**INTENT**-

- To develop knowledge and understanding of key Biology, Chemistry and Physics topics
- Students to apply this knowledge and explain key ideas within Science, applying them to a range of typical and frequent assessment points.
- To develop basic practical skills and data analysis.

**The bigger picture:**

*The year 7 curriculum starts to develop an understanding of key scientific concepts needed throughout the curriculum and creating a building block for later years. The curriculum is also designed to start developing an enquiring mind through key practical's that will allow for skills needed for Required practical's at GCSE to be built on.*

# Bilton School Planning for Progress over Time
## Programme of Study 2023/24

**IMPLEMENTATION**

| | Term 1<br>Introduction to Science, Acids & Alkalis, Cells | | | | | | | | HOLIDAY: 1 WEEK | Term 2<br>Cells, Energy, Particles | | | | | | | HOLIDAY: 2 WEEKS | Term 3<br>Particles, Reproduction | | | | | HOLIDAY: 1 WEEK | Term 4<br>Solubility Investigation, Electricity | | | | | HOLIDAY: 2 WEEKS | Term 5<br>Electricity, Atoms & Elements | | | | | | | HOLIDAY: 1 WEEK | Term 6<br>Ecosystems, Ecosystems Project | | | | | | |
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| **KS3** | 04/09/2023 | 11/09/2023 | 18/09/2023 | 25/09/2023 | 02/10/2023 | 09/10/2023 | 16/10/2023 | 23/10/2023 | | 06/11/2023 | 13/11/2023 | 20/11/2023 | 27/11/2023 | 04/12/2023 | 11/12/2023 | 18/12/2023 | | 08/01/2024 | 15/01/2024 | 22/01/2024 | 29/01/2024 | 05/02/2024 | | 19/02/2024 | 26/02/2024 | 04/03/2024 | 11/03/2024 | 18/03/2024 | | 08/04/2024 | 15/04/2024 | 22/04/2024 | 29/04/2024 | 06/05/2024 | 13/05/2024 | 20/05/2024 | | 03/06/2024 | 10/06/2024 | 17/06/2024 | 24/06/2024 | 01/07/2024 | 08/07/2024 | 15/07/2024 |
| **Year 7** | TTD x 2, Intro to Science L1 | Intro to Science L2, 3, 4 | Intro to Science L5, 6, 7 (Review & FAR) | Acids & Alkalis L1, 2, 3 | Acids & Alkalis L4, 4.5 (Mid Review), 5 | Acids & Alkalis L6 (Research Lesson), 7RP, 8RP | Acids & Alkalis L9 (Revision), **ETT**, Cells 1 | Cells L2, 3, 4 | | Cells L4.5 (Mid Review), 5 (Research Lesson), 6 | Cells L7RP, 8RP, 9 (Revision) | Energy L1, 2, 3 | Energy L4, 4.5 (Mid Review), 5 | Energy L6, 7RP, 8RP | Energy L9 (Revision), **ETT**, Particles L1 | Particles L2, 3, 4 | | Particles L4.5 (Mid Review), 5, 6 | Particles L7RP, 8RP, 9 (Revision) | Reproduction L1, 2, 3 | Reproduction L4, 4.5 (Mid Review), 5 | Reproduction L6, 7RP, 8RP | | Reproduction L9 (Revision), **ETT**, Solubility Investigation L1 | Solubility Investigation L2, 3, 4 | Solubility Investigation L5, 6 (Review), Electricity L1 | **Science Week Lesson**, Electricity L2, 3 | Electricity L4, 4.5 (Mid Review), 5 | | Electricity Lesson L6, 7RP, 8RP | Electricity L9 (Revision), **ETT**, Atoms & Elements L1 | Atoms & Elements L2 (Research Lesson), 3, 4, | Atoms & Elements L4.5 (Mid Review), 5, 6 | Atoms & Elements L7RP, 8RP, 9 (Revision) | EOY Assessment Revision x 3 | EOY Assessment Revision x 3 | | **EOY Assessment**, Ecosystems L1, 2 | Ecosystems L3, 4, EOY Assessment Review/FAR | Ecosystems L4.5 (Mid Review), 5, 6 | Ecosystems L7RP, 8RP, 9 (Revision) | Ecosystems Project L1, 2, 3 | Ecosystems Project L4, 5, 6 | Skills Lesson 1, 2, 3 |
| **Progress and assessment** | **End of topic test (ETT)**<br>**Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | | | | **End of topic test (ETT)**<br>**Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | | | **End of topic test (ETT)**<br>**Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | **End of topic test (ETT)**<br>**Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | **Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | | | **End of topic test (ETT)**<br>**Follow on questions to test previous knowledge through the Unit.**<br>**FAR completed approximately every 6 lessons.** | | | | | | |
| **Required Practical (RP)** | **Introduction to Science:** Skills throughout Topic Diagrams/Units/Graphs<br>**Acids and Alkalis:** Testing Substances with UI Making and recording observations. | | | | | | | | | **Cells:** Studying Cells Using a Microscope Writing a method<br>**Energy:** Testing Energy in Food Graph | | | | | | | | **Particles:** Making Crystals Writing a risk assessment.<br>**Reproduction:** Skills Converting Units | | | | | **Solubility Investigation**<br>**Electricity: Voltage/Current Investigation** Graph | | | | | | **Atoms and Elements:** Skills Variables | | | | | | | | **Ecosystems:** Quadrat Sampling Planning an Investigation | | | | | | |
| **Homework** *(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)* | **Educake Homework** | | | | | | | | | **Educake Homework** | | | | | | | | **Educake Homework** | | | | | | **Educake Homework** | | | | | | **Educake Homework** | | | | | | | | **Educake Homework** | | | | | | |
| **Key Vocabulary/literacy opportunities** | **Introduction to Science:** *Laboratory, Safety, Goggles, Equipment, Method, Table, Graph, Results, Conclusion.*<br>**Acids and Alkalis:** *Acid, Alkali, Neutral, Neutralisation, Indicator, pH Scale*<br>**Cells:** *Cell, Nucleus, Cell Membrane, Cytoplasm, Cell Wall, Chloroplast, Specialised Cell, Diffusion, Osmosis, Organ, Organ System.* | | | | | | | | | **Cells:** *Cell, Nucleus, Cell Membrane, Cytoplasm, Cell Wall, Chloroplast, Specialised Cell, Diffusion, Osmosis, Organ, Organ System.*<br>**Energy:** *Energy, Kinetic, Thermal, Light, Sound, Electrical, Chemical, Nuclear, Gravitational Potential, Elastic Potential, Transfer, Power, Work Done, Efficiency, Fuel* | | | | | | | | **Particles:** *Particle, Solid, Liquid, Gas, Vibrate, Melting, Boiling, Diffusion, Pressure*<br>**Reproduction:** *Reproduction, Sperm, Egg, Fertilisation, Foetus, Pollination, Seed Dispersal, Germination.*<br>**Guided Reading Activity:** Reproduction – To be confirmed | | | | | | **Electricity:** *Electricity, Ammeter, Voltmeter, Current, Potential Difference, Resistance, Series Circuit, Parallel Circuit* | | | | | | **Atom and Elements:** *Atom, Element, Periodic Table, Properties, Metal, Non-metal, Groups, Periods*<br>**Ecosystems:** *Respiration, Classification, Food Web, Food Chain, Producers, Consumers, Pesticides, Ecosystem, Habitat, Population.*<br>**Guided Reading Activity:** Exploration of the dangers of electricity and features of electrical devices that help to protect us from these dangers. | | | | | | | | **Ecosystems:** *Respiration, Classification, Food Web, Food Chain, Producers, Consumers, Pesticides, Ecosystem, Habitat, Population.*<br>**Guided Reading Activity:** Exploration of the different types of zoo and an evaluation of the advantages and disadvantages of their use in conservation. | | | | | | |

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| **National Curriculum Links** | **Acids and alkalis:**<br>• defining acids and alkalis in terms of neutralisation reactions<br>• the pH scale for measuring acidity/alkalinity; and indicators<br>• reactions of acids with metals to produce a salt plus hydrogen<br>• reactions of acids with alkalis to produce a salt plus water<br>**Cells:**<br>• cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope<br>• the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts<br>• the similarities and differences between plant and animal cells | | **Cells:**<br>• cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope<br>• the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts<br>• the similarities and differences between plant and animal cells<br>**Energy:**<br>• comparing energy values of different foods (from labels) (kJ)<br>• comparing power ratings of appliances in watts (W, kW)<br>• comparing amounts of energy transferred (J, kJ, kW hour)<br>• simple machines give bigger force but at the expense of smaller movement (and vice versa): product of force and displacement unchanged<br>• other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels. | | **Particles:**<br>• the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure<br>• changes of state in terms of the particle model.<br>• conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation, dissolving diffusion in liquids and gases driven by differences in concentration<br>**Reproduction:**<br>• reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta<br>• reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms. | | **Electricity:**<br>• electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge<br>• potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current<br>• differences in resistance between conducting and insulating components (quantitative). | | **Atoms and Elements:**<br>• a simple (Dalton) atomic model<br>• differences between atoms, elements and compounds<br>• chemical symbols and formulae for elements and compounds<br>• the varying physical and chemical properties of different elements<br>• the principles underpinning the Mendeleev Periodic Table<br>• the Periodic Table: periods and groups; metals and non-metals<br>• how patterns in reactions can be predicted with reference to the Periodic Table<br>**Ecosystems:**<br>• the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br>• the importance of plant reproduction through insect pollination in human food security<br>• how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. | | **Ecosystems:**<br>• the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br>• the importance of plant reproduction through insect pollination in human food security<br>• how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. |
| **Connected knowledge** | **Maths**<br>To know units of measurement<br>To know metric measures<br>Converting between metric units | | | | **Maths**<br>To know units of measurement<br>To know metric measures<br>Converting between metric units | | **Maths**<br>To multiply and divide integers<br>To be able to use mental methods of addition and subtraction<br>To be able to use written methods of addition and subtraction of integers (including negatives)<br>To calculate using order of operations (BIDMAS)<br>To multiply and divide by powers of 10<br>To do mental multiplication and division<br>To use written methods of multiplication and division. | | | | |
| | **IMPACT:**<br>Students will be able to measure progress using tracking sheets in exercise books. As all assessments will use generic criteria, will be moderated through dept meetings it will be possible to measure progress over time within and across year groups. | | | | | | | | | | | | | | | | | | |