Key: Biology Chemistry Physics

		Y7 & Y8 cycle B LTP for Science	
		LA	**HA**
Autumn 1	**Key area of understanding**	**Introduction to Plants**	**Introduction to Plants**
	Knowledge & skills development	**Plants** – Recognise plants as being a living thing. Identify the different parts of plants. Begin to explore how plants grow and reproduce. **Fruit and vegetables** – Give examples of fruits and vegetable and begin to suggest what these are in terms of part of a plant. **Photosynthesis** – Recognise that plants make their own food and begin to link this to the word 'photosynthesis' ***Science skills –*** *Draw simple pictures, make simple observations and groupings, use simple charts, identify key features and ask questions.*	**Plants** – Use knowledge of living things to identify plants as being a living thing. Identify the different parts of plants. Begin to explore how plants grow and reproduce. **Fruit and vegetables** – Use knowledge of food chains to give examples of fruits and vegetable and begin to suggest what these are in terms of part of a plant. **Photosynthesis** – Recognise that plants make their own food and begin to link this to the word 'photosynthesis'. build upon existing knowledge of food chains and webs to consider plants as being 'producers' that produce their own food. ***Science skills –*** *Begin to use more in-depth scientific vocabulary, begin to use different resources to find things out, identify key features and ask questions.*
Autumn 2	**Key area of understanding**	**How Materials Change**	**How Materials Change**
	Knowledge & skills development	**Materials** – Begin to explore different types of materials, both natural and man-made. Begin to consider how to separate mixtures of materials in a simple way. **States of matter** – Begin to recognise that materials can be solids, liquids and gases and that they can change between the three. **Atoms** – Recognise that atoms make up everything. Begin to consider particle diagrams. **Reactions** – Begin to recognise simple reactions and what happens when materials react with each other. ***Science skills*** *- Test ideas, say what they think will happen, use first hand experiences to answer questions, make simple comparisons, say what has happened and if it was expected.*	**Materials** – build upon existing knowledge of materials to give examples and begin to consider how to separate mixtures of materials in a simple way. **States of matter** – Recall and recognise that materials can be solids, liquids and gases and that they can change between the three. **Atoms** – Recognise that atoms make up everything. Begin to consider particle diagrams. **Reactions** – Begin to recognise simple reactions and what happens when materials react with each other. ***Science skills*** *- Use simple equipment, compare objects, make observations, begin to recognise when a test is unfair, make observations using appropriate senses, record observations, communicate observations orally, in drawing, labelling, simple writing and using ICT.*
Spring 1	**Key area of understanding**	**Introduction to Energy**	**Introduction to Energy**
	Knowledge & skills development	**Energy** – Identify the different types of energy (light, sound, heat, movement, electrical, chemical, elastic, gravitational and magnetic). Begin to investigate some of the different types of energy, such as heat, movement, chemical and elastic. ***Science skills*** *- respond to questions, collect and record data to answer questions, begin to select equipment from a limited range.*	**Energy** – build upon existing understanding of light and sound to explore these as types of energy. Identify other types of energy (heat, movement, electrical, chemical, elastic, and gravitational). Begin to investigate energy, such as heat, movement, chemical and elastic. ***Science skills*** *- Put forward own ideas, recognise the need to collect data, carry out a fair test with support, recognise and explain why it is a fair test.*
Spring 2	**Key area of understanding**	**Understanding Animals**	**Understanding Animals**
	Knowledge & skills development	**Types of animals** – Begin to identify the different types of animals and recognise what makes them different to each other (mammals, birds, fish, amphibians and reptiles). **Humans** – Explore humans as mammals. **Carnivores, herbivores and omnivores** – Begin to identify what these are and suggest examples. ***Science skills –*** *Continue to use simple scientific vocabulary, suggest how to find things out, identify key features and ask questions.*	**Types of animals** – Use existing knowledge of classification to identify the different types of animals and what makes them different to each other (mammals, birds, fish, amphibians and reptiles). **Humans** – Explore humans as mammals. **Carnivores, herbivores and omnivores** – build upon existing knowledge of food chains/webs to identify what these are and suggest examples. ***Science skills*** *- Use pictures and diagrams to describe findings, identify key features and begin to ask more in-depth questions.*
S	**Key area of**	**Introduction to Evolution**	**Introduction to Evolution**

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	understanding		
	Knowledge & skills development	**Animals and plants** – Recall how to identify different animals and plants from previous areas of learning. Begin to explore that animals and plants have changed over time and compare prehistoric animals and plants with modern day animals and plants. **Fossils** – Recognise images of fossils and begin to understand that they show us what plants and animals looked like a long time ago. **Variation** – Explore further that people look different and begin to understand why this might be. **Evolution** – Identify who Darwin was and begin to explore that animals and plants have changed over time in a process called evolution. ***Science skills –*** *Begin to use more in-depth scientific vocabulary, begin to use different resources to find things out, identify key features and ask questions.*	**Animals and plants** – Recall how to identify different animals and plants. Begin to explore that animals and plants have changed over time and compare prehistoric animals and plants with modern day animals and plants. **Fossils** – Recall what fossils are from previous learning. Begin to explore more deeply that they show us what plants and animals looked like a long time ago. **Variation** – Explore further that people look different and begin to understand why this might be. **Evolution** – Identify who Darwin was and begin to explore thatt animals and plants have changed over time in a process called evolution. ***Science skills*** *- Use pictures, writing, diagrams and tables, record observations in different forms and select appropriate format to record observations.*
Summer 2	**Key area of understanding**	**Introduction to Electricity**	**Introduction to Electricity**
	Knowledge & skills development	**Electricity** – Explore further what electricity is as an energy and the uses of it, using knowledge from Energy topic. Begin to consider safety issues around electricity. **Circuits** – Identify different circuits and begin to build series and parallel circuits. ***Science skills*** *- Begin to draw simple conclusions and explain what happened, begin to suggest improvements in work.*	**Electricity** – Explore further what electricity is as an energy and the uses of it, using knowledge from Energy topic. Begin to consider safety issues around electricity. **Circuits** – Identify different circuits and begin to build series and parallel circuits. ***Science skills*** *- Communicate in a scientific way what has been found out, begin to identify patterns in recorded measurements, suggest improvements, begin to evaluate findings.*

MTPs, that can be viewed and discussed upon request, provide in depth details for the full range of St Hugh's learners.

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		Y7 & Y8 cycle B LTP for Science	
		LA	**HA**
Autumn 1	**Key area of understanding**	**Understanding Materials**	**Understanding Materials**
	Knowledge & skills development	**Materials –** Begin to explore different types of materials, both natural and man-made. Begin to recognise what they can be used for and explore how to test them. **Recycling –** Recognise what recycling is and why it is important. ***Science skills*** *- Test ideas, say what they think will happen, use first hand experiences to answer questions, make simple comparisons, say what has happened and if it was expected.*	**Materials –** build upon existing knowledge of materials (including metals) to recognise what they can be used for and begin to explore how to test them. **Recycling –** Recognise what recycling is and why it is important. ***Science skills*** *- Use simple equipment, compare objects, make observations, begin to recognise when a test is unfair, make observations using appropriate senses, record observations, communicate observations orally, in drawing, labelling, simple writing and using ICT.*
Autumn 2	**Key area of understanding**	**Understanding Light and Sound**	**Understanding Light and Sound**
	Knowledge & skills development	**Sound –** Begin to explore what sound is and how it is made. Identify different sounds. **Light –** Begin to explore what light is and how we use it to see. Explore different colours of light and begin to investigate how we can change direction of light rays. ***Science skills*** *- respond to questions, collect and record data to answer questions, begin to select equipment from a limited range.*	**Sound –** build upon existing knowledge of energy to explore sound in further detail. Identify different sounds and start to understand how sound is made. **Light –** build upon existing knowledge of light from the energy topic to explore how we use it to see. Explore different colours of light and begin to investigate how we can change direction of light rays. ***Science skills*** *- Make relevant observations, measure using given equipment, select equipment from a limited range.*
Spring 1	**Key area of understanding**	**Introduction to Earth and Space**	**Introduction to Earth and Space**
	Knowledge & skills development	**Solar system –** Recall from primary the names of the planets. Begin to explore Earth as a planet including night, day and shadows. Begin to consider the phases of the moon. **Space missions** - Explore the idea of visiting space and begin to recognise space missions of the past and future. ***Science skills –*** *Draw simple pictures, make simple observations and groupings, use simple charts, identify key features and ask questions.*	**Solar system –** Recall from primary the names of the planets. Begin to explore Earth as a planet including night, day and shadows. Begin to consider the phases of the moon. **Space missions** - Explore the idea of visiting space and begin to recognise space missions of the past and future. ***Science skills*** *- Use pictures and diagrams to describe findings, identify key features and begin to ask more in-depth questions.*
Spring 2	**Key area of understanding**	**Exploring Habitats**	**Exploring Habitats**
	Knowledge & skills development	**Living and dead –** Recognise whether something is alive or dead, or has never been alive. **Habitats –** Recognise different types of habitats both locally and around the world. **Food chains and webs –** Identify what different animals eat and how these are linked. Build food chains and food webs for local habitats. **Classification –** Begin to suggest how we identify different animals. Begin to consider different ways we can group animals and plants. ***Science skills –*** *Continue to use simple scientific vocabulary, suggest how to find things out, identify key features and ask questions.*	**Living and dead –** Recognise whether something is alive or dead, or has never been alive. Begin to make links to previous learning on animals and plants and how we know if they are alive or dead. **Habitats –** Recognise different types of habitats both locally and around the world. Begin to make links to previous learning about animals and plants and which kind you would find in different habitats. **Food chains and webs –** build upon existing understanding of animals and plants to begin to explore how they live together and feed from each other. Build food chains and food webs for local habitats. **Classification –** Recall different types of animals and plants from year 7 and how we identify them. Begin to consider different ways we can group animals and plants. ***Science skills*** *- Use pictures, writing, diagrams and tables, record observations in different forms and select appropriate format to record observations.*
Sum	**Key area of understanding**	**Introduction to Forces and Magnets**	**Introduction to Forces and Magnets**
	Knowledge &	**Magnets –** Begin to explore what magnetism is and how magnets work.	**Magnets –** build upon existing knowledge of energy to further explore what magnetism

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	skills development	**Forces** – Consider what forces are and how they act upon things. Begin to explore items that float and sink linking this to the forces on them. ***Science skills*** *- Begin to draw simple conclusions and explain what happened, begin to suggest improvements in work.*	is and how magnets work. **Forces –** Consider what forces are and how they act upon things. Begin to explore items that float and sink linking this to the forces acting on them. ***Science skills*** *- Put forward own ideas, recognise the need to collect data, carry out a fair test with support, recognise and explain why it is a fair test.*
Summer 2	**Key area of understanding**	**Introduction to Rocks and Fossils**	**Introduction to Rocks and Fossils**
	Knowledge & skills development	**Rocks** – Use knowledge about materials to explore different types of rocks. Begin to consider the rock cycle and how this creates different rocks. Explore erosion and how this affects rocks. **Fossils** – Begin to identify what fossils are recognise what they are useful for. Begin to explore how they are made. ***Science skills*** *- Make relevant observations, measure using given equipment, select equipment from a limited range.*	**Rocks** – Use knowledge about materials to explore different types of rocks. Begin to consider the rock cycle and how this creates different rocks. Explore erosion and how this affects rocks. **Fossils** - build upon existing knowledge from other topics to recognise fossils and what they are useful for. Begin to explore how they are made. ***Science skills*** *- Communicate in a scientific way what has been found out, begin to identify patterns in recorded measurements, suggest improvements, begin to evaluate findings.*

MTPs, that can be viewed and discussed upon request, provide in depth details for the full range of St Hugh's learners.

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		Y9	Y10	Y11
Autumn	Key area of understanding	Cells, Genetics, Inheritance and Modification	Health, Disease and the Development of Medicine	Embedding and revisiting Cells, Genetics, Inheritance and Modification and Health, Disease and the Development of Medicine Using the same MTPs as year 9 and 10 to embed or extend learning
	Knowledge & skills development	**Cells** – recognise that cells are the building blocks of life and identify different types of cells. Begin to identify different parts of the nervous system. **Genetics and Inheritance** – recognise what DNA is and understand that genes are passed on from parent to offspring. Continue to develop an understanding of how evolution works. **Modification** – begin to explore the idea that genes can be changed and adapted. ***Science skills*** *- realise that scientific ideas are based on evidence, make a series of observations and measurements, begin to relate conclusions to scientific knowledge and understanding, select information from a range of sources.*	**Health and Disease** – understand what pathogens are and begin to explore how diseases are spread as well as how the body defends itself. Continue to explore how lifestyle can impact health. Begin to explore what cancer is. **Development of Medicine** – Begin to understand what antibiotics are and how they work. ***Science skills*** *- select a range of appropriate sources of information including books and the internet, make predictions based on scientific knowledge and understanding, draw conclusions that are consistent with evidence.*	**Cells** – compare different cells and begin to understand how the nervous system works. **Genetics and Inheritance** – explore the concept of inheritance and how this can lead to variation in offspring. Begin to describe examples of evolution such as giraffes. **Modification** – recognise that genes are changed for human benefit and begin to explore the reasons for this. **Health and Disease** – Consider ways that lifestyle can be changed to improve health. Recognise different types of cancer and how it can be treated. **Development of Medicine** – Begin to recognise that bacteria can become resistant to antibiotics. ***Science skills*** *- select and use information effectively, show how interpretation of evidence leads to new ideas.*
Spring	Key area of understanding	Atoms, Compounds and States of Matter	Separating Mixtures, Breaking down Substances, Acids and Metals	Embedding and revisiting Atoms, Compounds, States of Matter and Separating Mixtures, Breaking down Substances, Acids and Metals Using the same MTPs as year 9 and 10 to embed or extend learning
	Knowledge & skills development	**Atoms** – recognise atoms and their subatomic particles and understand how compounds are made from atoms. Continue to recognise elements in the periodic table and use the periodic table to gain information. **Compounds** – understand that atoms can be joined to make compounds. Begin to explore how different atoms are joined (bonded) **States of Matter** – consider how to change between different states of matter and what this looks like at a particle level ***Science skills*** *- Record observations, comparisons and measurements using tables and bar charts, begin to plot points to form a simple graph, carry out measurement accurately, make a series of observations, comparisons and measurements, select and use suitable equipment, predict outcomes using previous experience and knowledge and compare with actual results.*	**Acids** – know what acids and alkalis are, with examples, and begin to identify them on the pH scale. **Metals** – Recall examples of metals. Recognise metals as elements and man-made substances and how this effects their properties. **Separating Mixtures** – Recall how to simply separate mixtures. Begin to explore how to separate more complex mixtures. **Breaking down Substances** – Explore electrolysis in a simple way. ***Science skills*** *- record observations, use appropriate scientific language, build upon existing knowledge with evidence to provide scientific explanations, select apparatus for a range of tasks, plan to use apparatus effectively, offer simple explanations for any differences in results.*	**Atoms** – recognise atoms and their subatomic particles and understand how compounds are made from atoms. Continue to recognise elements in the periodic table and use the periodic table to gain information. **Compounds** – understand that atoms can be joined to make compounds. Begin to explore how different atoms are joined (bonded) **States of Matter** – consider how to change between different states of matter and what this looks like at a particle level **Acids** – Explore in more depth what happens when acids and alkalis react. Begin to consider neutralisation word equations. **Metals** – Begin to explore metals and their reactions with other substances. **Separating Mixtures** – identify and explore different methods of separation depending on the mixtures. **Breaking down Substances** – Begin to explore electrolysis at an atomic level.

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				Science skills *- describe evidence for a scientific idea, measure quantities with precision, make enough measurements or observations for the required task, make reasoned suggestions on how to improve working methods.*
Summer	**Key area of understanding**	**Forces, Movement and Energy**	**Waves and Radiation**	**Embedding and revisiting Forces, Movement, Energy, Waves and Radiation** Using the same MTPs as year 9 and 10 to embed or extend learning
	Knowledge & skills development	**Forces** – recall different forces and how they respond to each other. Draw force diagrams using suitable size arrows. **Movement** – Recognise what speed is and the units we can measure it in. Begin to understand what acceleration is and how we can change this. Understand what stopping distance is and how this can be affected. **Energy** – recall the different types of energy and give examples of these. Begin calculating energy outputs. Recognise renewable energy sources and how these can help reduce pollution. ***Science skills*** *- Use graphs to point out and interpret patterns in their data, describe which factors are varying and which will remain the same, carry out measurement accurately, make a series of observations, comparisons and measurements, select and use suitable equipment, suggest improvements.*	**Waves** – identify different waves and how they move, using previous knowledge of light and sound as examples. Begin to explore the electromagnetic spectrum. **Radiation** – Recall what atoms are and begin to consider that they can be damaging to cells. ***Science skills - make a series of observations, comparisons and measurements with increasing precision, select apparatus for a range of tasks, plan to use apparatus effectively, begin to make repeat observations and measurements, make suggestions on how to improve.***	**Forces** – Consider how forces can be changed. **Movement** – Investigate how to change acceleration. Begin to calculate acceleration. Begin to calculate stopping distances. **Energy** – Start to compare renewable energy sources and consider why some are useful in the UK and others are not. **Waves** – Recognise the different parts of the electromagnetic spectrum. Begin to compare transverse and longitudinal waves. **Radiation** – Compare the different types of radiation and how they can be dangerous. ***Science skills*** *- choose scales for graphs which show data and features effectively, begin to identify anomalous data, use appropriate ways to communicate quantitative data, explain conclusions, showing understanding of scientific ideas.* (GCSE exams)

The above LTP demonstrates the progression and curriculum offer for the core of learners within the identified year group. Students will not be taught directly from accreditation specifications. MTPs, that can be viewed and discussed upon request, provide in depth details for the full range of St Hugh's learners.