

**Year 10 Science January PPE1 information**

Biology Paper 1		Chemistry Paper 1	
<b>Cell Biology</b>	B1 Cell structure and transport.	<b>Atomic structure and the PT</b>	C1 Atomic Structure
	B2 Cell division		C2 The Periodic Table
<b>Organisation</b>	B3 Organisation and the digestive system.	<b>Bonding , Structure and the properties of matter</b>	C3 Structure and Bonding
	B4 Organising animals and plants	<b>Quantitative chemistry</b>	C4 Chemical Calculations
<b>Infection and response</b>	B5 Communicable Disease	<b>Chemical changes</b>	C5 Chemical Changes
	B6 Preventing and treating disease		C6 Electrolysis
	B7 Non communicable diseases	<b>Energy changes</b>	C7 Energy Changes
<b>Bioenergetics</b>	B8 Photosynthesis		
	B9 Respiration		

<b>Topic</b>	<b>Topic Content (FT, HT and Triple)</b>	<b>Required Practical's</b>	<b>Helpful Revision Links</b>
<b>Cell Structure and transport (B1)</b>	1.1- Eukaryotes and prokaryotes 1.2- Animal and plant cells 1.3- Cell specialisation 1.4 - Cell differentiation 1.5- Microscopy 1.6- <b>Culturing microorganisms (biology only)</b>	<b>Required practical activity 1:</b> use a light microscope to observe, draw and label a selection of plant and animal cells. A magnification scale must be included.	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/z2mttv4">https://www.bbc.co.uk/bitesize/topics/z2mttv4</a></li> <li>- <a href="https://www.youtube.com/watch?v=MB6mE6weCS4">https://www.youtube.com/watch?v=MB6mE6weCS4</a></li> <li>- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g">https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g</a></li> </ul>
<b>Cell Division (B2)</b>	2.1 - Cell Division 2.2 - Growth and Differentiation 2.3 - Stem Cells	No Required Practical's	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/z2mttv4">https://www.bbc.co.uk/bitesize/topics/z2mttv4</a></li> <li>- Oak National: <a href="https://classroom.thenational.academy/units/cell-biology-ht-723d">https://classroom.thenational.academy/units/cell-biology-ht-723d</a></li> </ul>
<b>Organisation and the Digestive System (B3)</b>	3.1 - Tissues and Organs 3.2 - The Digestive System <b>3.3 - The Chemistry of Food</b> 3.4 - Catalysts and Enzymes 3.5 - Factors Affecting Enzyme Activity <b>3.6 - How the Digestive System Works</b> 3.7 - Efficient Digestion (Bile and Surface Area)	<b>Lesson 3.3 RP</b> – Use standard food tests to identify food groups  <b>Lesson 3.6 RP</b> – Investigate the effect of pH on the rate of reaction of amylase enzyme.	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/zwj22nb">https://www.bbc.co.uk/bitesize/topics/zwj22nb</a></li> <li>- Oak National: <a href="https://classroom.thenational.academy/units/organisation-ht-b207">https://classroom.thenational.academy/units/organisation-ht-b207</a></li> <li>-</li> </ul>
<b>Organising Animals and Plants (B4)</b>	4.1 - The Blood 4.2 - The Blood Vessels 4.3 - The Heart 4.4 - Helping the Heart 4.5 - Breathing and Gas Exchange 4.6 - Tissues and Organs in Plants 4.7 - Transport Systems in Plants 4.8 - Evaporation and Transpiration	No Required Practical's	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/zwj22nb">https://www.bbc.co.uk/bitesize/topics/zwj22nb</a></li> <li>- Oak National: <a href="https://classroom.thenational.academy/units/organisation-ht-b207">https://classroom.thenational.academy/units/organisation-ht-b207</a></li> <li>-</li> </ul>

	4.9 - Factors Affecting Transpiration		
<b>Communicable Diseases (B5)</b>	5.1 - Health and Disease 5.2 - Pathogens and Disease 5.3 - Growing Bacteria in the Lab <b>(Triple)</b> <b>5.4 - Preventing Bacterial Growth (Triple)</b> 5.5 - Preventing Infections 5.6 - Viral Diseases 5.7 - Bacterial Diseases 5.8 - Diseases Caused by Fungi and Protists 5.9 - Human Defence Responses 5.10 - Plant Diseases <b>(Triple)</b> - Detecting Disease <b>(HT Triple)</b> 5.11 - Plant Defence Responses <b>(Triple)</b>	<b>Lesson 5.4 Triple RP</b> - Investigating the effect of antiseptics or antibiotics on bacterial growth.	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/z9kww6f">https://www.bbc.co.uk/bitesize/topics/z9kww6f</a></li> <li>- Oak National: <a href="https://classroom.thenational.academy/units/infection-and-response-ht-09de">https://classroom.thenational.academy/units/infection-and-response-ht-09de</a></li> </ul>
<b>Preventing and treating Disease (B6)</b>	6.1 Human defence systems 6.2 Vaccination 6.3 Antibiotics and painkillers 6.4 Discovery and development of drugs 6.5 Producing monoclonal antibodies <b>(Triple)</b> 6.6 Uses of monoclonal antibodies <b>(Triple)</b> 6.7 Detection and identification of plant diseases <b>(Triple)</b> 6.8 Plant defence responses <b>(Triple)</b>		<ul style="list-style-type: none"> <li>- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g">https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g</a></li> </ul>
<b>Non Communicable diseases (B7)</b>	7.1 Non- Communicable diseases 7.2 Cancer 7.3 Smoking and the risk of disease 7.4 Diet, exercise and disease 7.5 Alcohol and other carcinogens		<ul style="list-style-type: none"> <li>- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g">https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g</a></li> </ul>

<b>Photosynthesis (B8)</b>	8.1 Photosynthetic reaction 8.2 Rate of photosynthesis 8.3 Uses of glucose from photosynthesis	<b>Required practical activity 6:</b> investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.	- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g">https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g</a>
<b>Respiration (B9)</b>	9.1 Aerobic and anaerobic respiration 9.2 Response to exercise 9.3 Metabolism 9.4		- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g">https://www.youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g</a>

<b>Topic</b>	<b>Topic Content (FT, HT and Triple)</b>	<b>Required Practical's</b>	<b>- Helpful Revision Links</b>
<b>Atomic Structure (C1)</b>	1.1 - Atoms 1.2 - Chemical Equations 1.3 - Separating Mixtures 1.4 - Fractional Distillation and Paper 1.5 - Chromatography 1.6 - History of the Atom 1.7 - Structure of the Atom 1.8 - Ions, Atoms and Isotopes 1.9 - Electronic Structures	No Required Practical's	- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a>  - Oak National: <a href="https://classroom.thenational.academy/units/atomic-structure-and-periodic-table-ht-739c">https://classroom.thenational.academy/units/atomic-structure-and-periodic-table-ht-739c</a>
<b>The Periodic Table (C2)</b>	2.1 - Development of the Periodic Table 2.2 - Electronic Structures and the Periodic Table 2.3 - Group 1 – The Alkali Metals 2.4 - Group 7 – The Halogens 2.5 - Explaining Trends 2.6 - The Transition Elements (Triple)	No Required Practical's	- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a>  - Oak National: <a href="https://classroom.thenational.academy/units/atomic-structure-and-periodic-table-ht-739c">https://classroom.thenational.academy/units/atomic-structure-and-periodic-table-ht-739c</a>
<b>Structure and Bonding (C3)</b>	3.1 - States of Matter - Limitations of the Particle Model (HT) 3.2 - Atoms into Ions 3.3 - Ionic Bonding 3.4 - Giant Ionic Structures 3.5 - Covalent Bonding 3.6 - Structure of Simple Molecules 3.7 - Giant Covalent Structures 3.8 - Fullerenes and Graphene 3.9 - Bonding in Metals 3.10 - Giant Metallic Structures 3.11 - Nanoparticles (Triple) 3.12 - Application of Nanoparticles (Triple)	No Required Practical's	- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a>  - Oak National: <a href="https://classroom.thenational.academy/units/bonding-structure-and-the-properties-of-matter-ht-250d">https://classroom.thenational.academy/units/bonding-structure-and-the-properties-of-matter-ht-250d</a>

<b>Chemical Calculations (C4)</b>	4.1 - Conservation of mass and balanced chemical equations 4.2 - Relative formula mass 4.3 - Mass changes when a reactant or product is a gas 4.4 - Chemical measurements 4.5 - Moles (HT only) 4.6 - Amounts of substances in equations (HT only) 4.7 Using moles to balance equations (HT only) 4.8 Limiting reactants (HT only) 4.9 Concentration of solutions 4.10 Yield and atom economy of chemical reactions (chemistry only) 4.11 Using concentrations of solutions in mol/dm <sup>3</sup> (chemistry only) 4.12 Use of amount of substance in relation to volumes of gases (chemistry only)		<ul style="list-style-type: none"> <li>- <a href="https://www.youtube.com/playlist?list=PLidqqIGKox7WeOKVGHxcd69kKqtwrKI8W">https://www.youtube.com/playlist?list=PLidqqIGKox7WeOKVGHxcd69kKqtwrKI8W</a></li> </ul>
<b>Chemical Changes (C5)</b>	5.1 - The Reactivity Series 5.2 - Displacement Reactions - Oxidation/Reduction and Ionic Equations (HT) 5.3 - Extracting Metals 5.4 - Salts from Metals - Explaining Reaction between metal and acid (HT) <b>5.5 - Salts from Insoluble Bases</b> <b>5.6 - Making More Salts</b> 5.7 - Neutralisation and the pH Scale 5.8 - Strong and Weak Acids (Triple)	<b>Lesson 5.5 or 5.6 RP</b> – Prepare a salt from an insoluble metal carbonate or oxide.	<ul style="list-style-type: none"> <li>- BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/zt6ppbk">https://www.bbc.co.uk/bitesize/topics/zt6ppbk</a></li> <li>- Oak National: <a href="https://classroom.thenational.academy/units/chemical-changes-ht-3891">https://classroom.thenational.academy/units/chemical-changes-ht-3891</a></li> </ul>

<b>Electrolysis (C6)</b>	6.1 - Introduction to Electrolysis 6.2 - Changes at the electrodes 6.3 - The Extraction of Aluminium 6.4 - Electrolysis of Aqueous Solutions	<b>Required practical 3:</b> investigate what happens when aqueous solutions are electrolysed using inert electrodes.	RP 3: <a href="https://youtu.be/ukbtTTG1Kew?list=PL9IouNCPbCxX8QpFbntg415HVIVVDHjx">https://youtu.be/ukbtTTG1Kew?list=PL9IouNCPbCxX8QpFbntg415HVIVVDHjx</a>  Electrolysis: <a href="https://www.youtube.com/watch?v=AhTRiL6xjBA">https://www.youtube.com/watch?v=AhTRiL6xjBA</a> -
<b>Energy Changes (C7)</b>	7.1 - Exothermic and Endothermic Reactions 7.2 - Using Energy Transfers from Reactions 7.3 - Reaction Profiles <b>7.4 - Bond Energy Calculations (Higher only)</b> <b>7.5 - Chemical Cells and Batteries (Triple)</b>	<b>Required practical 4:</b> investigate the variables that affect temperature changes in reacting Solutions.	Oak National: (Energy Changes) <a href="https://teachers.thenational.academy/units/energy-changes-b607">https://teachers.thenational.academy/units/energy-changes-b607</a>  BBC Bitesize: <a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a> RP 4: <a href="https://youtu.be/rdI7xEq4Ew8?list=PL9IouNCPbCxX8QpFbntg415HVIVVDHjx">https://youtu.be/rdI7xEq4Ew8?list=PL9IouNCPbCxX8QpFbntg415HVIVVDHjx</a>