KS3 Science Curriculum mapping of topics

| Year 7 Topic | Overview of Topic | Curriculum links to key concepts | Overview of key literacy, numeracy and practical skills |
|---|---|---|---|
| Introduction to Science – Science passport | Pupils will learn basic practical skills to support the curriculum including lab safety, apparatus identification, use of Bunsen burners, identifying hazards and risks, identifying variables. | NA | Basic practical skills<br>Observing<br>Interpreting Data<br>Writing lab rules<br>Variables<br>Graph Scales<br>Drawing Graphs |
| Cells, tissues, organs and organ systems | Pupils will learn the fundamentals of living things, they will prepare cell slides and observe them using microscopes. They will study unicellular and multicellular organisms and look at the skeletal system as an example of an organ system | Cells | Preparing a slide<br>Using microscopes<br>Magnification calculations |
| Particles | Pupils will learn the arrangement of particles in solids, liquids and gases and the differences in particle behaviour in these three states of matter as well as the kinetic theory of matter | Particles<br>Energy | Observing<br>Concluding<br>Graph Plotting<br>Reading scales – thermometers |
| Forces | Pupil will learn the different types of forces, the effects of forces and the foundations of making objects move | Forces<br>Energy | Using Newton meters<br>Friction investigation<br>Resistive Forces investigation<br>Drawing force diagrams<br>Calculations for up-thrust, buoyancy and density<br>Investigating accuracy and precision |
| Separation Techniques | Pupils will learn how to separate substances using a variety of techniques such as filtering, evaporation , distillation and chromatography | Particles<br>Energy | Calculating Rf values<br>Observing<br>Graph plotting<br>Reading scales<br>Method writing<br>Rock salt practical<br>Bunsens |

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|---|---|---|---|
| Reproduction – Human & Plant | Pupils will learn key aspects of human and plant reproduction | Reproduction<br>Genetics | Flower dissection<br>Graph Plotting<br>Interpreting data |
| Acids & Alkalis | Pupils will learn to identify substances based on their pH. Techniques to neutralise solutions and the function of indicators. | Particles<br>Energy | Use of indicators<br>Making red cabbage indicator<br>Observing<br>Method Writing<br>Bunsens<br>Titrations<br>pH bar charts<br>Comparing |
| Space | Pupils will learn about Earth and the Solar System | Forces<br>Energy | Calculating gravity force<br>Planet Research – reading for information<br>Interpreting data<br>Graph plotting<br>Difference between mass and weight<br>Calculating large distances in space |

# Yr7 Rotation

First 2-3 weeks SCIENCE PASSPORT

Start: ST, R, A

Start: N, E, D, W

**Autumn**

**Teach C1 and B1 before test**

C1 Particles S/L/G ⟷ B1 Cells

Start: ST, R, A

Start: N, E, D, W

**Spring**

**Teach P1 and C2 before test**

P1 Forces ⟷ C2 Separation Techniques

Start: ST, R, A

Start: N, E, D, W

**Spring**

**Teach B3 and C3 before test**

B3 Reproduction ⟷ C3 Acids & Alkalis

**Summer**

Exam

P2 Space

**After P2 to complete P2, B1, P1, C1 test**

| Year 8 Topic | Overview of Topic | Curriculum links to key concepts | Overview of key literacy, numeracy and practical skills |
|---|---|---|---|
| Nutrition & Digestion | Pupils will learn the structure and function of the digestive system, importance of a balanced diet and the role of enzymes. The role of the dental hygienist. | Cells<br>Particles | Interpreting data<br>Food tests practical<br>Calculating energy in food |
| Periodic Table, Atoms & Elements | Pupils will learn about the differences between elements, mixtures and compounds and look at trends in the periodic table. | Particles<br>Energy | Observing<br>Interpreting Data<br>Testing metals and non-metal elements<br>Making compounds<br>Writing word equations |
| Light | Pupils will learn the properties of light and relate these to the eye and camera. They will learn how light can be reflected and refracted and how white light is formed. Role of the optician. | Particles<br>Energy | Observing<br>Measuring angles<br>Reflection and refraction practicals<br>Investigating coloured filters. |
| Sound | Pupils will learn the properties of sound and relate these to the ear and microphone. Pupils will learn about observed waves. | Particles<br>Energy | Graph reading<br>Investigating how sound is made |
| Chemical Reactions 1 | Pupils will learn the basics of chemical reactions including combustion, gas tests, physical v chemical changes, thermal decomposition and exothermic reactions. Catalysts, flame tests and oxidation. Role of the pharmacist. | Particles<br>Energy | Observing<br>Bunsens<br>Graph plotting<br>Calculating means<br>Measuring changes in mass |
| Energy, Heat & Insulation | Pupils will learn about energy stores and transfers including conduction, convection, radiation and thermal imbalance. | Energy<br>Particles | Observing<br>Bunsens<br>Conduction practical – rods of different materials<br>Insulation investigation |
| Health | Pupils learn about factors that affect health and fitness, including effects of drugs and alcohol.<br>Pupils will learn about diffusion in the cells and body. | Cells<br>Evolution | Reading for information<br>Interpreting data<br>Lung Dissection – demo<br>Measuring<br>Recording Data |

| | | | |
|---|---|---|---|
| | Pupils will learn what respiration is, where it occurs and why it occurs and the differences in different organisms. Career of the health care assistant. | | Graph Plotting |
| Pressure | Pupils will learn about pressure in different environments | Energy<br>Particles<br>Forces | Pressure calculations<br>Interpreting data<br>Graph plotting |
| Electrical Circuits & Magnetism | Pupils will study the fundamentals of current electricity.<br>Pupils will learn how to measure current and voltage in different types of circuit and relate this to resistance.<br>Pupils will learn the properties of magnets and electromagnets and their uses. Career of mechanical engineer. | Energy<br>Particles<br>Forces | Observing<br>Building series and parallel circuits<br>Calculations<br>Interpreting data<br>Observing magnetic fields<br>Plotting graphs |

# Yr8 Rotation

## Autumn

Start: ST, W, A

B4 Nutrition & Digestion

Start: D, R E, N

C4 Periodic Table, Atoms & Elements

**Teach B4 and C4 before test**

Start: ST, W, A

P3 Light

Start: D, R, E, N

P4 Sound

**Teach P3 and P4 before test**

## Spring

Start: ST, W, A

**Teach C5 and P9 before test**

C5 Chemical Reactions 1

Start: D, R, E, N

P9 Energy, Heat & Insulation

**To be completed by all after C5 & P9**

B5 Health

**After B5 students complete B5, B4, C4 test**

## Summer

Start: ST, W, A

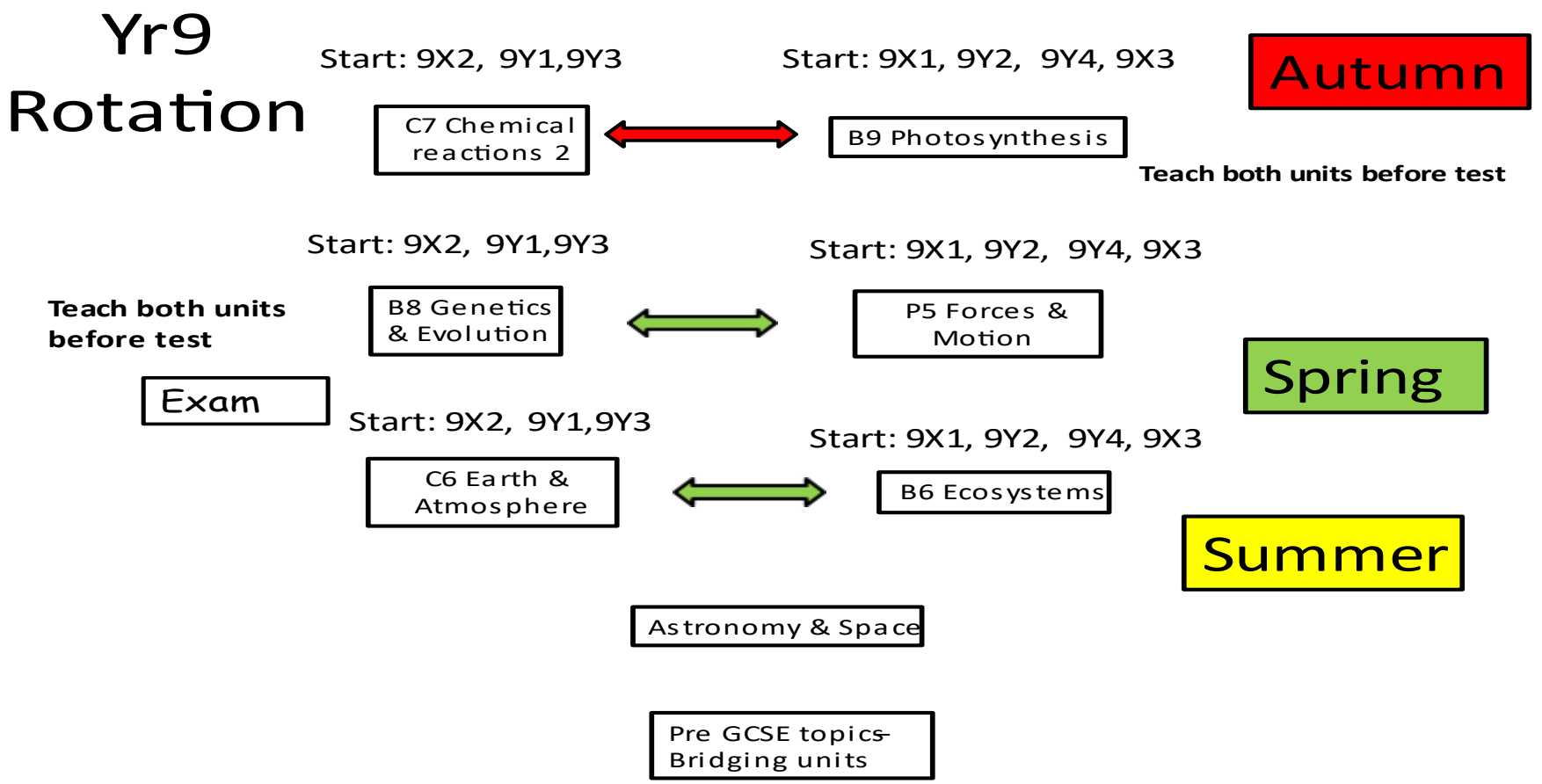
Exam

P6 Electrical Circuits & Magnetism

Start: D, R, E, N

P8 Pressure

| Year 9 Topic | Overview of Topic | Curriculum links to key concepts | Overview of key literacy, numeracy and practical skills |
|---|---|---|---|
| Photosynthesis | Pupils will learn about the structure of plants and the process by which plants make their own food. Structure of a leaf and chemosynthesis. | Cells<br>Evolution<br>Particles<br>Energy | Observing<br>Testing a leaf for starch<br>Reading for information<br>Interpreting data<br>Bunsens |
| Chemical Reactions 2 | Pupils will learn about the different types of chemical reactions and factors affecting the rate of reaction. The reactivity series and how metals are extracted. Comparing different materials. | Particles<br>Energy | Observing<br>Interpreting data<br>Reacting metals practicals<br>Measuring rate of reaction |
| Forces and motion | Pupils will study the effects of forces. Pupils will study the fundamentals of moments, calculating speed, calculating work done, Newton's laws and relative motion. | Energy<br>Particles<br>Forces | Observing<br>Use of equations<br>Distance Time graphs<br>Use of significant figures and decimal places<br>Calculating speed<br>Newton's Laws of Motion<br>Calculating resultant force |
| Genetics & Evolution | Pupils will learn about evolution by natural selection, selective breeding and extinction. Career of forensic scientist | Cells<br>Evolution | Continuous & Discontinuous variation graphs<br>Reading for information<br>Interpreting data<br>Research |
| Earth & Atmosphere | Pupils will learn about the rock cycle, the atmosphere and fossil fuels and link these to pollution and climate change | Particles<br>Evolution<br>Genetics | Interpreting data<br>Reading for information<br>Observing |
| Ecosystems | Pupils will study the interdependence of living organisms including limited resources. Career of environmental health officer. | Cells<br>Evolution | Interpreting data<br>Calculating accumulation of toxins<br>Drawing food chains/webs<br>Sampling techniques |


Yr9
Rotation
Start: 9X2, 9Y1,9Y3
Start: 9X1, 9Y2, 9Y4, 9X3
Autumn
C7 Chemical reactions 2
B9 Photosynthesis
Teach both units before test
Start: 9X2, 9Y1,9Y3
Start: 9X1, 9Y2, 9Y4, 9X3
Teach both units before test
B8 Genetics & Evolution
P5 Forces & Motion
Spring
Exam
Start: 9X2, 9Y1,9Y3
Start: 9X1, 9Y2, 9Y4, 9X3
C6 Earth & Atmosphere
B6 Ecosystems
Summer
Astronomy & Space
Pre GCSE topics- Bridging units