CURRICULUM PROGRESSION GRID: SCIENCE			
Upper Key Stage 2- Working Scientifically and Biology units.			
Working scientifically	**Animals including humans**	**Evolution and inheritance**	**Living things and their habitats**
NC Link: Pupils should be taught to: - Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms	**NC Link:** Pupils should be taught to: - 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 impact of diet, exercise, drugs and lifestyle on the way their bodies function - Describe the ways in which nutrients and water are transported within animals, including humans.	**NC Link:** Pupils should be taught to: - Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**NC Link:** Pupils should be taught to: - 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 and based on similarities and differences, including microorganisms, plants and animals - Give reasons for classifying plants and animals based on specific characteristics

such as displays and other presentations - Identify scientific evidence that has been used to support or refute ideas or arguments.			
Theme links: Throughout	**Theme link**s: 'Sport' Cycle B Sum 2	**Theme link**s: 'Galapagos' Cycle A Spr 2	**Theme link**s: 'Under the sea' Cycle A Aut 2 and Spr 1
Builds On: LKS2: - Pupils can suggest relevant questions and know that they could be answered in a variety of ways, including using secondary sources such as ICT. Answer questions using straight forward scientific evidence. - They can make decisions about different enquiries, including recognising when a fair test is necessary and begin to identify variables. - Pupils can make systematic and careful observations. - They take accurate measurements using standard units and a range of equipment, including thermometers and data loggers. - They can identify similarities/differences/changes when talking about scientific processes. Use and begin to create simple keys.	**Builds On: LKS2:** - Pupils can understand that a variety of food is needed to get the correct nutrition (balanced diet)- protein, carbohydrates, fats and vitamins. -They understand how nutrients, oxygen and water are transported around animals and humans. - Pupils can label the digestive system and explain how it works e.g. mouth, oesophagus, stomach, intestines and anus. - Pupils can label the teeth and describe the different roles they play in digestion. -They can compare the teeth of herbivores and carnivores. - Pupils describe food chains and can give examples. -They can compare different food chains. - They can understand that the skeleton of humans and other	**Builds On: LKS2:** -Pupils can compare and group different kinds of rocks using their appearance and physical features. - They can describe and explain how different rocks are useful to us. -They can describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed. -They can understand and describe in simple terms how fossils are formed. - Pupils can explain how a variety of soils are made. - They can compare different soils	**Builds On: LKS2:** -Pupils recognise that living things can be grouped in a variety of ways. - They explore and use a classification key to group, identify and name a variety of living thing (plants, vertebrate, invertebrate) - Pupils can compare the classification of common plants and animals to living things found in other places. (under the sea, prehistoric -They name and group a variety of living things based on feeding patterns (producer, consumer, predator, prey, herbivore, carnivore, omnivore) - They understand that environments can change and can be a danger.

- Pupils choose appropriate ways to record and present information (diagrams, tables and charts), findings and conclusions for different audiences (e.g. displays, oral or written explanations). -Pupils can identify, with help, changes, patterns, similarities and differences in data to help form conclusions. Use scientific evidence to support their findings. - They can draw, with help, a simple conclusion based on evidence from an enquiry or observation - They use recorded data to make predictions, pose new questions and suggest improvements for further enquiries.	animals create support, protection and movement. -They can label the skeletal system–skull, ribs, spine etc. -Pupils understand the role the muscles play in helping them move and can explain how muscular and skeletal system work together.		
Intent (overarching success criteria) - Pupils can pose/select the most appropriate line of enquiry to investigate scientific questions. - They can select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests. - Pupils can make their own decisions about which observations to make, using test results and observations to make predictions or set up further comparative or fair tests.	**Intent (overarching success criteria)** - Pupils can explain the role of the circulatory system and the function of key components such as blood vessels, heart, veins and arteries. - Pupils can explain what the blood is made up of. - Pupils can describe the way water and nutrients are transported within animals including humans. - They can describe the effects of an unhealthy lifestyle on the body such as diet, exercise, drugs and lifestyle.	**Intent (overarching success criteria)** - Pupils understand how living things change over time. - They can discuss the way fossils are made and what they tell scientists. -Pupils can give reasons and explain how offspring are similar but not identical to their parent due to genes and DNA. -Pupils can explain the process of evolution and describe the evidence for this. - Pupils understand that animals adapt and evolve to suit their	**Intent (overarching success criteria)** - Pupils understand the lifecycle of a mammal e.g. dolphin, human, dog. - They understand the lifecycle of an amphibian- e.g. frog, toad - They can explain the lifecycle of an insect- e.g. butterfly, dragonfly. -They can understand the lifecycle of a bird- e.g. penguin, seagull. -Pupils are able to compare the similarities and differences to the above lifecycles. - They understand the reproduction of plants and some animals.

- They choose the most appropriate equipment in order to take measurements, explaining how to use it accurately. Decide how long to take measurements for, checking results with additional readings. - They can identify and explain patterns seen in the natural environment. - Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models. - Pupils can identify and explain causal relationships in data and identify evidence that supports or refutes their findings, selecting fact from opinion. - They can identify validity of conclusion and required improvement to methodology. - Pupils can discuss how scientific ideas develop over time	- Pupils can understand that humans grow old from a baby, to child, to a teenager, young adult, adult and then to an elder.	environment. For example, Galapagos Tortoise, Polar Bears.	-They can describe the life cycles of common plants. - Pupils can classify animals, plants, microorganisms, and give reasons for their classifications.
	Extended Write: **To write an explanation text about how the circulatory system works.**	**Extended Write:** **To write a biography/interview on Charles Darwin and incorporate his findings on evolution and inheritance.** **To write an argument / debate on evolution**	**Extended Write:** **To write leaflets for Nell Bank to show pupils the difference in animal and plant life cycles and well as key information on classification**
Vocabulary:	**Vocabulary:**	**Vocabulary:**	**Vocabulary:**

Plan Variables Measurements Accuracy Precision Repeat readings Record data Scientific diagrams Labels Classification keys Tables Scatter graphs Bar graph Line graphs Predictions Further comparative and fair test Report and present conclusions Causal relationships Explanations Degree of trust Refute ideas or arguments Identify Classify Describe Patterns Systematic Quantitative measurements	Foetus Embryo Womb Gestation Baby Toddler Teenager Elderly Growth Development Puberty Circulatory Heart Blood Vessels Veins Arteries Oxygenated Deoxygenated Valve Exercise Respiration	Fossils Adaptation Evolution Characteristics Reproduction Genetics	Mammal Reproduction Insect Amphibian Bird Offspring Classification Vertebrates Invertebrates Micro-organisms Amphibians Reptiles Mammals Insects
	Scientists Justus von Liebig (Theories of Nutrition and Metabolism)	**Scientists** Charles Darwin and Alfred Russel Wallace (Theory of Evolution by Natural Selection)	**Scientists** James Brodie of Brodie (Reproduction of Plants by spores) Carl Linnaeus

	Sir Richard Doll (Linking Smoking and Health Problems) Leonardo Da Vinci (Anatomy)	Rosalind Franklin (DNA) Jane Goodall (Chimpanzees)	(Classification systems) Maria Sibylla Merian (Life cycles)
	Reading books - Pig Herat Boy-Malorie Blackman (Circulation) - Illumanatomy - A Heart Pumping Adventure-Heather Manley - Skellig-David Almond	Reading books - One smart fish (Evolution) - The Emperor's Egg (adaptation) - Why the whales came (adaptation) - Meerkat mail (Adaptation) - Tree Lady (Adaptation) - Creature Features - Our Family Tree-Lisa Westberg Peters - The Molliebird-Jules Pottle	**Reading books** - Beetle Boy-M G Leonard - Insect Soup- Barry Louis Polisar - Fur and Feathers _Janet Halfmann - Charlotte's web (Lifecycles) - Actual Size - Mummy Laid an Egg-Bebette Cole