# Year 10 PPE Revision Lists and Links

| Subject Content (Link to BBC Bitesize) | | | Area for revision/retrieval (Link to Free Science Lessons Video) |
|---|---|---|---|
| B1 Cell Biology | Cell Structure | Eukaryotes and prokaryote | 4.1.1.1 Eukaryotes and prokaryotes |
| | | Animal and plant cells | 4.1.1.2 Animal cells<br>4.1.1.2 Plant cells |
| | | Cell specialisation and differentiation | 4.1.1.3 Animal cell specialisation / 4.1.1.4 differentiation<br><br>4.1.1.3 Plant cell specialisation / 4.1.1.4 differentiation |
| | | Cell differentiation | |
| | | Microscopy | 4.1.1.5 Microscopy |
| | | ***Required practical:*** *use a light microscope to observe, draw and label a selection of plant and animal cells.* | Required practical activity 1: use a light microscope to observe, draw and label a selection of plant |
| | Cell Division | Mitosis and the cell cycle | 4.1.2.2 Mitosis and the cell cycle |
| | | Stem cells | 4.1.2.3 Stem cells |
| | Transport Systems | Diffusion | 4.1.3.1 Diffusion<br><br>4.1.3.1 Compare surface area to volume ratios |
| | | Osmosis | 4.1.3.2 Osmosis |
| | | ***Required practical:*** *investigate the effect of sugar solutions on the mass of plant tissue* | Required practical activity 2: investigate the effect of a range of concentrations of salt or sugar |
| | | Active transport | 4.1.3.3 Active transport |

Sample Exam Questions - Cell Biology

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|---|---|---|---|---|
| C1 Atomic Structure and Periodic Table | **Atoms, Elements and Compounds** | 4.1.1.1 Atoms, elements and compounds<br><br>Interpreting Chemical Formula | **The Periodic Table** | 4.1.2.1 The periodic table<br><br>4.1.2.2 Development of the periodic table<br><br>4.1.2.3 Metals and non-metals |
| | **Mixtures** | 4.1.1.2 Mixtures<br><br>Filtration and Crystallisation<br><br>Distillation<br><br>Fractional Distillation<br><br>Chromatography | **Groups of the Periodic Table** | 4.1.2.4 Group 0<br><br>4.1.2.5 Group 1<br>Group 1 (Part 2)<br><br>4.1.2.6 Group 7<br>Group 7 (Part 2) |
| | **Atomic Structure** | 4.1.1.3 The development of the model of the atom<br>Alpha Scattering Experiment<br>Nuclear Model<br><br>4.1.1.5 Size and mass of atoms<br><br>4.1.1.4 Relative electrical charges of subatomic particles<br><br>4.1.1.6 Relative atomic mass<br><br>4.1.1.7 Electronic structure | Sample Exam Questions – Atomic Structure and the Periodic Table | |

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|---|---|---|---|---|
| P1 Energy | **Changes in Energy Stores** | Kinetic Energy | **Energy and Heating** | Specific Heat Capacity |
| | | Elastic Potential Energy | | Cooling of buildings |
| | | Gravitational Potential Energy | | Required Practical – Specific Heat Capacity |
| | | Energy Transfers e.g., Pendulum | | |
| | | Energy Transfer e.g., Bung Jumper | | |
| | **Work, Power and Efficiency** | Work Done | **Energy Resources and Demands** | Energy from Fossil Fuels |
| | | Power | | Nuclear Power |
| | | Efficiency | | UK Energy Mix |
| | | | | Renewable Energy Resources |
| | Sample Exam Questions – Energy | | | |

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|---|---|---|---|
| B2 Organisation | Animal tissues, organs, and organ systems | The human digestive system | 4.2.2.1 The human digestive system<br><br>4.2.2.1 Digestive Enzymes<br><br>4.2.2.1 Small Intestines<br><br>4.2.2.1 Effect of Temperature and pH on Enzymes |
| | | ***Required practical*** *use reagents to test for a range of carbohydrates, lipids, and proteins.* | Required practical activity 3: use qualitative reagents to test for a range of carbohydrates, lipids and |
| | | ***Required practical*** *investigate the effect of pH on the rate of reaction of amylase enzyme.* | Required practical activity 4: investigate the effect of pH on the rate of reaction of amylase enzyme. |
| | | The heart and blood vessels | 4.2.2.2 The Heart and Circulation<br><br>4.2.2.2 Arteries, Veins and Capillaries |
| | | Blood | 4.2.2.3 Blood |
| | | Coronary heart | 4.2.2.4 Coronary heart disease |
| | | | 4.2.2.5 Communicable and Non-Communicable Diseases |
| | | The effect of lifestyle on some non-communicable diseases | 4.2.2.6 Lifestyle and Disease<br><br>4.2.2.6 Correlating Risk Factors |
| | | Cancer | 4.2.2.7 Cancer |
| | Plant tissues, organs and systems | Plant tissues | 4.2.3.1 Plant tissues |
| | | Plant organ system | 4.2.3.2 Plant organ system |
| Sample Exam Questions - Organisation | | | |

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| C2 Structure and Bonding | **Ionic Bonding and Compounds** | Ionic Bonding 1 | **Giant Covalent Compounds – Carbon Allotropes** | Dimond and Silicon Dioxide |
| | | Ionic Bonding 2 | | Graphite |
| | | Properties of Ionic Compounds | | Graphene and Fullerenes |
| | | | | Polymers |
| | **Covalent Bonding and Simple Covalent Compounds** | Covalent Bonding 1 | **Metallic Bonding** | Metals and Alloys |
| | | Covalent Bonding 2 | | |
| | | Covalent Bonding 3 | | Limitations of Bonding Diagrams |
| | | Properties of Covalent Molecules | | |
| | Samples Exam Questions – Structure and Bonding | | | |

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|---|---|---|---|---|
| P2 Electricity | Electric circuits | Current in series circuits<br>Current in parallel circuits<br>Potential difference in series circuits<br>Potential difference in parallel circuits<br>Potential difference from batteries<br>Charge in circuits<br>Calculating energy transfer by components<br>Resistance<br>Resistors<br>Resistance of a filament lamp<br>Diodes and LEDs<br>Resistors in series and parallel<br>Light dependent resistors<br>Thermistors<br>Energy transfer by appliances<br>Power of components | P2 Electricity Playlist | |
| | Mains electricity | DC and AC supply<br>Mains electricity<br>The national grid<br>TRIPLE: Static electricity<br>TRIPLE: Electric fields | Sample Exam Questions - Electricity | |

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| B3 Infection and Response | Pathogens and disease | Communicable disease | 4.3.1.1 Communicable diseases and non-communicable diseases<br>4.3.1.1 Pathogens |
| | | Viral diseases | 4.3.1.2 Measles and HIV<br>4.3.1.2-3 Infectious diseases in plants |
| | | Bacterial diseases | 4.3.1.3 Salmonella and Gonorrhoea |
| | | Protist diseases | 4.3.1.5 Malaria |
| | Defending against disease | Human defence systems | 4.3.1.6 Non-specific defence systems<br>4.3.1.6 The immune system |
| | | Vaccination | 4.3.1.7 Vaccines |
| | | Antibiotics and painkillers | 4.3.1.8 Antibiotics |
| | | Discovery and development of drugs | 4.3.1.8 Testing medicines |

Sample Exam Questions – Infectious Diseases

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|---|---|---|---|---|
| C3 Quantitative Chemistry | Calculations in Chemistry (Core) | Conservation of Mass | Calculations in Chemistry (HIGHER ONLY) | Calculating Moles |
| | | Charges on Ions | | Calculating Moles of a Compound |
| | | Formula of Ionic Compounds | | Calculating Mass using Moles |
| | | Balancing Chemical Equations | | Using Moles to Balance Equations |
| | | Relative Formula Mass | | Avogadro's Constant (Calculating the number of particles of a substance) |
| | | Calculating Percentage by Mass | | Reacting Masses |
| | | Calculating Concentration | | Limiting Reactants |
| | Sample Exam Questions – Quantitative Chemistry | | | |

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<tr><th colspan="3">Subject Content (Link to BBC Bitesize)</th><th>Area for revision/retrieval (Link to Free Science Lessons Video)</th><th colspan="2">Subject Content (Link to BBC Bitesize)</th></tr>
<tr><td rowspan="2">P3 Particle Model of Matter</td><td>Density of materials</td><td>Density</td><td rowspan="2">Particle model of matter playlist</td><td>Particles in gases</td><td>Particle motion in gases<br>TRIPLE: Pressure in gases<br>TRIPLE: Work done on gases</td></tr>
<tr><td>Temperature change and energy</td><td>Internal energy<br>Specific heat capacity<br>Heating and cooling graphs<br>Specific latent heat</td><td colspan="2">Sample Exam Questions – Particle Model of Matter</td></tr>
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|---|---|---|---|---|
| B4 Bioenergetics | Photosynthesis | Photosynthesis<br>Uses of glucose<br>Limiting factors | Bioenergetics playlist | Sample Exam Questions – Bioenergetics |
| | Respiration | Respiration<br>Exercise<br>Metabolism | | |

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| C4 Chemical Changes | Reactions of metals | Reactions of metals with oxygen<br>The reactivity series<br>Extraction of metals<br>Higher: Oxidation and reduction (electrons) | Chemical Changes Playlist | Electrolysis | Electrolysis<br>Aluminium oxide<br>Aqueous solutions |
| | Acids, alkalis and salts | Acids and alkalis<br>Acids reacting with metals<br>Acid reactions<br>Higher: Strong and weak acids<br>Triple: Titration | | Sample Exam Questions – Chemical Changes | |

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<tr><td rowspan="3">P4 Atomic Structure and Radiation</td><td>Models of the Atom</td><td>Atomic structure<br>Alpha-scattering and nuclear model</td><td rowspan="2">Atomic Structure playlist</td><td>Radioactive decay</td><td>Radioactivity<br>Alpha, beta, gamma radiation<br>Nuclear equations<br>Half-life</td></tr>
<tr><td>Atoms, isotopes and ions</td><td>Atomic and mass number</td><td>Uses and dangers of radiation</td><td>Irradiation and contamination<br>TRIPLE: background radiation<br>TRIPLE: nuclear medicine<br>TRIPLE: Fission and fusion</td></tr>
<tr><td colspan="5">Sample Exam Questions – Atomic Structure and Radiation</td></tr>
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|---|---|---|---|---|
| C5 Energy Changes | **Endothermic and Exothermic Reactions** | Exothermic and Endothermic Reactions | | |
| | | Calculating Bond Energies | | |
| | | Calculating Bond Energies 2 | | |
| | | Required Practical 4 – Energy Changes | | |
| | Sample Exam Questions – Energy Changes | | | |