Year 10

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| **Term** | **Topic** | **Topic Content (FT, HT and Triple)** | **Required Practical’s** | **Helpful Revision Links** |
| **Autumn Term 1** | **Preventing and treating disease (B6)** | * Vaccination * Antibiotics and painkillers * Drug discovery * Drug Development * Making monoclonal antibodies |  | * Oak national * <https://classroom.thenational.academy/units/organisation-2345> * BBC bitesize * <https://www.bbc.co.uk/bitesize/guides/z8fkmsg/revision/3> |
| **Non communicable diseases (B7)** | * Non communicable diseases * Cancer * Smoking and the risk of disease * Diet, exercise and disease * alcohol and other carcinogens |  | * BBC Bitesize * <https://www.bbc.co.uk/bitesize/guides/z372ng8/revision/1> * Oak National * <https://classroom.thenational.academy/units/organisation-2345> |
| **Chemical calculations (C4)** | * Relative masses and moles * Equations and calculations * From masses to balanced equations * The yield of a chemical reaction * Atom economy * Expressing concentrations * Titrations * Titration calculations * Volumes of gases |  | * Oak national * <https://classroom.thenational.academy/units/quantitative-chemistry-4db7> * BBC Bitesize * <https://www.bbc.co.uk/bitesize/topics/z87mw6f> |
|  | **Electric Circuits (P4)** | 4.2 - Current and Charge  4.3 - Potential difference and Resistance  4.4 - Component Characteristics  4.5 - Series Circuits  4.6 - Parallel Circuits | **Required practical activity 3:** Use circuit diagrams to set up and check appropriate circuits.  **Required practical activity 4:** use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements | Electricity  <https://www.youtube.com/playlist?list=PL9IouNCPbCxXc2NQoIZN7-3jIKN7vW-Sq>  Oak National Academy:  <https://teachers.thenational.academy/units/electricity-ht-761e>  BBC Bitesize:   * <https://www.bbc.co.uk/bitesize/topics/zcg44qt> |
| **Autumn 2** | **Electricity in the home (P5)** | 5.1 - Alternating Current  5.2 - Cables and Plugs  5.3 - Electrical Power and Potential Difference  5.4 Electrical Currents and Energy Transfer  5.5 - Appliances and Efficiency |  | Electricity  <https://www.youtube.com/playlist?list=PL9IouNCPbCxXc2NQoIZN7-3jIKN7vW-Sq>  Oak National Academy:  <https://teachers.thenational.academy/units/electricity-ht-761e>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zcg44qt> |
| **PPE** |  |  |  |
|  | **Electrolysis (C6)** | 6.1 - Introduction to Electrolysis  6.2 - Changes at the electrodes  6.3 - The Extraction of Aluminium  6.4 - Electrolysis of Aqueous Solutions | **Required practical 3**: investigate what happens when aqueous solutions are electrolysed using  inert electrodes. | RP 3:  <https://youtu.be/ukbtTTG1Kew?list=PL9IouNCPbCxX8QpFbntg415HVIvVDHjx_>  Electrolysis:  <https://www.youtube.com/watch?v=AhTRiL6xjBA> |
| **The Nervous System (B10)** | 10.1 - The Principles of Homeostasis  10.2 - The Structure and Function of the Human Nervous System  10.3 - Reflex Actions  **10.4 - The Brain (Triple)**  **10.5 - The Eye (Triple)**  10.6 - Common Problems of the eye | **Required practical activity 7:** plan and carry out an investigation into the effect of a factor on human  reaction time. | BBC Bitesize: (The Nervous System)  <https://www.bbc.co.uk/bitesize/topics/zyybb82>  Oak National:  <https://teachers.thenational.academy/units/homeostasis-and-response-1a15> |
| **Spring 1** | **Hormonal coordination (B11)** | 11.1 - Principles of Hormonal Control  11.2 - The Control of Blood Glucose Levels  11.3 - Treating Diabetes  11.4 - The Role of Negative Feedback  11.5 - Human Reproduction  11.6 - Hormones and the Menstrual Cycle  11.7 - The Artificial Control of Fertility  **11.8 - Infertility Treatments (Higher Only)**  **11.9 - Plant Hormones and Responses (Triple)**  **11.10 - Using Plant Hormones (Higher Only)** |  | Homeostasis and the Nervous System:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxW3lptxS1yHCP2I9YDfM2co>  RP 7:  <https://www.youtube.com/watch?v=Fm02i4vEi5Q&list=PL9IouNCPbCxW-1dmPqGTS-CLZi-h66Fiz&index=2&t=0s>  Hormonal Coordination  <https://teachers.thenational.academy/units/homeostasis-and-response-1a15> |
| **Energy Changes (C7)** | 7.1 - Exothermic and Endothermic Reactions  7.2 - Using Energy Transfers from Reactions  7.3 - Reaction Profiles  **7.4 - Bond Energy Calculations (Higher only)**  **7.5 - Chemical Cells and Batteries (Triple)** | **Required practical 4**: investigate the variables that affect temperature changes in reacting  Solutions. | Oak National: (Energy Changes)  <https://teachers.thenational.academy/units/energy-changes-b607>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/z27xxfr>  RP 4:  <https://youtu.be/rdI7xEq4Ew8?list=PL9IouNCPbCxX8QpFbntg415HVIvVDHjx_> |
| **Spring 2** | **Photosynthesis (B8)** | Photosynthesis  Limiting factors  Photosynthesis core practical  Uses of Glucose | **Photosynthesis core practical**  [**https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/5**](https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/5) | Oak national  <https://classroom.thenational.academy/units/bioenergetics-244e>  BBC Bitesize  <https://www.bbc.co.uk/bitesize/guides/zpwmxnb/revision/1> |
| **Molecules and Matter (P6)** | .1 - Density  6.2 - States of Matter  6.3 - Changes of State  6.4 - Internal Energy  6.5 - Specific Latent Heat  **6.6 - Gas Pressure and Temperature (Triple)**  **6.7 - Gas Pressure and Volume (Triple)**  6.8 - Specific Heat Capacity  6.9 - Brownian Motion | **Required practical activity 5:** use appropriate apparatus to make and record the measurements  needed to determine the densities of regular and irregular solid objects and liquids | BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/z27xxfr>  RP 4:  <https://youtu.be/rdI7xEq4Ew8?list=PL9IouNCPbCxX8QpFbntg415HVIvVDHjx_>  Particle Model of Matter:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxWdHszkb6n6503ommOpg_t7>  Bitesize:  <https://www.bbc.co.uk/bitesize/topics/z3ybb82>  RP 5:  <https://youtu.be/YsZeZotYVag?list=PL9IouNCPbCxUM3haKHDGlF4AY_UimtCyN> |
| **Summer 1** | **Radioactivity (P7)** | 7.1 - Atoms and Radiation  7.2 - The discovery of the nucleus  7.3 - Changes in the Nucleus  7.4 - More about Alpha, Beta and Gamma  7.5 - Activity and Half-life  7.6 - Nuclear Radiation in Medicine  **7.7 - Nuclear Fission (Triple)**  **7.8 - Nuclear Fusion (Triple)**  7.9 - Nuclear Issues |  | Atomic Structure and Radioactivity:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxXTU7zSX4IvJDLrtCEmqEMU>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zshssrd> |
| **Crude oils and Fuels (C9)** | 9.1 - Hydrocarbons  9.2 - Fractional Distillation of Oil  9.3 - Burning Hydrocarbon Fuels  9.4 - Cracking Hydrocarbons |  | Organic Chemistry:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxVDcgWiviYYWj0xKMPXTd8s>  Oak National:  <https://teachers.thenational.academy/units/organic-chemistry-7c58>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/z9488mn> |
| **Reproduction (B13)** | 13.1 - Types of reproduction  13.2 - Cell Division in Sexual Reproduction  **13.3 - The Best of Both Worlds (Triple Only)**  13.4 - DNA and the Genome  **13.5 - DNA Structure (Triple)and Protein Synthesis (Higher only)**  13.6 - Gene Expression and Mutations  13.7 - Inheritance in Action  13.8 - More about Genetics  13.9 - Inherited Disorders  13.10 - Screening for Genetic Disorders |  | Inheritance:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxWt28Bifo2jK9xn-ym956sf>  Oak National:  <https://teachers.thenational.academy/units/inheritance-variation-and-evolution-0224>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zppffcw> |
|  | **Variation and Evolution (B14)** | 14.2 - Variation  14.3 - Selective Breeding  14.4 - Genetic Engineering   * **(HT only)** Students should be able to describe the main steps in the process of genetic engineering.   **14.5 - Cloning (Triple)**  14.6 - Adult Cell Cloning  14.7 - Ethics of Genetic Technology |  | Oak National:  <https://teachers.thenational.academy/units/inheritance-variation-and-evolution-0224>  Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zppffcw>  Inheritance  <https://www.youtube.com/playlist?list=PL9IouNCPbCxWt28Bifo2jK9xn-ym956sf> |
| **Genetics and Evolution(B15)** | 15.1 - The History of Genetics  **15.2 - Theories of Evolution (Triple)**  15.3 - Accepting Darwin’s Ideas  15.4 - Evolution and Speciation (Triple)  15.5 - Evidence for Evolution  15.6 - Fossils and Extinction  15.7 - More about Extinction  15.8 - Antibiotic Resistant Bacteria  15.9 - Classification  15.10 - New Systems of Classification |  | Oak National:  <https://teachers.thenational.academy/units/inheritance-variation-and-evolution-0224>  Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zppffcw>  Variation and Evolution:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxXqJycGYKJhk2PMKICNBBZ8> |
| **Summer 2** | **PPE** |  |  |  |
| **Chemical Analysis (C12)** | 12.1 - Pure Substances and Mixtures  12.2 - Analysing Chromatograms  12.3 - Testing for Gases  12.4 - Tests for Positive ions  12.5 - Tests for Negative ions  12.6 - Instrumental Analysis (Triple Only) |  | Chemical Analysis:  <https://www.youtube.com/playlist?list=PL9IouNCPbCxXlBeaxebOG5yf_pGrxzOyR>  Oak National:  <https://teachers.thenational.academy/units/chemical-analysis-cf8d>  BBC Bitesize:  <https://www.bbc.co.uk/bitesize/topics/zgbccj6> |
|  | **Our Atmosphere (C13)** | 13.1 - History of our Atmosphere  13.2 - Our Evolving Atmosphere  13.3 - Greenhouse Gases  13.4 - Global Climate Change  13.5 - Atmospheric Pollutants | No Required Practical’s | * BBC Bitesize: <https://www.bbc.co.uk/bitesize/topics/zysvv9q> * Oak National: <https://classroom.thenational.academy/units/chemistry-of-the-atmosphere-ht-ec1f> |
|  | **The Earth’s Resources (C14)** | 14.1 - Finite and Renewable Resources  **14.2 - Water Safe to Drink**  14.3 - Treating Waste Water  14.4 - Extracting Metals from Ores **(HT)**  14.5 - Life Cycle Assessments  14.6 - Reduce, Reuse and Recycle | **Lesson 14.2 RP -** Analysis and Purification of Water Samples | * BBC Bitesize: <https://www.bbc.co.uk/bitesize/topics/zptnng8> * Oak National: <https://classroom.thenational.academy/units/using-resources-ht-9d74> |