductivity of ionic compounds* p.197](Experiments/4.2%20Oxford%20Experiment%203.5%20-%20Conductivity%20of%20ionic%20compounds.pdf)  ([Answers here](Experiments/4.2%20Oxford%20Experiment%203.5%20-%20Conductivity%20of%20ionic%20compounds%20ANSWERS.pdf))  **ICT**  *Ionic Bonds: Electron dot formulas*  [***https://www.texasgateway.org/resource/ionic-bonds-electron-dot-formulas***](https://www.texasgateway.org/resource/ionic-bonds-electron-dot-formulas)  *Nomenclature of Ionic Compounds*  [***https://www.texasgateway.org/resource/ionic-bonds-electron-dot-formulas***](https://www.texasgateway.org/resource/ionic-bonds-electron-dot-formulas) |  |
| **Term 3** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 5** |  | **COVALENT COMPOUNDS & LEWIS STRUCTURES**   * Explain what covalent bonds are * Explain why covalent bonds are formed * List properties of covalent compounds * Draw a lewis structure for covalent compounds & polyatomic ions | **T1**  Ox *3.6 Non-metals combine to form covalent compounds* p.80-81  IC *2. Electrons* p.11  IC *3. Bonding* p.16  **L1**  [Ox *Challenge 3.6 Modelling covalent molecules* p.199](Experiments/5.1%20Oxford%20Challenge%203.6%20-%20Modelling%20covalent%20molecules.pdf) **(use plasticine to make different coloured balls??)**  ([Answers here](Experiments/5.1%20Oxford%20Challenge%203.6%20-%20Modelling%20covalent%20molecules%20ANSWERS.pdf))  **L2**  Classroom Activity: Summarise bonding  (Graphic Organiser??)  **ICT**  *Covalent bonding: Electron dot diagrams*  [***https://www.texasgateway.org/resource/covalent-bonding-electron-dot-diagrams***](https://www.texasgateway.org/resource/covalent-bonding-electron-dot-diagrams)  *Nomenclature: Covalent Compounds*  [***https://www.texasgateway.org/resource/nomenclature-covalent-compounds***](https://www.texasgateway.org/resource/nomenclature-covalent-compounds) |  |

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| **Week 6** |  | **CHEMICAL REACTIONS**   * Label a change as chemical or physical * List evidence that can indicate a chemical change has occurred * Identify the reactants & products in any chemical reaction * Convert word equations into chemical equations * Explain the roles of subscripts & coefficients in chemical equations * Balance a chemical equation when given an unbalanced chemical equation * Predict the products of simple reactions | **T1**  Ox *4.2 Acid reactions depend on strength and concentration* p.92-93  Ox *4.3 The solubility rules predict the formation of precipitates* p.94-95  IC *5. Chemical Reactions* p.29 -32  IC *6. Writing Equations* p.35 -38  IC *7. Reactions Involving Metals* p.40-46  **L1**  [Ox *Experiment 4.2 Acid titrations* p.203](Experiments/6.1%20Oxford%20Experiment%204.2%20-%20Acid%20titrations.pdf)  ([Answers here](Experiments/6.1%20Oxford%20Experiment%204.2%20-%20Acid%20titrations%20ANSWERS.pdf))  **L2**  [Ox *Experiment 4.3 Precipitation reactions* p.204](Experiments/6.2%20Oxford%20Experiment%204.3%20-%20Precipitation%20reactions.pdf)  ([Answers here](Experiments/6.2%20Oxford%20Experiment%204.3%20-%20Precipitation%20reactions%20ANSWERS.pdf))  **ICT**  *Quantifying Changes in Chemical Reactions: Balancing Equations*  [***https://www.texasgateway.org/resource/quantifying-changes-chemical-reactions-balancing-equations***](https://www.texasgateway.org/resource/quantifying-changes-chemical-reactions-balancing-equations)  *Precipitation reactions*  [***https://www.texasgateway.org/resource/precipitation-reactions***](https://www.texasgateway.org/resource/precipitation-reactions) |  |

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| **Term 3** | **AC Code** | **Content Description** | **Teaching & Learning Activities** | **Assessment** |
| **Week 7** |  |  | **T1**  **L1**  **L2**  **ICT** |  |

Supplementary documents (templates):

* [“I can” sheets for students.](file:///\\E4128S01SV001.green.schools.internal\Shared\AdminShared\All%20Staff\250%20Curriculum\262%20Science\2017%20Planning\I%20can%20-%20checklist.dot)
* [Lab skill checklist:](file:///\\E4128S01SV001.green.schools.internal\Shared\AdminShared\All%20Staff\250%20Curriculum\262%20Science\2017%20Planning\Lab%20skill%20checklist.docx)
* [Lab risk assessment](file:///\\E4128S01SV001.green.schools.internal\Shared\AdminShared\All%20Staff\250%20Curriculum\262%20Science\2017%20Planning\Lab%20Risk%20Assessment.dotx)
* [Lab requirements.](file:///\\E4128S01SV001.green.schools.internal\Shared\AdminShared\All%20Staff\250%20Curriculum\262%20Science\2017%20Planning\Lab%20requirements.dotx)