GCSE Additional Science Resource Pack

Below is a collection of curriculum specific broadcast material, sorted by exam board and then study theme. The document will be updated as new content is added and old content is removed.

OCR

Biology A - The processes of life - How do chemical reactions take place in living things? Reactions in cells, role of enzymes; how do plants make food? Photosynthesis, cell structures for photosynthesis, limiting factors; how do living organisms obtain energy? Aerobic respiration, anaerobic respiration, cell structures for respiration.

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- https://www.bbc.co.uk/programmes/b011vf07/clips - BBC Four - Botany: A Blooming History – Photosynthesis – Clips
- https://www.bbc.co.uk/programmes/b0435jyv - BBC Radio 4 – In Our Time – Photosynthesis
- https://www.bbc.co.uk/programmes/p02d90c1 - BBC Four - The Secrets of Quantum Physics – The Mystery of Photosynthesis
- https://www.bbc.co.uk/programmes/p00vc0gv - BBC World Service – Discovery – Artificial Photosynthesis
- https://www.bbc.co.uk/programmes/p03kc6wj - BBC World Service – Growing Science – Light
- https://www.bbc.co.uk/programmes/b08rp369 - BBC Radio 4 – In Our Time - Enzymes

Biology A - Growth and Development - How do organism develop? Embryo development, cell specialisation in plants and animals, plant growth responses; How does an organism produce new cells? Main processes of the cell cycle, comparisons of mitosis and meiosis; how do genes control growth and development within the cell? Structure of genetic code and mechanism for protein synthesis.

- https://www.bbc.co.uk/programmes/p03vkvfn - BBC World Service – Science in Action – Tracking Individual Cells from Early Embryo to Adult
- https://www.bbc.co.uk/programmes/b01mk8vh - BBC Radio 4 – In Our Time – The Cell
- https://www.bbc.co.uk/programmes/p0376qrt - BBC World Service – Science View – DNA and Genes
- https://www.bbc.co.uk/programmes/p035xb68 - BBC World Service – Essential Guide – Health: Fixing Genes
- https://www.bbc.co.uk/programmes/p0359f9h - BBC World Service – Gene Story – Genes and Development

Biology A - Brain and Mind - how do animals respond to changes in their environment? Co-ordination of responses to stimuli via the central nervous system; how is information passed through the nervous system? Structure of neurons, transmission of electrical impulses, including synapses, effects of ecstasy on synapse action; What can we learn through conditioning? Simple reflex actions for survival, mechanism of a reflex arc, conditioned reflexes; how do human develop more complex behaviours? Formation of neuron pathways and learning through repetition, mapping brain function, models for understanding memory.

- https://www.bbc.co.uk/programmes/b00y9283 - BBC Radio 4 – In Our Time – The Nervous System
- https://www.bbc.co.uk/programmes/p04jh78t - BBC World Service – Health Check – How Memories are Made and Lost
- https://www.bbc.co.uk/programmes/p005459f - BBC Radio 4 – In Our Time – Neuroscience in the 20th Century
- https://www.bbc.co.uk/programmes/p00d7lkk - BBC Three - How Drugs Work – Swallowing Ecstasy – Clips
- https://www.bbc.co.uk/programmes/b017528x - BBC Radio 4 Extra – A History of the Brain – All or Nothing
- https://www.bbc.co.uk/programmes/b081lkn8 - BBC Radio 4 – All In The Mind – How Are Memories Formed?
- https://www.bbc.co.uk/programmes/p04jh78t - BBC World Service – Health Check – How Memories are Made and Lost

Chemistry A - Chemical Patterns - what are the patterns in the properties of the elements? The history of the development of the Periodic Table, classifying elements by their position in the Periodic Table, patterns in Group 1 and patterns in Group 7, using symbols and equations to represent chemical reactions; how do chemists explain the patterns in the properties of elements? Flame tests and spectra and their use for identifying elements ad studying atomic structure; classifying elements by their atomic structure; linking atomic structure to chemical properties; How do chemists explain the properties of compounds of Group 1 and Group 7 elements? Ions, and linking ion formation to atomic structure, properties of ionic compounds of alkali metals and halogens.

- https://www.bbc.co.uk/programmes/b08rv9r6 - BBC Four - Secrets of the Super Elements
- https://www.bbc.co.uk/programmes/w3cswqkv - BBC World Service – Discovery – Phosphorus – In Their Element
- https://www.bbc.co.uk/programmes/p03wnk4l - BBC World Service – Elements
- https://www.bbc.co.uk/programmes/p03jrxfk - BBC World Service – Discovery – Superheavy Elements

Chemistry A - what types of chemicals make up the atmosphere? The structure and properties of chemicals found in the atmosphere; what reactions happen in the hydrosphere? The structure and properties of chemicals found in the hydrosphere and detecting and identifying ions; what type of chemicals make up the Earth's lithosphere? Relating the properties of chemicals to their giant structure using examples found in the Earth's lithosphere; how can we extract useful metals from minerals? Relating the structure and properties of metals to suitable methods of extraction; using iconic theory to explain electrolysis; discussing issues relating to metal extraction and recycling.

- https://www.bbc.co.uk/programmes/p03ghnsp - BBC World Service – Elementary – Oxygen
- https://www.bbc.co.uk/programmes/p0362l7p - BBC World Service – Elements - Oxygen

Chemical A - Chemical Synthesis - chemicals and why we need them; planning, carrying out and controlling a chemical synthesis.

Physics A - Explaining Motion - How can we describe motion? Calculation of speed, velocity, acceleration, graphical representations of speed and velocity; what are forces? The identification of forces and 'partner' forces; what is the connection between forces and motion? Resultant forces and

change in momentum, relating momentum to road safety measures; how can we describe motion in terms of energy changes? Work done, changes in energy, GPE and KE, losses due to air resistance and friction.

Physics A - Electric Circuits - Electric current - a flow of what? Electric current as a flow of charge, how the charge moves; what determines the size of the current in an electric circuit and the energy it transfers? Voltage, current and resistance, series and parallel circuits; how do parallel and series circuits work? Voltage and how it behaves in a series circuit, current and how it behaves in a parallel circuit; how is mains electricity produced? How are voltages and currents induced? How generators work, transformers, alternating current and direct current; how do electric motors work? How motors work and some uses.

Physics A - Radioactive Materials - why are some materials radioactive? Structure of the atom, nuclear fusion, alpha, beta and gamma radiation, half-life; how can radioactive materials be used and handled safely? Background radiation, uses of radiation, nuclear fission and nuclear power stations.

- https://www.bbc.co.uk/programmes/b05n1dmt - BBC Radio 4 – In Our Time – The Curies
- https://www.bbc.co.uk/programmes/p033jybn - BBC World Service – Bluffer's Guide to Science – Radiation
- https://www.bbc.co.uk/programmes/b00nqljy - BBC Radio 4 – In Our Time – Radiation
- https://www.bbc.co.uk/programmes/p02ft4qv - BBC World Service – Witness – Evidence of the Big Bang
- https://www.bbc.co.uk/programmes/p03cgl8h - BBC World Service – Experiments that Changed the World – Otto Hahn's Nuclear Power