AC Science Curriculum Overview and Rationale

EYFS (UW)	**Autumn 1** My home, school and community. Seasonal changes	**Autumn 2** Other cultures around the world and celebrations UK wildlife	**Spring 1** Animal habitats in the UK and abroad Cold climates Seasonal changes	**Spring 2** Past and Present - Kings and Queens, Fairytales	**Summer 1** Microhabitats Biodiversity Seasonal changes`	**Summer 2** Countries beyond the UK Important people now and in the past
Year 1	**Autumn 1** Topic: Biology Animals Including Humans	**Autumn 2** Topic: Physics Seasonal changes Autumn and Winter	**Spring 1** Topic: Chemistry Materials	**Spring 2** Topic: Physics Seasonal changes Spring to Summer	**Summer 1** Topic: Biology Plants	**Summer 2** Topic: Scientists and Inventors
Year 2	**Autumn 1** Topic: Biology Living things and their Habitats	**Autumn 2** Topic: Biology Animals including humans	**Spring 1** Topic: Chemistry Uses of Materials	**Spring 2** Topic: Biology Plant Survival	**Summer 1** Topic: Biology Minibeasts	**Summer 2** Topic: Scientists and Inventors
Year 3	**Autumn 1** Topic: Chemistry Rocks	**Autumn 2** Topic:Biology Animal Nutrition and the Skeletal System	**Spring 1** Topic: Physics Forces and Magnets	**Spring 2** Topic: Biology Plant Nutrition and Reproduction	**Summer 1** Topic: Physics Light and Shadows	**Summer 2** Topic:. Biodiversity: Birds
Year 4	**Autumn 1** Topic: Biology Living things and their habitats	**Autumn 2** Topic: Biology Food and the Digestive System	**Spring 1** Topic: Physics Electrical Circuits and Conductors	**Spring 2** Topic: Chemistry States of Matter	**Summer 1** Topic: Physics Sound	**Summer 2** Topic: Reduce, Reuse, recycle.
Year 5	**Autumn 1** Topic: Chemistry Properties and Changes of Materials	**Autumn 2** Topic: Physics Forces and Mechanisms	**Spring 1** Topic: Physics Earth and Space	**Spring 2** Topic: Biology Reproduction and Ageing	**Summer 1** Topic: Biology Living things and their habitats	**Summer 2** Topic: Changing Oceans.
Year 6	**Autumn 1** Topic: Biology	**Autumn 2** Topic: Biology	**Spring 1** Topic: Physics	**Spring 2** Topic: Physics	**Summer 1** Topic: Biology	**Summer 2** Topic: Scientists and

	Habitats and living things	Animals Including Humans	Light Theory	Electrical Circuits and Components	Evolution and Inheritance	inventors.

Year 1 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Animals Including Humans	Seasonal changes Autumn and Winter	Materials	Seasonal changes Spring to Summer	Plants	Scientists and Inventors
This is a good starting unit for year 1, as children already have scientific experiences (including through EYFS) that feed into the curriculum content in this unit and can be built on (e.g. parts of the human body, animal identification)	This unit fits well with the time of year so children can observe the features of both autumn and winter. Good like with the humanities unit. The Seasonal Changes unit is split into Autumn and Winter and Spring and Summer. This allows children to observe the seasons at the correct time of year.	This unit involves lots of new vocabulary so teaching it at this point in the year may challenge children's reading and writing skills. The unit contains lots of scientific enquiry work. Enquiries can be tailored to the weather found at this time of year, e.g. investigating the best material for an umbrella or would link well with the toys	This is the best time of year for observing spring and summer. It offers a good opportunity for retrieval practice, as children also recap their knowledge of autumn and winter. The final lesson in this unit could bring all four seasons together.	This time of year is suited to outdoor learning and growing plants. As noted in the non-statutory guidance of the national curriculum for this unit, children should look at plants throughout the year in their local environment.	'Scientists and Inventors' unit will teach famous scientists and inventors linked to the Y1 science curriculum. For example children will learn about the inventions of Lego and ear muffs, and will explore the materials used to make them. Children will find out about the work of animal scientists, such as

		humanities unit e.g. best materials for a new toy.			vets and zoo keepers. They will group and sort animals to make their own paper zoo.

Year 2 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Living things and their Habitats	Animals Including Humans	Uses of Materials	Plant Survival	Biodiversity -Minibeasts	Scientists and Inventors
September and October are ideal times to get outdoors and study habitats in the local area. It is easy to observe plant and animal life (including minibeasts) at this time of year.	Teaching this unit early on in the year is an appropriate time to teach the exercise, balanced diet and hygiene content, as children will be able to follow the advice given throughout the year.	Teaching this unit now much of year 2 requires the outdoor environment, placing the unit here suits the poorer weather conditions generally found in January and February.	Ideally, this unit should be taught after Animals Including Humans, as children will have looked at animal life cycles (a more familiar context) before moving on to plant life cycles here.	This is an ideal time of year for minibeasts. Children can retrieve and build on their knowledge from the Living Things and Their Habitats, Animals Including Humans and Plants topics during this unit and expand their understanding of sustainability themes. Links well with a trip to a local	The unit focuses on famous scientists and inventors linked to the Year 2 science curriculum. Children will learn about the invention of the waterproof coat, and will explore other waterproof materials by carrying out simple tests. Children will find out about the work of doctors, and will learn about Elizabeth Garrett

				park at this time of year.	Anderson, the first woman doctor in Britain.

Year 3 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rocks	Animal Nutrition and the Skeletal System	Forces and magnets	Plant nutrition and reproduction	Light and shadows	Biodiversity: Birds
This unit is a suitable one to begin lower key stage 2, as children will have reference points for the content to be taught (materials, soil and fossils, such as those from dinosaurs). It also provides a range of working scientifically opportunities to start progressing these skills at a KS2 level. It is also a good unit	The nutrition content is ideal to be taught earlier in the year, as children will be able to follow the advice given throughout the year. Possibly swap Autumn 1 and 2. However both units are suitable for earlier in their year due to the progression of scientific skills.	This is the first time children will have been formally taught about forces and magnets. Placing this unit later in the year allows for more developed reading, writing and working scientifically skills to enable children to access the more difficult substantive content in this unit.	Placing this unit at this point in the year allows access to the outdoor environment in improving weather and at a time that enables observations of plant life cycles and the various parts of the plant.	This time of year allows coverage of the 'dangers of light from the Sun' aim. Conditions at this time of year also enable practical work to investigate shadows outside (in addition to more controlled enquiries in the classroom).	In this unit children will build upon the knowledge acquired in Year 1 and 2. They understand that birds are a common animal group and know about habitats and how living things depend on each other and how different animals obtain their food. This unit will develop understanding of the basic needs of a

to link to Stone Age study in history and provides many opportunities for beginning-of-the-year trips.	Rocks in Autumn 2 enables children to have prior knowledge of fossils for their Humanities topic in the spring term	Push and pull forces drive tectonic plate movement so this unit will work well with Spring 1 Humanities.			range of birds and how this impacts their survival then explain how human actions can impact on bird decline.

Year 4 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Living things and their habitats	Food and the digestive system	Electrical Circuits and conductors	States of matter	Sound	Reduce, Reuse and Recycle
This unit can make use of the outdoor environment at a suitable time of year and allows for study of the local environment throughout the rest of the year, in line with the non-statutory guidance of the programme of study.	The food chain curriculum objective fits in well after children have identified different living things and studied habitats in the Living Things and Their Habitats unit.	This is the first time children will have formally studied electricity. Placing the unit later in the year allows for more developed reading, writing and working scientifically skills to enable children to access the more difficult substantive content in this unit.	This unit is to be taught before Sound so that children have an understanding of particles. The usually wet but warming weather conditions at this time of year can allow for easier observation of evaporation, e.g. puddles or washing drying.	This unit ideally follows the study of particles in States of Matter. As in the Electricity unit, there is a lot of new substantive knowledge in this unit that may be suited to later in the year.	Children will learn about different types of waste and how waste is produced, as well as the importance of reducing it through the 3Rs – reducing, reusing and recycling. They will learn about what 'energy' is, what a carbon footprint is

					and how it is measured. Children will also learn about how waste impacts the environment and wildlife and what they could potentially do to help.

Year 5 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Properties and Changes of Materials	Forces and Mechanisms	Earth and Space	Animals including Humans	Living things and their habitats	Changing Oceans
This unit leads on well from year 4 States of Matter. It is a good unit to begin UKS2 with, with plenty of working scientifically skills being developed.	It is recommended this unit is taught before Earth and Space so that children have an understanding of gravity before that unit is taught.	Shorter days at this point in the year allow for observation of the phases of the Moon and discussions about day and night.	As this unit covers puberty and adolescence, gestation periods, growth and development it can be moved to fit with the PSHE curriculum if needed.	It is appropriate to teach this unit after Animals Including Humans, as children will have an understanding of the human life cycle before going on to study wider mammalian life cycles (and those from other groups) and reproduction in	This unit should be taught after animals and habitats because children will use their knowledge of reproduction and lifecycles of plants and organisms.

				animals and plants.	

Year 6 Rationale

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Living things and their habitats	Animals including Humans	Light Theory	Electrical circuits and components	Evolution and Inheritance	Scientists and Inventors
Children will have a good understanding of the substantive knowledge needed in this unit from their previous learning. Autumn lends itself to any classification work in the local environment.	The content on the impact of diet, exercise, drugs and lifestyle on the way bodies function may be an appropriate message to deliver earlier in the year, as children will be able to follow the advice given throughout the year.	The positioning of this unit within the year could be flexible; however, controlled light experiments (e.g. using light sources such as torches) will be easier in the spring term due to darker conditions.	The use of bulbs could be used as an opportunity to retrieve prior knowledge from the Light unit.	This unit should be taught after the classification content of Living Things and Their Habitats. This is the first time children will have formally studied evolution and inheritance so it is better suited to later in the year..	Children learn about famous scientists and inventors linked to the Upper Key Stage 2 science curriculum. They will learn about the life and work of Stephen Hawking, and carry out an investigation into Hawking's theories

					on black holes. They will also find out about the life and work of Steve Jobs, and his development of new electronics and technologies.