Physics Learning Journey

BOHUNT FARNBOROUGH

Paper 1:
- Energy
- Electricity
- Particle model of matter
- Atomic structure

Paper 2:
- Forces
- Waves
- Magnetism & Electromagnetism
- Space Physics

Exam Preparation & Revision — AQA

Year 11

Space Physics
- Red shift
- Solar system
- Electromagnetic spectrum
- Stellar evolution

Waves
- Properties of waves
- Transformers
- Generator effect
- Sound waves
- Reflection & refraction

Magnetism
- Motor effect
- Magnetic fields

Year 10

Electricity
- Component characteristics
- Electricity in the home
- National grid
- Static electricity
- Current, potential difference & resistance
- Series & parallel circuits

Forces 2
- Force & elasticity
- Momentum
- Stopping distances
- Specific heat capacity

Particles 2
- Fission & Fusion
- Specific latent heat
- Internal energy

Radioactivity
- Radioactive decay
- Uses of radiation

Year 9

Forces 1
- Energy stores & transfers
- Scalars & Vectors
- Describing motion
- Resultant forces
- Pressure in fluids

Energy
- Thermal energy
- Changes of State
- States of Matter
- Types of forces
- Atomic structure

Particles 1
- Energy resources
- Density

Fundamental Skills
- Observed waves
- Sound waves
- Magnetism
- Light waves

Year 8

Electricity & Magnetism
- Pressure in fluids
- Forces in motion
- Energy stores & transfers
- Static electricity
- Current, potential difference & resistance

Forces & Space
- Space
- Types of forces
- Balanced forces
- Describing motion

Waves
- Light waves

Year 7

Energy
- Energy stores & transfers
- Thermal energy
- Energy resources

Biology Learning Journey

BOHUNT FARNBOROUGH

Paper 1
- Cells
- Organisation
- Bioenergetics
- Infection

Paper 2
- Inheritance
- Ecology
- Homeostasis

Year 11

Exam Technique
- Retrieval practice
- Seneca & Kerboodle
- Exam Technique
- Paper 2 mock
- Mind maps
- Flashcards
- Paper 1 mock

Exam Preparation & Revision

AQA

Homeostasis
- The menstrual cycle
- Kidney function and water balance
- The endocrine system
- Structure and function of the eye
- The nervous system

Ecology 2
- Human impact on ecosystems
- Trophic levels
- Food webs and energy transfer
- Decomposition
- Material cycling
- Ecosystems and Interdependence

Ecology 1

Evolution
- Cloning
- Classification
- Causes of extinctions
- Evolution and speciation
- Genetic engineering
- Adaptations and competition
- Biodiversity and maintaining biodiversity
- Sustainable food production
- Food security
- Biotechnology
- Brain
- Thermoregulation
- Maintaining blood glucose levels
- Diabetes
- Controlling fertility
- Plant hormones

Year 10

Disease & Infection
- Prokaryotic cells
- Microbiology
- Vaccinations
- Antibiotics and antibiotic resistance
- Communicable diseases
- Human defences against disease
- Drug discovery and development
- Monoclonal antibodies and their application
- Plant diseases and defences

Cells 2
- Microscopy
- Stem cells
- Active transport
- Osmosis
- The cell cycle and cell division

Inheritance
- Sexual and asexual reproduction
- Meiosis
- Genes and gene expression
- DNA structure
- Protein synthesis
- Genetic inheritance and genetic disorders

Organisation 2
- Risk factors to health
- cancer
- Lifestyle choices
- Cardiovascular disease and treatments
- Non communicable disease
- Effect of exercise
- Anaerobic respiration
- Factors affecting photosynthesis
- Translocation
- Photosynthesis
- Transpiration
- Plant tissue

Bioenergetics
- Metabolism and the liver
- Aerobic respiration
- Uses of glucose
- Factors affecting transpiration
- Gas exchange in leaves
- Structure of leaves
- Diffusion
- Factors affecting diffusion
- Transport in and out of cells
- Breathing and gas exchange

Organisation 1
- Blood
- The heart and circulatory system
- Digestive system
- Enzymes
- Food tests
- Tissues, organs and organ systems
- Exchange surfaces
- Specialised cells

Year 9

Ecosystems
- Human impact on the environment
- Food relationships and interdependence
- Competition and adaptation
- Data collection and interpretation
- Analysis and evaluation

Fundamental Skills

Cells 1
- Plant and animal cells
- Respiration
- Data interpretation
- Plants and photosynthesis

Inheritance & Evolution
- Evolution
- Data collection
- Data presentation
- Variation – continuous and discontinuous

Year 8

Photosynthesis and respiration
- Factors affecting gas exchange
- Gas exchange
- Healthy diet
- Biomechanics and muscular system
- Digestive system
- Structure and function of skeletal system

Inheritance
- Extinction
- DNA and genes
- Inheritance

Organisation
- Unicellular organisms
- Multicellular – cells, tissues, organs, organ systems, organisms
- Movement of substances in and out of cells
- Microscope skills
- Variables and the scientific method

Reproduction
- Menstrual cycle
- Gestation
- Seed dispersal
- Seed and fruit formation
- Pollination
- Male and female sexual organ systems
- Intercourse and fertilisation
- Maternal lifestyle
- Flower structure

Year 7

Cells
- Specialised cells
- Plant and animal cell structure and function

Safety in Science
- Investigation skills
- Health and safety
- Practical skills
- Identifying equipment

Chemistry Learning Journey

BOHUNT FARNBOROUGH

Paper 1:
- Atomic structure and Periodic Table
- Bonding, structure and properties of matter
- Quantitative chemistry
- Chemical Changes
- Energy Changes

Paper 2:
- Rate and extent of chemical change
- Organic chemistry
- Chemical analysis
- Chemistry of the atmosphere,
- Using resources

Year 11

Atmosphere
- Global climate change
- Greenhouse gases
- Gases in the Atmosphere

Exam Preparation & Revision
- Practical skills
- Past papers
- Exam technique
- AQA

Using resources
- The Earth's Early Atmosphere
- Ways of reducing resource use
- Sustainable development
- 4/6 mark answers
- recycling
- Life cycle assessment
- Waste and water treatment

Organic Chemistry
- DNA
- Polymerisation
- Amino acids
- Alcohols
- Hydrocarbons
- Alkenes
- Cracking
- Separating Crude Oil
- Crude Oil

Rates 2
- Making fertiliser
- Equilibrium
- Reversible reactions
- $A + B \rightleftharpoons C + D$

Year 10

Chemical Analysis
- Pure substances and formulations
- Flame tests
- Testing for ions
- Instrumental analysis
- Chemical measurements
- Fuel cells & batteries
- Gas Tests
- Strong and weak acids
- Alternative methods of extracting metals
- Electrolysis to extract metals
- Electrolysis of solutions
- Electrolysis of liquids

Quantitative Chemistry
- Amount of substances and masses of reactants
- Atom economy
- Relative formula
- Moles
- Concentration of solutions
- Percentage yield
- Neutralisation of acids and salt production

Chemical Changes
- The pH scale and neutralisation
- Oxidation and Reduction
- Reactions of acids with metals
- Extraction of metals
- The reactivity series

Atomic structure 2
- Transition metals
- Trends
- Group 1 & 7
- Developing periodic table

Atomic Structure
- Electronic structures
- Ions & isotopes
- Ionic bonding
- Ionic structures
- Nanoparticles
- Alloys

Bonding Structure & Properties
- Structure of atom
- Atoms
- Covalent
- Metallic bonding
- Covalent structures

Energy Changes
- Exothermic and endothermic
- Energy graphs
- Bond energy

Year 9

Rates 1
- Separating mixtures
- Factors affecting rates
- Collision theory
- Calculating rates of reactions
- Catalysts
- Recycling

Fundamental skills
- Global Warming
- Carbon Cycle
- Types of Rock
- Layers of the Earth

The Changing Earth
- Polymers
- Metal Ores & extraction
- Formation of Sedimentary Rocks
- Exothermic & Endothermic
- Reactions of acids
- Common Acids

Year 8

Atoms and Particles
- Atoms, elements and compounds
- Solute,solvent and solutions
- Separating mixtures
- States of matter
- Movement of particles and diffusion
- Changes of state

The Periodic Table
- Metals and Non-metals
- The Periodic Table
- Properties of metals
- Group 1, Group 7 on The Periodic Table.

Chemical Reactions
- Physical and chemical properties of a metal and non-metal
- Reactivity of metals with oxygen and water
- Chemical & Physical Changes
- Reactants & Products
- Signs of Chemical Changes
- Conservation of mass
- Chemical formulae & equations
- Acids & Alkalis
- Testing for common gases

Year 7

Safety in a Science lab
- Investigation skills
- Health and Safety
- Practical skills
- Identifying equipment