



Lessons Sequence							
TOPIC (S) BONDING	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"> <ol style="list-style-type: none"> 1. Ionic Bonding 2. Ionic Compounds 3. Covalent Bonding 4. Metallic Bonding </td> <td style="width: 33%;"> <ol style="list-style-type: none"> 5. States of Matter 6. Properties of Ionic Compounds 7. Properties of Small Molecules 8. Polymers </td> <td style="width: 33%;"> <ol style="list-style-type: none"> 9. Giant Covalent Structures 10. Properties of Metals and Alloys 11. Diamond and Graphite 12. Graphene and Fullerenes 13. Nanoparticles </td> </tr> </table>	<ol style="list-style-type: none"> 1. Ionic Bonding 2. Ionic Compounds 3. Covalent Bonding 4. Metallic Bonding 	<ol style="list-style-type: none"> 5. States of Matter 6. Properties of Ionic Compounds 7. Properties of Small Molecules 8. Polymers 	<ol style="list-style-type: none"> 9. Giant Covalent Structures 10. Properties of Metals and Alloys 11. Diamond and Graphite 12. Graphene and Fullerenes 13. Nanoparticles 			
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Knowledge & Skills development	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Description of the process of ionic bonding in terms of electron transfer • Description of the limitations of different types of diagrams of to represent ionic compounds • Description of how non-metal atoms bond • Description of the bonding of metal atoms • Knowledge of how particles behave in solids, liquids and gases and what happens to these particles when changes of state occur • Explanation of the properties of ionic compounds, small molecules and metals </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Description of the structure of polymers and explanation of how this links to their properties • Structure and how this links to properties in diamond and graphite • Structure, properties and uses of fullerenes including carbon nanotubes and Buckminsterfullerene • Evaluate the use of nanoparticles for specific purposes and explain the possible risks associated with their use </td> </tr> </table>	<ul style="list-style-type: none"> • Description of the process of ionic bonding in terms of electron transfer • Description of the limitations of different types of diagrams of to represent ionic compounds • Description of how non-metal atoms bond • Description of the bonding of metal atoms • Knowledge of how particles behave in solids, liquids and gases and what happens to these particles when changes of state occur • Explanation of the properties of ionic compounds, small molecules and metals 	<ul style="list-style-type: none"> • Description of the structure of polymers and explanation of how this links to their properties • Structure and how this links to properties in diamond and graphite • Structure, properties and uses of fullerenes including carbon nanotubes and Buckminsterfullerene • Evaluate the use of nanoparticles for specific purposes and explain the possible risks associated with their use 				
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Assessment / Feedback Opportunities	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 16.6%;">Targeted questioning throughout topic</td> <td style="width: 16.6%;">Teacher assessment of practical skills during investigation - verbal</td> <td style="width: 16.6%;">Knowledge Recall Quizzes</td> <td style="width: 16.6%;">Deep marking of written task in students books</td> <td style="width: 16.6%;">Topic Test</td> <td style="width: 16.6%;">Targeted exam questions – teacher or self-assessed</td> </tr> </table>	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	Knowledge Recall Quizzes	Deep marking of written task in students books	Topic Test	Targeted exam questions – teacher or self-assessed
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Cultural Capital	<ul style="list-style-type: none"> • Local relevance- research into the work done by Leverhulme Centre for Functional Material Design 						
SMSC / Promoting British Values <small>(Democracy, Liberty, Rule of Law, Tolerance & Respect)</small>	<ul style="list-style-type: none"> • Listening to others during presentations • Working in groups during practicals or research tasks • Conservation linked to plastics 						
Recommended reading	<ul style="list-style-type: none"> • Recommended Read: Bonding, Structure and Properties of Matter & Quantitative Chemistry:AQA GCSE 9-1 Chemistry (Collins GCSE) • Recommended Read: A simple introduction to chemistry (Max Parsonage) • Recommended Read: All About Chemistry (Big Questions) (Robert Winston) 						
Key Vocabulary	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest</p> <p>Atom, Particle, Electron, Bond, Ion, Covalent, Metallic, Property, Charge, State, Matter, Polymer, Boiling Point, Melting Point, Conduct, Intermolecular, Structure, Alloy, Diamond, Graphite, Nanoparticle, Molecule</p>						
Digital Literacy	SharePoint resources including topic quizzes						

	Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research
Cross-Curricular Links	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators Engineering/DT – Properties of materials
Careers	Product design (materials scientist), Pharmacist (drug development), Engineering professions