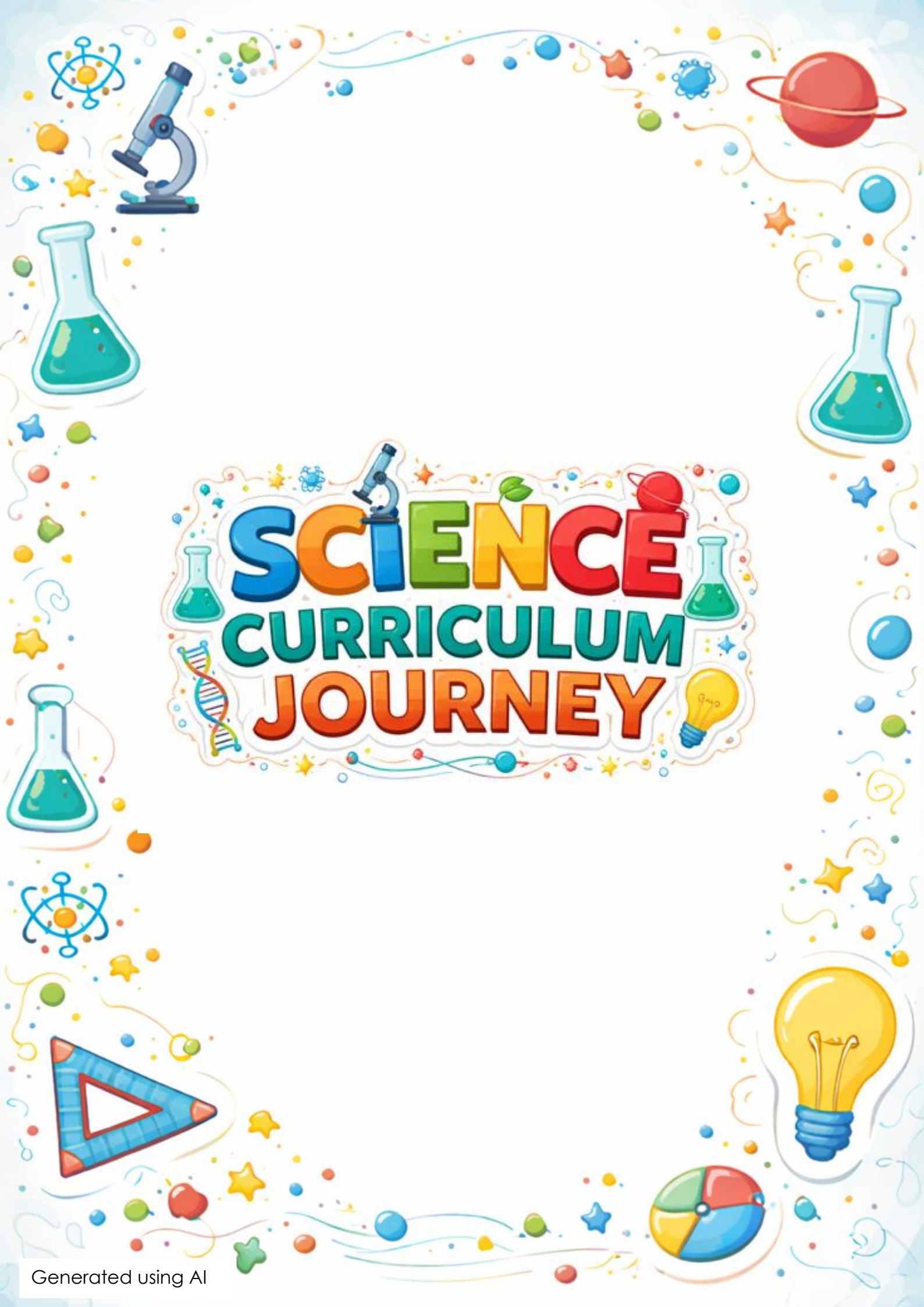


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# The 7 Areas of Development in the EYFS

## Early Years Foundation Stage

### Prime Areas

**Communication & Language**
Listening & Speaking

**Physical Development**
Moving & Handling

**PSED** – Physical, Social and Emotional Development

### Specific Areas

**Literacy**
Reading & Writing

**Mathematics**
Numbers & Patterns

**Understanding the World**
People & Nature

**Expressive Arts & Design**
Art & Imagination

## Key Early Learning Goals at Age 5

### Assessing School Readiness

**Communication**
Listening, Following Instructions, Expressing Ideas

**PSED**
Cooperation, Resilience, Managing Emotions

**Physical**
Coordination & Handling Tools
Handwriting


**Literacy**
Reading & Writing Sentences


**Math**
Counting & Simple Addition
1+2=3


**Understanding the World**
Similarities & Differences

**Expressive Arts**
Role Play & Creative Activities

## Characteristics of Effective Learning

**A Active Learning**
Motivation & Persistence

**B Playing & Exploring**
Curiosity & Experience

**C Creative and Critical Thinking**
Problem Solving & Ideas

# Science in Key Stage 1

## Exploring, Observing, and Learning

## Building a Foundation in Science

- Be curious & ask questions
- Make observations & simple tests
- Use scientific language & record data

## Plants

### Plants

Identify plants & their parts

### Materials

Name & compare animals

### Materials

Explore everyday materials

- Uses of materials

### Seasonal Changes

- Weather & the seasons
- Observe weather

- How day & night change

## Year 2 Topics

### Living Things & Habitats

Identify habitats

### Habitats

Food chains

### Science in Everyday Life

- Eating healthy foods
- Keeping our bodies healthy

### Science in Everyday Life

- Magnetism

- Heating & melting

## Investigate, Observe & Discover!


Ask Questions

Do Experiments

Collect Data

# Science in Lower Key Stage 2

## Years 3 & 4 Exploring and Investigating the World

## Working Scientifically

- Ask relevant questions & carry out fair tests
- Make careful observations & accurate measurements
- Collect, record & present data using tables, charts & diagrams
- Use results to draw conclusions, make predictions & suggest improvements
- Use scientific evidence & vocabulary to explain findings

## Year 3 Topics

### Plants Parts, what plants need, water transport, pollination & dispersal

Parts, what plants need, water transport, pollination & seed dispersal

### Rocks

- Different types,
- How fossils are formed
- Investigate soils

### Light

- Seeing how light is reflected
- Keeping safe in sun

## Year 4 Topics

### Living Things & Habitats

Nutrition, skeletons & muscles

### Animals (including Humans)

Healthy eating, digestion & teeth

### Light

- Seeing, reflections
- Exploring shadows
- Keeping safe in the sun

### Forces & Magnets

- Movement, contact & non-contact forces, magnetism

## Exploring the World Through Science


Across both years, pupils use practical investigations, observations & research to deepen their scientific understanding & build confidence in explaining **how the world works.**

# Science in Upper Key Stage 2

Years 5 & 6 Exploring Ideas & Developing Understanding

## Working Scientifically

- Plan investigations & control variables
- Take accurate measurements using scientific equipment
- Record & present data using tables, graphs, diagrams & keys
- Use results to make predictions & set up further tests
- Explain findings using scientific language & evidence

## Year 5 Topics

### Living Things & Habitats

Life cycles & reproduction

Human development & ageing

### Properties & Changes of Materials

Dissolving, separating mixtures, reversible & irreversible changes

### Earth & Space

The solar system, day & night

## Year 6 Topics

### Living Things & Habitats

Classification of plants, animals & micro-organisms

### Earth & Space

The solar system, day & night

### Forces

Gravity, air & water resistance, friction

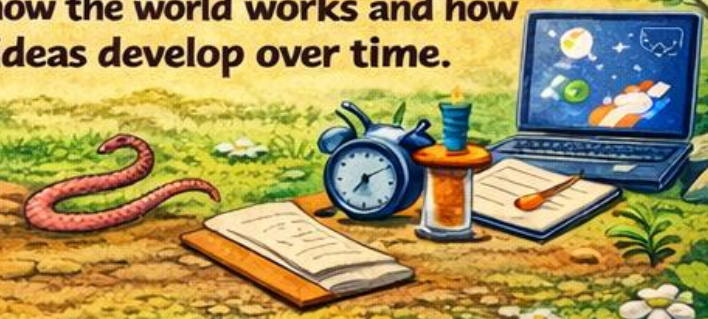
### Light

### Electricity

Circuits, symbols, voltage & components

## Understanding How the World Works Through Science

Across both years, pupils use investigation, data & research to understand how the world works and how Scientific ideas develop over time.



# Science in Key Stage 3

In **Key Stage 3**, pupils build a deeper, more connected understanding of biology, chemistry & physics. They learn the 'big ideas' of science, such as how structure & function, particles & energy explain how the world works.

Pupils begin to use models, abstract ideas, & evidence to explain & predict scientific phenomena, and understand that scientific ideas change as new evidence is discovered.

## Working Scientifically

- Ask scientific questions, make predictions & plan investigations
- Use variables, equipment & safe laboratory methods correctly
- Measure, record & analyse data using graphs, tables & calculations
- Evaluate results, identify errors & suggest improvements
- Use scientific units, symbols & equations

## Biology

- **Cells & organisation** – plant & animal cells, tissues, organs & systems
- **Human systems** – skeleton, muscles, nutrition, digestion, & breathing
- **Plants** - Photosynthesis, – flowering plants & reproduction of plants

## Chemistry

- Particles & states of matter
- Atoms, elements & compounds
- Chemical reactions: acids, alkalis, combustion, oxidation & catalysts
- The Periodic table – metals, non-metals & reactivity

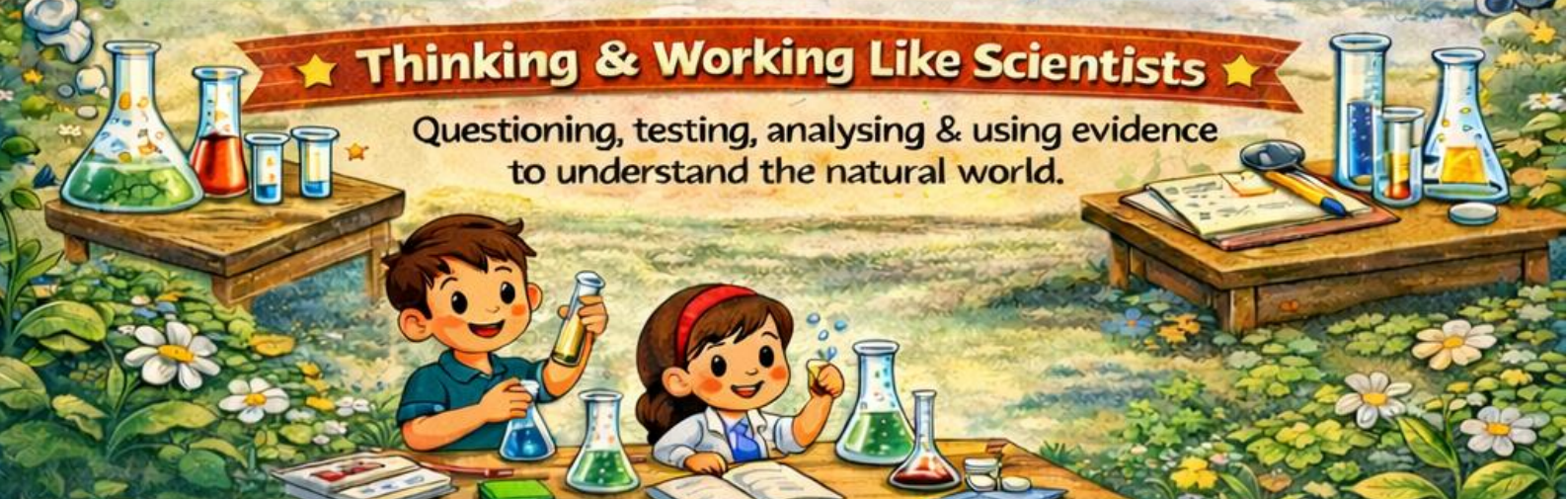

- Earth & atmosphere = rocks, resources & pollution

## Physics

- **Energy** – transfers, fuels, heating & efficiency
- **Forces & motion** – gravity, friction, pressure & speed
- **Waves** – sound & light
- **Electricity** circuits, voltage & power
- **Matter** – particle behaviour – solids, liquids & gases

## Thinking & Working Like Scientists

Questioning, testing, analysing & using evidence to understand the natural world.



# Science in Key Stage 4

## GCSE SCIENCE

At Key Stage 4, students deepen and extend their understanding of biology, chemistry & physics, building on earlier learning and preparing either for further study or for scientific literacy in adult life. Science is taught as an interconnec- body of knowledge, showing how models, evidence & quantitative analysis explain the natural world & modern technology.

BIOLOGY
CHEMISTRY
PHYSICS

## Aims of Key Stage 4 Science

- Develop secure scientific knowledge in biology, chemistry and physics
- Understand how scientific ideas are developed, tested and refined
- Use practical, mathematical and problem-solving skills to investigate questions
- Evaluate scientific claims using evidence and critical thinking
- Appreciate the role of science in society, technology, health and the environment

Science is taught in roughly equal parts of **BIOLOGY, CHEMISTRY & PHYSICS**, with **maths** embedded throughout.

## Biology

- **Cells & organisation** – plant & animal cells, tissues, organs & systems.
- **Human systems**: – skeleton, muscles, digestion, & circulaton
- **Reproduction** – in humans & plants.
- **Nutrition & health** – balanced diet, digestion, bacteria, drugs & lifestyle
- **Plants** – photosynthesis, gas exchange & reproduction

## Chemistry

- Atomic structure and the periodic table
- Bonding and material properties
- Chemical reactions – acids, alkalis, combustion, oxidation & Catalysts.
- The periodic table- - metals, non-metals
- **Materials** – reactivity, polymers, ceramics. & composites
- Earth & atmosphere – rocks, resources, climate & pollution

## Physics

- **Energy** – transfers, fuels, heating & efficiency
- **Forces & motion** - gravity, friction, pressure & speed
- **Waves** – sound & light
- **Electricity & magnetism**. circuits, current resistance & fields
- **Matter** - particle behaviour, changes of state & density
- **Space** - gravity, the solar system, stars, seasons & galaxies.

## Working Scientifically

- Ask scientific questions, make predictions & plan investigations.
- Use variables, equipment & safe laboratory methods correctly
- Measure, record & analyse data using graphs, tables & calculations.
- Evaluate results, identify errors & suggest improvements.
- Use scientific units, symbols & equations.

# AS and A Level SCIENCE

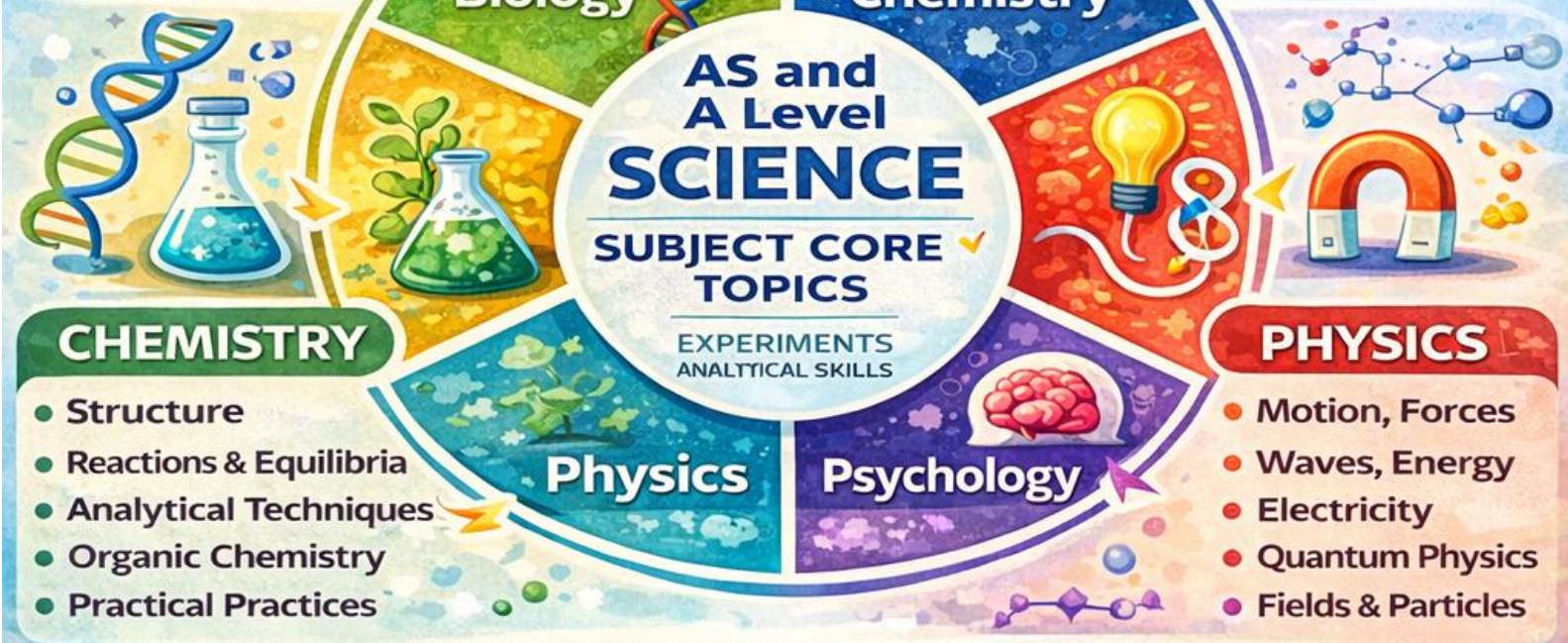
## Subject Content Summary for Biology, Chemistry, Physics & Psychology

### CORE AIMS

- Understand Scientific Concepts
- Use Data, Maths & Practical Skills
- Evaluate Evidence Ethically
- Real-Life Applications & Impact

### BIOLOGY

- Living Organisms
- Cells & Molecules
- Ecosystems
- Transport & Control
- Genetics & Evolution
- Energy in Biology




### CHEMISTRY

- Structure
- Reactions & Equilibria
- Analytical Techniques
- Organic Chemistry
- Practical Practices

### PHYSICS

- Motion, Forces
- Waves, Energy
- Electricity
- Quantum Physics
- Fields & Particles

### PRACTICAL SKILLS

- 12+ Required Experiments (Practical Endorsement)
- Use of Apparatus
- Recording Data
- Analysis & Conclusions

### MATHS REQUIREMENTS

- Use Equations, Graphs, Stats
- Handle Uncertainties
- Quantitative & Analytical


### MATHS REQUIREMENTS

- Use Equations, Graphs, Stats
- Handle Uncertainties
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# CAREERS THAT NEED SCIENCE

## Key jobs requiring strong scientific skills:

### DOCTOR

### SCIENTIST

### VETERINARIAN

### ENGINEER

### BIOLOGIST

### ASTRONAUT

### PHARMACIST

### PHYSICIST

### FORENSIC SCIENTIST

**AND MANY MORE!**