



Science Subject Progression Map

Subject Intent

At Beverley we aim to offer the opportunity to access a Science curriculum that is stimulating, enquiry based and awe inspiring. We draw down from the Science “Big ideas” curriculum to make our science relevant and engaging. We want our students to be able to understand how science impacts the life of each individual and apply this understanding into the real world.

Beverley’s Science curriculum offers a coherently planned sequence of lessons to help teachers ensure they have progressively covered the skills and concepts required in the National Curriculum. Science intends to prepare each student for their next phase of education whilst at the same time giving all students a broad and balanced view of the Science that affects their everyday lives. Students will develop a well-rounded knowledge of the understanding of the world around them and how things work as well as an understanding of the natural world in which they live.

Subject Implementation

At Beverley we weave Science through termly Key Stage projects. For EYFS and Primary, we have designed a curriculum that is hands-on and explorative in nature to help develop their curiosity and interest in the physical world around them and to extend their vocabulary and develop an understanding of early scientific concepts that can be built upon as they progress through school and their knowledge and skill base grows. In KS3 by using Project Based Learning (PBL), we aim for our students to develop real life links through a variety of exciting practical and relevant projects. In KS4 our students work towards Science based ASDAN short courses to extend their knowledge and understanding at an appropriate level. By using this approach, we encourage active enquiry to engage and enthuse our students about the world in which they live, how the world works and looking after the world. Using the concept of the 10 big ideas in science we cover every aspect of science including biology, chemistry, physics and how science works. Through revisiting and consolidating skills, our lesson plans and resources help children build on prior knowledge alongside introducing new skills and challenge. The revision and inclusion of key vocabulary is built into each lesson to ensure that students are allowed opportunities to repeat and revise their skills and knowledge.

Subject Impact

Beverley Students are happy, engaged and active enquirers in learning activities. They are developing their scientific skills, knowledge and understanding. They are also developing independence to manage themselves (physically and emotionally) and be more able to express themselves through their preferred method of communication. They are knowledgeable about a wide range of science themes. They will be able to deploy appropriate knowledge to solve problems, work together and link scientific ideas. Our students will achieve progress through National Curriculum objectives, Beverley Steps, Accreditation outcomes and EHCP outcomes. Students above Milestone 3 will follow the appropriate National Curriculum or accreditation routes according to the headings below.

Subject Progression Level Expected at the End of EYFS

We have selected the most relevant statements from Development Matters age ranges for 0 -3 years, 3 – 4 years and Reception, as well as highlighting the statements within the ELGs which feed into the programme of study for Science from “Understanding the World.”

Science		
0 - 3	Understanding the World	<ul style="list-style-type: none"> • I can repeat actions that have an effect. • I can explore materials with different properties. • I can explore natural materials, indoors and outside. • I can explore and respond to different natural phenomena in their setting and on trips.
3 – 4	Understanding the World	<ul style="list-style-type: none"> • I can use all my senses in hands-on exploration of natural materials. • I can explore collections of materials with similar and/or different properties. • I can talk/communicate about what I see, using a wide vocabulary. • I can explore how things work. • I can plant seeds and care for growing plants. • I can understand the key features of the life cycle of a plant and an animal. • I can begin to understand the need to respect and care for the natural environment and all living things. • I can explore and talk about different forces they can feel. • I can talk about /communicate the differences between materials and changes I notice.
Reception	Understanding the World	<ul style="list-style-type: none"> • I can explore the natural world around them. • I can describe what I see, hear and feel whilst outside. • I can recognise some environments that are different to the one in which I live. • I can understand the effect of changing seasons on the natural world around me.
ELG	Understanding the World	<ul style="list-style-type: none"> • I can explore the natural world around me, making observations and drawing pictures of animals and plants. • I know some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class. • I can understand some important processes and changes in the natural world around me, including the seasons and changing states of matter.

The following curriculum progression map comprehensively shows the progression of science skills and concepts from Pre-Milestone 1 – Milestone 4.
 For students above Milestone 3 they will follow the appropriate National Curriculum/ Accreditation routes.
 Accreditation routes are in parentheses e.g. (Entry Level 1 – Entry Level 2).

“Working scientifically” is the way of working that it is applied throughout each of the three areas of science, biology, chemistry and physics.

Working Scientifically	Breakdown of Threshold Concept	Pre-Milestone 1 Beverley Steps P4 - 5 (Working Towards Entry Level)	Pre-Milestone 2 Beverley Steps P6 – 7 (Working Towards Entry Level)	Pre-Milestone 3 Beverley Steps P8-9 (Working Towards Entry Level – Entry Level 1)
	To explore and experience the world in systematic ways	<p>P4</p> <ul style="list-style-type: none"> I can show an adult an action when asked I can select object from a choice of 2 I can name a single property of an object or an animal. I can make or select a pictorial representation of an object I can explore objects via any sensory mode e.g. sensory room, touch etc. 	<p>P6</p> <ul style="list-style-type: none"> I can simply predict what might happen in a simple investigation from limited options e.g. float/sink I can select the tool for a specific purpose? When given a selection of four I can carry out simple tests with support if needed I can correctly sequence a series of actions verbally or using images I can begin to make generalisations, connections and predictions from regular experiences, e.g. I will get wet if I stand in the rain; the room will get dark if I turn the light off. 	<p>P8</p> <ul style="list-style-type: none"> I can make a simple prediction I can consider simple safety rules for practical work I can make some contribution to planning by suggesting what I will do "now" and "next" I can contribute to a record of what happens in an investigation (this can be by using a combination of symbols/word cards/verbal and signed responses) I can begin to look at pictures for information
To begin to communicate and label with support To begin to link ideas together	<p>P5</p> <ul style="list-style-type: none"> Name 2 properties of an object or an animal I can show an awareness of the environment I can answer simple scientific questions using symbols or one-word answers I can anticipate an outcome through a range of learning experiences e.g. pushing pedals on a bike; car down a ramp; balls down a tube; water out of a watering can I can trial and repeat actions when prompted. 	<p>P7</p> <ul style="list-style-type: none"> I can show that I recognise the potential danger of using equipment, e.g. sharp objects/glass etc. I can make simple records of my findings, e.g. by putting pictures of activity into a sequence I can compare results to identify if they are the same or different I can begin to make suggestions for evaluating my work, e.g. was it right or wrong? This can be done by showing, demonstrating, responding I can begin to make suggestions for planning my work. This can be done by 	<p>P9</p> <ul style="list-style-type: none"> I can make predictions and consider what will happen I can identify a simple risk associated with an experiment I can say what I have seen happen giving yes or no answers I can attempt to give a reason for what happened I can give a reason why I think a test is fair/ not fair I can fill in a simple results chart with help I can use senses and show a reaction I can draw my observations (if applicable) 	

			showing, demonstrating, trying out, responding	• I can begin to recount an event
Breakdown of Threshold Concept	Milestone 1 Beverley Steps P10 – 11 NC Y1 & 2 (Entry Level 2 – Entry Level 3)	Milestone 2 Beverley Steps P12 – 13 NC Y3 & 4 (Level 1 Emerging – Level 1 Developing)	Milestone 3 Beverley Steps P14 – 15 NC Y5 & 6 (Level 1 Secure – Level 2 Emerging)	Milestone 4 Beverley Steps 16+ NC Y7 + (Level 2 Developing - GCSE 4+)
Working scientifically Work scientifically This concept involves learning the methodologies of the discipline of science.	<ul style="list-style-type: none"> • I can ask simple questions. • I can observe closely, using simple equipment. • I can perform simple tests. • I can identify and classify. • I can use observations and ideas to suggest answers to questions. • I can gather and record data to help in answering questions. 	<ul style="list-style-type: none"> • I can ask relevant questions. • I can set up simple, practical enquiries and comparative and fair tests. • I can make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • I can gather, record, classify and present data in a variety of ways to help in answering questions. • I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I can use results to draw simple conclusions and suggest improvements, new 	<ul style="list-style-type: none"> • I can plan enquiries, including recognising and controlling variables where necessary. • I can use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • I can take measurements, using a range of scientific equipment, with increasing accuracy and precision. • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. • I can present findings in written form, displays and other presentations. 	<ul style="list-style-type: none"> • I can make predictions including numerical comparisons and detailed science explanations, plan includes repetition and a range • I can carry out complicated or specific fair tests, controlling all main factors, using range and repetition • I can organise results and knows when to use graphs / tables. Highlights unusual results • I can use scientific language to explain results • I can identify any data which does not fit in the pattern and give scientific reasons. Comment on the need for repetition and range of results taken • I can effectively use index / search engines to select and communicate information

			<p>questions and predictions for setting up further tests.</p> <ul style="list-style-type: none"> • I can identify differences, similarities or changes related to simple, scientific ideas and processes. • I can use straightforward, scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • I can use test results to make predictions to set up further comparative and fair tests. • I can use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. 	<p>from different sources, and can recognise potential bias</p>
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Breakdown of Threshold Concept	Pre-Milestone 1 Beverley Steps P4 - 5 (Working Towards Entry Level)	Pre-Milestone 2 Beverley Steps P6 – 7 (Working Towards Entry Level)	Pre-Milestone 3 Beverley Steps P8-9 (Working Towards Entry Level – Entry Level 1)
To understand plants, animals and humans	<p>P4</p> <ul style="list-style-type: none"> I can make sounds using my body e.g. stamping, clapping etc. I can imitate or copy sounds I can look in a mirror and make a response e.g. smile I can imitate actions involving main body parts e.g. waving, nodding head etc. I can show preference of a taste, smell or touch by showing pleasure or displeasure. 	<p>P6</p> <ul style="list-style-type: none"> I can recognise the distinctive features of a range of objects e.g. wheels on car; tail on an animal etc. I can closely observe changes of plants e.g. seed growing into a plant; putting plant in a dark place etc. I can compare photos of themselves at different ages I can identify where common objects and living things belong e.g. plants in garden; whiteboard on wall; cows on a farm I can recognise basic features of a range of living things 	<p>P8</p> <ul style="list-style-type: none"> I am aware some things are living/not living I am aware of healthy and unhealthy lifestyle - food and teeth hygiene I am aware that movements maintain health (exercise) I can use a magnifying glass to look at plants and mini beasts I can sequence a series of more than three pictures to describe the process of life e.g. human life cycle or physical processes
	<p>P5</p> <ul style="list-style-type: none"> I can show an awareness that some things can hurt i.e. pin, heat etc. I can identify some simple animals e.g. dog, cat, I can point to the main features on a person's face or body when asked I can show that I can respond to simple scientific questions about living things e.g. show me the tree/flower etc. I can observe changes in plants to include: leaves change colour, observe a seed grow and a bud to develop into a flower. 	<p>P7</p> <ul style="list-style-type: none"> I can describe an animal or plant from the picture using simple vocabulary I am aware of my own and others' gender I can indicate that living things grow and change, e.g. puppy to a dog, baby to adults I can sequence a series a series of up to 3 pictures to describe a process e.g. life cycle or physical processes I can begin to predict (with support) how changes affect living things, e.g. water for plants, food for animals. 	<p>P9</p> <p>Plants</p> <ul style="list-style-type: none"> I can begin to group plants giving reasons I can observe plants using a magnifying glass and describe them I can devise a simple test to see what happens if a plant has no water I can begin to sort images into plants or animal groups <p>Animals</p> <ul style="list-style-type: none"> I can become familiar with common names of some fish, amphibians, reptiles, birds and mammals I can observe animals I can identify food that different animals will eat I can name the main face parts I can observe and begin to group animals

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<p>Understand plants This concept involves becoming familiar with different types of plants, their structure and reproduction.</p>	<ul style="list-style-type: none"> • I can identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen. • I can identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. • I can observe and describe how seeds and bulbs grow into mature plants. • I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> • I can identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers. • I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • I can investigate the way in which water is transported within plants. • I can explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> • I can relate knowledge of plants to studies of evolution and inheritance. • I can relate knowledge of plants to studies of all living things. 	<ul style="list-style-type: none"> • I can describe the main stages of the life cycles of humans and flowering plants and point out similarities. • I can describe the main functions of organs of plants [e.g. reproductive parts]. • I can describe simple cell structure and identify differences between simple animal and plant cells
<p>Understand animals and humans This concept involves becoming familiar with different types of animals, humans and the life processes they share.</p>	<ul style="list-style-type: none"> • I can identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets). 	<ul style="list-style-type: none"> • I can identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. • Construct and interpret a variety of food chains, identifying producers, predators and prey. • Identify that humans and some animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> • I can describe the changes as humans develop to old age. • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. • Describe the ways in which nutrients and water are transported within animals, including humans. 	<ul style="list-style-type: none"> • I can explain the importance of hygiene to protect the body against disease and infection. • Describe the main parts of the human circulatory system. • Describe the main functions of organs of the human body [e.g. heart, lungs, stomach, intestines, kidneys]

		<ul style="list-style-type: none"> • Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Notice that animals, including humans, have offspring which grow into adults. • Investigate and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. 	<ul style="list-style-type: none"> • Describe the simple functions of the basic parts of the digestive system in humans. • Identify the different types of teeth in humans and their simple functions. 		
	<p>Investigate living things This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes.</p>	<ul style="list-style-type: none"> • Explore and compare the differences between things that are living, that are dead and that have never been alive. • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. • I can identify and name a variety of plants and animals in their habitats, including micro-habitats. • I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, 	<ul style="list-style-type: none"> • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys. • Recognise that environments can change and that this can sometimes pose dangers to specific habitats. 	<ul style="list-style-type: none"> • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Describe the life process of reproduction in some plants and animals. • Describe how living things are classified into broad groups according to common observable characteristics. • I can give reasons for classifying plants and animals based on specific characteristics. 	<ul style="list-style-type: none"> • Demonstrate an increasing knowledge and understanding of life processes and living things: i.e. applying 7 life processes to different organisms. Describe some of the causes of variation between living things. • I can use appropriate scientific terminology when describing life processes [e.g. respiration in animals, photosynthesis in plants]. • I can give reasons for classifying plants and animals based on specific characteristics. Identify that animals,

		and identify and name different sources of food.			including humans, need the right types and amounts of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
	<p>Understand evolution and inheritance This concept involves understanding that organisms come into existence, adapt, change and evolve and become extinct.</p>	<ul style="list-style-type: none"> • I can identify how humans resemble their parents in many features. 	<ul style="list-style-type: none"> • I can identify how plants and animals, including humans, resemble their parents in many features. • I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • I can identify how animals and plants are suited to and adapt to their environment in different ways. 	<ul style="list-style-type: none"> • I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<ul style="list-style-type: none"> • I can explain the terms 'inherited' and 'environmental' in relation to factors that can't change and factors that can • I can identify common variations between individuals, including some features (for example, eye colour) that are inherited and others (for example, height) that can also be affected by environmental factors. • I can describe how characteristics can be inherited by individuals and apply this knowledge [e.g. selective breeding]

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Chemistry	To investigate materials	<p>P4</p> <ul style="list-style-type: none"> I can intentionally change some materials by physical means e.g. mixing, squeezing I can sort objects by colour when there are two colours present I can observe outcomes of any intentional changes I have made (cause and effect) I can select an object for a purpose I can relate objects on video or image to concrete objects 	<p>P6</p> <ul style="list-style-type: none"> I can sort materials according to a single given criterion when the contrast is obvious e.g. hot and cold; wet and dry I can comment on the changes that I have observed I can describe the before and after of material changes I can show that I have closely observed changes that occurred using gesture and response e.g. when snow melts I can name some simple scientific equipment using symbols or signs 	<p>P8</p> <ul style="list-style-type: none"> I can identify a range of objects made from wood, metal and plastic I can begin to measure changes in materials using simple scientific equipment with support, e.g. timers, thermometers, microscope I can sort materials by simple criteria, e.g. size, shape, appearance, texture I can choose materials for specific purposes, e.g. transparency, waterproof etc. I can describe some of the properties of materials I have observed, e.g. it is big/hard/shiny
		<p>P5</p> <ul style="list-style-type: none"> I can sort objects by colour when 3 colours are present I can respond to simple scientific questions about the properties of different materials with visual support I can match objects and materials according to a single tactile property I can indicate the before and after of material changes linked to my everyday experiences e.g. ice lolly to water I can match objects and material according to a single visual feature or property from a given selection 	<p>P7</p> <ul style="list-style-type: none"> I can choose apparatus from a given selection to plan an investigation I can use specific terms when describing materials used, e.g.; shiny, bendy, strong, different I can select materials for specific purposes, e.g. picking up water, protecting glass (from a given selection) I can show awareness of some natural materials, e.g. wood, oil, rock I can describe a material by indicating several properties/features 	<p>P9</p> <ul style="list-style-type: none"> I can explore objects that are opaque/transparent/shiny/dull/bendy/not bendy I can describe materials using the terms; opaque/transparent/shiny/dull/bendy/not bendy I can identify objects made from glass/rock/plastic/wood I can begin to sort objects into groups I can state what a Bunsen burner might be used for I can begin to identify parts of Bunsen burner

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<p>Investigate materials</p> <p>This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p>	<ul style="list-style-type: none"> • I can distinguish between an object and the material from which it is made. • I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. • I can describe the simple physical properties of a variety of everyday materials. • I can compare and group together a variety of everyday materials on the basis of their simple physical properties. • I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses. 	<p>Rocks and Soils</p> <ul style="list-style-type: none"> • I can compare and group together different kinds of rocks on the basis of their simple, physical properties. • I can relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • I can describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • I can recognise that soils are made from rocks and organic matter. <p>States of Matter</p> <ul style="list-style-type: none"> • I can compare and group materials together, according to whether they are solids, liquids or gases. 	<ul style="list-style-type: none"> • I can compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets. • I can understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • I can give reasons, based on evidence from comparative and 	<ul style="list-style-type: none"> • I can observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C). • I can recognise some common conductors and insulators, and associate metals as good conductors. . Describe what happens when a liquid is heated [e.g. say that water boils, turns to a gas and use the term ‘evaporation’]. • I can describe some simple methods of separating mixtures, where the separate components are visible or can be felt [e.g. describe how to sieve sand and peas or decant water from water and sand]. • I can suggest how to separate a known mixture [e.g. filtration for sand and water, evaporation for obtaining salt from a salt and water mixture]. • I can describe some methods of separating mixtures where a more complex technique is used [e.g. explain how a coffee filter or teabag works].

			<ul style="list-style-type: none"> • I can observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius ($^{\circ}\text{C}$), building on their teaching in mathematics. • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <ul style="list-style-type: none"> • I can demonstrate that dissolving, mixing and changes of state are reversible changes. • I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, oxidisation and the action of acid on bicarbonate of soda. 	
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Physics	To investigate movement, forces and magnets; light and seeing; sound and hearing; electrical circuits; Earth and space.	<p>P4</p> <ul style="list-style-type: none"> • Activate a range of lighting effects on the computer of multi-sensory environment • I can communicate changes in movement e.g. fast/slow • I can cause movement by a pulling action • I can cause movement by a pushing action • I can communicate an awareness of changes in sound e.g. loud/quiet 	<p>P6</p> <ul style="list-style-type: none"> • I can listen for and try to identify sounds in the classroom and the school grounds • I can identify some appliances that use electricity e.g. battery-operated toys; ICT from a given selection • I can identify some sound sources from a selection of objects and/or picture symbols • I can identify some light sources from a selection of objects and/or picture symbol • I can make an object move at different speeds in different ways 	<p>P8</p> <ul style="list-style-type: none"> • I can show that I know day is light and at night it is dark • I can observe and tell you the changes in light, sound, movement that results from an action e.g. making a shadow, using a dimmer switch • I can identify some simple electrical components • I can describe the changes when questioned directly • I can observe the use of a magnet and begin to identify material as being magnetic or non-magnetic
		<p>P5</p> <ul style="list-style-type: none"> • I can use a range of equipment to initiate changes in familiar and relevant situations e.g. switching computers on; lights off to us torches; free paint colour mixing • I can identify sound sources when object is out of view • I can explore objects in the home and at school that use electricity • I can identify a range of objects within School that need to be pushed or pulled to move • I can respond to simple scientific questions about physical processes with visual support by demonstrating and trying out e.g. move objects to make them go; 	<p>P7</p> <ul style="list-style-type: none"> • I can demonstrate simple properties of sound e.g. making things loud/quiet • I can demonstrate simple properties of light e.g. making things bright/dull • I am aware that some equipment can be dangerous • I can demonstrate simple properties of movement e.g. fast/slow • I can explore magnets and sort things which "stick" to a magnet 	<p>P9</p> <ul style="list-style-type: none"> • I can sort objects into magnetic or non-magnetic using a magnet • I can explore the effect of light in a dark room • I can make a simple musical instrument - state how it works • I can create simple sound effects • I am aware that different things move at different speeds • I can identify the source of heating at home and at school • I can discuss how we could save energy • I can identify things that: roll, fly, slide • I can discuss what water can move • I know that the Sun appears to move across the sky

Breakdown of Threshold Concept	Milestone 1 Beverley Steps P10 – 11 NC Y1 & 2 (Entry Level 2 – Entry Level 3)	Milestone 2 Beverley Steps P12 – 13 NC Y3 & 4 (Level 1 Emerging – Level 1 Developing)	Milestone 3 Beverley Steps P14 – 15 NC Y5 & 6 (Level 1 Secure – Level 2 Emerging)	Milestone 4 Beverley Steps 16+ NC Y7 + (Level 2 Developing - GCSE 4+)
<p>Understand movement, forces and magnets.</p> <p>This concept involves understanding what causes motion.</p>	<ul style="list-style-type: none"> • I can notice and describe how things move, using simple comparisons such as faster and slower. • I can compare how different things move. 	<ul style="list-style-type: none"> • I can compare how things move on different surfaces. • I can notice that some forces need contact between two objects, but magnetic forces can act at a distance. • I can observe how magnets attract or repel each other and attract some materials and not others. • I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. • I can describe magnets as having two poles. • I can predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<p>Magnets</p> <ul style="list-style-type: none"> • I can describe magnets as having two poles. • I can predict whether two magnets will attract or repel each other, depending on which poles are facing. <p>Forces</p> <ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • I can identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. • I can describe, in terms of drag forces, why moving objects that are not driven tend to slow down. • I can understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. • I can understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>Forces and Magnets</p> <ul style="list-style-type: none"> • I can explain physical phenomena in terms of more abstract concepts [e.g. why dropped objects fall]. • I can understand forces as pushes or pulls, arising from the interaction between two objects. • I can describe processes that cause change [e.g. forces (work = force x distance; changing motion, dropping an object, turning a dynamo to produce light)]

	<p>Understand electrical circuits.</p> <p>This concept involves understanding circuits and their role in electrical applications.</p>	<ul style="list-style-type: none"> • I can identify common appliances that run on electricity. • I can construct a simple series electrical circuit. 	<ul style="list-style-type: none"> • I can identify common appliances that run on electricity. • I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • I can recognise some common conductors and insulators, and associate metals with being good conductors. 	<ul style="list-style-type: none"> • I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • I can use recognised symbols when representing a simple circuit in a diagram. 	
	<p>To understand light and seeing</p>	<ul style="list-style-type: none"> • I can make simple generalisations about physical phenomena [e.g. say that the more layers of tracing paper, the less light will come through]. 	<ul style="list-style-type: none"> • I can understand shadows occur when a light source is blocked by something • I can investigate and find patterns that determine the size of shadows [e.g. proximity to light source] 	<ul style="list-style-type: none"> • I can understand the terms transparent, translucent and opaque. • I can make generalisations about simple, observable phenomena [e.g. say that a shadow is always made when a light shines on an opaque object] 	<ul style="list-style-type: none"> • I can develop an awareness that light appears to travel in straight lines.

<p>To investigate sound and hearing</p>	<ul style="list-style-type: none"> I can observe vibrations and use the term vibrating to describe this movement [e.g. guitar strings, chime bars] 	<ul style="list-style-type: none"> I can observe vibrations and use the term vibrating to describe this movement [e.g. guitar strings, chime bars] I can observe vibrations and use the term vibrating to describe this movement [e.g. guitar strings, chime bars] 	<ul style="list-style-type: none"> I can understand the terms volume and pitch in relation to sound. 	<ul style="list-style-type: none"> I can understand simple relationships between the pitch of a sound and features of the object that produces it. I can make generalisations about phenomena that are less easy to observe [e.g. say that a sound is always made when an object vibrates]
<p>Understand the Earth's movement in space.</p> <p>This concept involves understanding what causes seasonal changes, day and night.</p>	<ul style="list-style-type: none"> I can observe the apparent movement of the Sun during the day. I can observe changes across the four seasons. I can observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> I can describe the movement of the Earth relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. 	<ul style="list-style-type: none"> I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. I can describe the Sun, Earth and Moon as approximately spherical bodies. I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	

This Subject Progression Map complements the Curriculum Map, which covers subject content over time. Curriculum Maps planned in Key Stages, and can be found on TEAMS.

