# Year 7, Science Curriculum Overview

| | Autumn Term 1<br>Cells, Reproduction and Variation<br>Introduction to Science | Autumn Term 2<br>Health, Fitness and Disease<br>Matter | Spring Term 1<br>Atoms, Elements, Compounds and Mixtures<br>Acids, Alkalis and Reactions |
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| Overview of Scheme of Learning | Intro to Science<br>- Be able to identify hazards in the Science lab.<br>- Be able to name and use the common Science equipment.<br>- Be able to read measurements accurately.<br>- Be able to safely light and use a Bunsen Burner.<br>- Be able to correctly identify the types of variable.<br>- Be able to plan and carryout an investigation.<br>- Be able to create an appropriate results table and record experimental results correctly.<br>- Be able to identify which type of graph to use and successfully draw one.<br>- Evaluate the methods used and suggest improvements<br>Cells, Reproduction and Variation<br>- Be able to correctly use a microscope to look at pre prepared slides and create their own.<br>- To be able to identify plant and animal cells, the organelles within them and the differences between them | Health, Fitness and Disease<br>- What is fitness?<br>- How does the skeleton move? – joints, ligaments, tendons.<br>- To be able to describe the action of an antagonistic pair of muscles.<br>- Describe the definition of a drug, how they effect the body and the different categories.<br>- What is a Microbe?<br>- What are the different types of microbe.<br>- What microbes cause disease?<br>- What are pathogens and how can we treat pathogen infections?<br>- What is Antibiotic resistance?<br>Matter<br>- What is the particle model of matter?<br>- What is density and how to calculate it?<br>- Be able to state the difference between heat energy and temperature.<br>- Plan and Carryout an investigation into Heat energy and volume<br>- Be able to explain expansion, contraction and changes of state. | Atoms, Elements, Compounds and Mixtures<br>- How do we classify materials?<br>- What are Atoms and Elements?<br>- What is the Periodic table?<br>- How are elements organised on the Periodic Table?<br>- What are the reactivity trends in the Group 1 metals?<br>- What are the Group 7 elements and what are their reactivity trends?<br>- What are the Group 0 elements and why are they unique?<br>- What is a Compound?<br>- What is a molecule?<br>- How are compounds formed?<br>- What are the signs that a reaction has occurred?<br>- How do you write a word equation to show a reaction?<br>- What is a symbol equation and why are they useful?<br>- What is the composition of the air we breathe?<br>- Which part is often used in reactions?<br>Acids, Alkalis and Reactions<br>- What is a Hazard? |

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| | - To understand how the organisation of a system works from cell to full working body.<br>- To look at the male and female human reproductive systems and how they work.<br>- Be able to describe both internal and external fertilisation and the benefits/issues of both.<br>- Look at the reproduction in plants and how it differs from Humans.<br>- What is variation? Why is it important and how does it occur?<br>- What is Heredity?<br>- What is extinction and how can it occur? | - Describe what a cooling curve is and explain the shape in terms of changes of state.<br>- What is the link between evaporation and surface area?<br>- What is Diffusion and what factors affect it? | - What are the hazard symbols used in Science?<br>- What is the pH scale?<br>- What is an Acid?<br>- What is an Alkali?<br>- What is a Neutral substance?<br>- What is an Indicator?<br>- Be able to make a natural indicator.<br>- Explain what Neutralisation is and some uses.<br>- Be able to write word and symbol equations for simple reactions.<br>- Describe what an Exothermic reaction is.<br>- Describe what an Endothermic reaction is.<br>- Explain what Oxidation means.<br>- Explain what Combustion means.<br>- Describe what a fuel is and what occurs during complete combustion.<br>- Show complete combustion in a word and symbol equation. |
| Assessment Overview | Formative assessment in the form of extended levelled activity – Badger task<br>Exam style questions at the end of each topic – either higher of foundation level. | Formative assessment in the form of extended levelled activity – Badger task<br>Exam style questions at the end of each topic – either higher of foundation level. | Formative assessment in the form of extended levelled activity – Badger task<br>Exam style questions at the end of each topic – either higher of foundation level. |

| | Spring Term 2<br>Particle Model and Solutions<br>Waves, Light and Sound | Summer Term 1<br>Environment, Ecology and Classification<br>Forces and their Effects | Summer Term 2<br>Science Investigations |
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| Overview of Scheme of Learning | <u>Particle model and solutions</u><br>- Describing properties of Solids, Liquids and Gases.<br>- Particle model for states of matter.<br>- Separating Mixtures<br>- What is a solution?<br>- What factors affect Solubility?<br>- Practical: Effect of temperature on solubility.<br>- Practical: Separating Rock salt investigation.<br>- What is Distillation?<br>- What is Chromatography and how can it be used?<br>- Separation Investigation.<br><br><u>Waves, Light and Sound</u><br>- What is a wave?<br>- What are sound waves?<br>- How does hearing work and what are animal's audible ranges?<br>- How to measure sound.<br>- Waves and energy<br>- Sound waves vs Light waves<br>- What is transmission and what is reflection?<br>- What is refraction? | <u>Environment, Ecology, and Classification</u><br>- What is a Habitat?<br>- How to collect data on habitats<br>- Data sampling<br>- Animal adaptations for the environment.<br>- Plant adaptions for the environment.<br>- What are Food Chains/Webs<br>- How to use a Pyramid of numbers<br>- How to draw and use a Pyramid of Biomass.<br>- How does energy flow through an ecosystem?<br>- How are animals classified?<br>- How are plants classified?<br><br><u>Forces and their Effects</u><br>- What is a Force?<br>- What happens with balanced and unbalanced forces<br>- What is Friction?<br>- Stretching – Hooke's Law<br>- How to Calculate Speed<br>- What is in our Solar system?<br>- What causes day and night and the seasons? | <u>Summer Investigations</u><br><br>- Teachers to choose a number of SC1 style investigations that pupils can plan and carryout which cover the following skills:<br>1. Choosing an investigation question<br>2. Writing a hypothesis<br>3. Writing a prediction<br>4. Identifying variables<br>5. Planning an experiment<br>6. Identifying Risks<br>7. Collecting data<br>8. Recording data<br>9. Interpreting Data<br>10. Evaluating an experiment |

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| | - Why do we see colour?<br>- Light and energy. | - How are the phases of the moon created?<br>- What is beyond our solar system? | |
| Assessment Overview | End of half term assessment, 50mins. Test base questions 70% this content and 30% content from previous topics. | End of half term assessment, 50mins. Test base questions 70% this content and 30% content from previous topics. | |