

SCIENCE Year 7 Curriculum End Points and Key Vocabulary

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Ethos Links	<p>Sustainability – Links to local and global environment, uses of resources</p> <p>STEM – Recording data, measuring, data processing</p> <p>Milton Keynes – Local woodlands, local environment</p> <p>Character – Group work</p>	<p>STEM – Explanations using models, explaining observable phenomena, explaining how the body works</p>	<p>STEM – Explaining observable phenomena, comparing organisms, explaining relationships.</p> <p>Sustainability – Effects of humans on the ecosystem, endangered and extinct species</p>	<p>STEM – Explaining using models, designing methods to purify water, planning for food.</p> <p>Sustainability – Linking plant reproduction to endangered species and linking to plant security</p>	<p>STEM – Designing useful circuits, explaining how circuits work, justifying uses of materials.</p> <p>Milton Keynes – Choices of materials in a local context</p>	<p>STEM – Explaining how variation between species occurs, explaining observable phenomena</p> <p>Sustainability – Effects of over breeding a species</p> <p>Character – When discussing sensitive issues</p>
Learning End Points	<p>Project ‘Is Milton Keynes a Green Place to Live?’</p> <p>By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> ➤ How different factors affect journey times ➤ How transport options affect the environment ➤ How chemicals can be used to support our everyday life 	<ol style="list-style-type: none"> 1. Matter – Particles 2. Forces – Contact Forces 3. Organisms – Movement <p>By the end of these units students will know and understand:</p> <p>Matter – Particles</p> <ul style="list-style-type: none"> ➤ The arrangement, movement and 	<ol style="list-style-type: none"> 1. Forces – Gravity and the Universe 2. Organisms – Cells 3. Ecosystems - Interdependence <p>By the end of these units students will know and understand:</p> <p>Forces – Gravity and the Universe</p> <ul style="list-style-type: none"> ➤ How to describe gravity and weight as 	<ol style="list-style-type: none"> 1. Matter – Separating Mixtures 2. Earth – Rocks 3. Ecosystems – Plant Reproduction <p>By the end of these units students will know and understand:</p> <p>Matter – Separating Mixtures</p> <ul style="list-style-type: none"> ➤ What makes a solution, 	<ol style="list-style-type: none"> 1. Electromagnets – Electricity and Charge 2. Reactions – Metals and Non-Metals <p>By the end of these units students will know and understand:</p> <p>Electromagnets – Electricity and Charge</p> <ul style="list-style-type: none"> ➤ How objects become charged 	<ol style="list-style-type: none"> 1. Genes – Variation 2. Genes – Human Reproduction 3. Waves – Light <p>By the end of these units students will know and understand:</p> <p>Genes – Variation</p> <ul style="list-style-type: none"> ➤ What causes variation, and how this can be determined

	<ul style="list-style-type: none"> ➤ How to calculate speed, distance and time using the equation $\text{speed} = \text{distance} / \text{time}$ (MS3c) ➤ How to convert m to km, cm and mm (WS4.3, WS4.5) ➤ How to convert minutes to seconds and hours. (WS4.5) 	<p>energy in a solid, liquid and gas</p> <ul style="list-style-type: none"> ➤ Identify and describe the changes of state ➤ How the properties of solids, liquids and gases can be explained with particle theory ➤ What diffusion is and the factors that affect the rate of diffusion ➤ What causes gas pressure and explain how it can be changed. <p><u>Forces – Contact Forces</u></p> <ul style="list-style-type: none"> ➤ How forces affect our lives, both usefully and not usefully. ➤ That forces can be contact or non-contact ➤ How to represent balanced and unbalanced forces on force diagrams, and use them to calculate 	<p>forces and describe the factors that affect it.</p> <ul style="list-style-type: none"> ➤ How to calculate mass, weight and gravitational field strength using the equation $W = mg$ ➤ The objects found in the universe, how they move and what causes this. <p><u>Organisms – Cells</u></p> <ul style="list-style-type: none"> ➤ The main organelles found in animal and plant cells, and the function of each cell organelle ➤ The main features of specialised cells and how these features support it to do its job. ➤ The key parts of a microscope and how to use one ➤ The differences between unicellular and multicellular organisms 	<p>including solvent and solute, and what it means to be soluble</p> <ul style="list-style-type: none"> ➤ The factors affecting solubility ➤ How mixtures are separated depending on physical properties, including filtration, evaporation, distillation and paper chromatography ➤ How separating techniques work in terms of particles <p><u>Earth – Rocks</u></p> <ul style="list-style-type: none"> ➤ How weathering and erosion occur and the different causes of them. ➤ Properties of the different types of rock, including sedimentary, igneous and metamorphic, and how they are formed. ➤ How rocks are transformed from 	<p>with static electricity</p> <ul style="list-style-type: none"> ➤ What electrical conductors and insulators are and how they are used ➤ How circuit symbols are used to draw circuit diagrams, including series and parallel circuits ➤ What current and potential difference are and how they change in series and parallel circuits ➤ What resistance is, how to calculate it from current and potential difference <p><u>Reactions – Metals and Non-Metals</u></p> <ul style="list-style-type: none"> ➤ The properties of metals and non-metals ➤ How metals react with oxygen and acids to form new substances 	<ul style="list-style-type: none"> ➤ Differences between continuous and discontinuous variation and how this is represented on a graph. ➤ What a species is ➤ How organisms are adapted to suit their environment. <p><u>Genes – Human Reproduction</u></p> <ul style="list-style-type: none"> ➤ Key organs in the male and female reproductive systems and their functions ➤ Explaining how the structure of each organ allows it to complete its function ➤ The difference between puberty and adolescence, what causes puberty and what key changes will be identified in girls and boys.
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- resultant force and direction.
- The factors affecting friction and air resistance
- The factors affecting squashing and stretching.

Organisms - Movement

- The four functions of the skeleton
- The purpose of bone marrow and how this provides protection against disease.
- How muscles, bones, joints, tendons and ligaments work together to cause movement.

Ecosystems – Interdependence

- What producers, consumers and decomposers are and the role they have in an ecosystem
- How food chains are used to represent energy transfers
- What bioaccumulation is and how this can impact humans
- The causes of a predator-prey relationship and how this can be represented on a graph.

one type to another in the rock cycle

Ecosystems – Plant Reproduction

- The key parts of a flower and how these take part in reproduction.
- How pollination occurs and what things can affect it.
- The stages of fertilisation of a flower.
- Methods of seed dispersal including water, wind and animal, and how seeds are adapted for their method of dispersal.

- What a displacement reaction is and how these occur

- The key events in the menstrual cycle
- The biological processes of fertilisation, where this occurs and how it leads to pregnancy.
- The key stages of pregnancy and birth, what could cause someone to be infertile and how this can be treated.
- How pregnancy can be prevented, explaining how each method works in terms of barrier, chemical or surgical methods, and advantages and disadvantages of each.

Waves – Light

- How light travels, how this can lead to shadows and how it allows us to see
- How different materials emit,

						transmit or absorb light ➤ Law of reflection ➤ What causes refraction and dispersion ➤ How we see colour in terms of the spectrum and reflection ➤ Key features of the eye and how this allows us to see
Key Vocabulary	Beaker Bunsen burner Speed Average Chemical Dissolve	Particle Evaporate Condense Freeze Melt Sublimation Diffusion Friction Air resistance Resultant force Bone marrow Ligament Antagonistic pair	Weight Gravity Mass Orbit Planet Star Galaxy Solar system Cell Nucleus Cell membrane Cytoplasm Chloroplast Microscope Predator Prey Bioaccumulation	Solute Soluble Solvent Distillation Chromatography Sedimentary Metamorphic Igneous Stigma Style Pollen Filament Anther	Voltage Potential difference Current Resistance Series Parallel Reactant Product Reaction Displacement Thermal conductor Thermal insulator Electrical conductor Electrical insulator Sonorous Ductile Malleable	Environmental Genetic Continuous Discontinuous Adaptation Species Reproduce Fertile Fertilisation Implantation Menstruation Transparent Translucent Opaque Reflect Refract