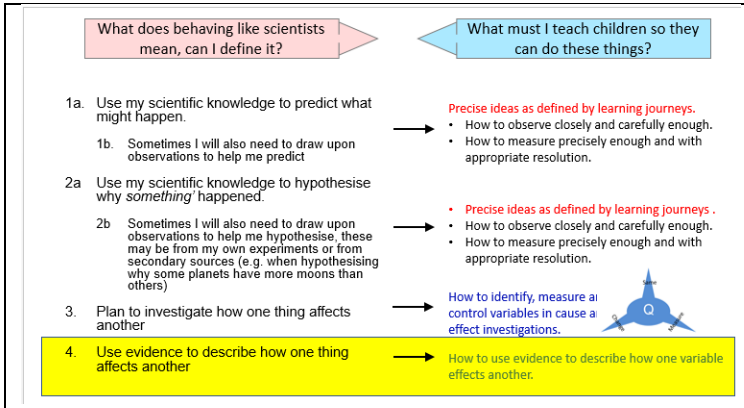
Learning journey	Science	Fossils, Geological Time and Classification	Year 5 Autumn 2	

Building on prior learning	Theme overview	Preparing for future learning	Vocabulary
In Y3 children will have learned how soils are made by decomposition of dead plant matter and that nutrients are present in the soil to aid plant growth In Y5 children will learn: How fossils were formed in rocks and	• The Earth is very old. Around 4.2 **billion** years. We know this from dating rocks • Life first appeared on Earth around 3.8 billion years ago. • Life was, at first, very simple but over **millions** and millions of years life became more complex through the process of **evolution** • There are many sources of evidence for evolution • **Fossils** are one of the main sources of evidence for evolution. They show when new organisms appear and when they go **extinct**. • Due to the nature of fossil formation and discovery, fossils only provide an incomplete record of evolution. • Scientists use fossils along with other pieces of evidence *(DNA, Embryology, comparative anatomy, artificial selection)* to work out how organisms have evolved • Fossils form when dead organisms are rapidly buried or leave an imprint and are turned to stone over a long period of time. If they	In Y6 children will learn about how evolution happened. They will look at how fossils provide evidence for evolution. They will also learn about different life cycles and why they are different. They will also learn about Evolution and natural selection. However, this unit draws on every biology topic covered. They will have learnt about circulation and nutrients earlier in Y6.	

Million	A number that is equivalent to the product of a thousand and a thousand e.g., 1,000,000 (106)
Billion	A number that is equivalent to the product of a thousand and a million e.g., 1000,000000 (109)
Evolution	The process by which different kinds of living organisms have developed from early forms over time
Extinct	A species, family or group having no living members in existence.
Fossil	The remains or impression of prehistoric animals or plants preserved in rock
Palaeontologist	A scientist who specialised in life forms that existed in prehistoric times
Organism	A living thing, e.g., animal, plant, fungi or bacteria
Microorganism	A very small organism that cannot be seen with the naked eye
Bacteria	A specific type of microorganism present in huge numbers across most of the earth
Microscope	An instrument for looking at very small objects

	survive in the Earth, they then have to be found by a **palaeontologist** who will study them. • All living (and **extinct**) **organisms** are classified into groups based upon their physical features. • This includes animals, plants, fungi, and **microorganisms** like **bacteria**. • Within each of these broad groups, organisms are classified into small subgroups. Animals- invertebrates, mammals, birds, amphibians, reptiles and fish, Plants- flowering plants, ferns, conifers, moss. • Bacteria are a group of organisms that are not visible to the naked eye but are very abundant and have distinct physical features we can only see under powerful **microscopes**.		

NC coverage and HWJS skills development	Knowledge organisers
National curriculum coverage for Science • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Recognise that living things can be grouped in a variety of ways • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago **HWJS skills development** Details of the skills that will be taught within the unit. These should match up with the skills progression documentation	This contains the key knowledge that the children will be taught during the unit of work – this should match up with the knowledge organiser overview • **Geological time** • **Evidence for evolution** • **Classification of life**



A Model of Skills Progression.

1. Pose problems that require the application of knowledge being taught.

2. Deconstruct the problem to define what a child must understand and be able to do to tackle the problem (including what they need to observe and measure), teach these skills and knowledge ***at that point.***

3. As children progress through the curriculum, they will tackle problems using new ideas, and when the problem requires with closer observation and more precise measurement.

Children gather evidence to describe the relationship between variables (cause and effect) by identifying what must be changed, what measured and what must be kept the same.

In Year 5 &6, using evidence to describe how one thing affects another is key. Children should be taught how to describe patterns and give a ***judgement*** on how sure they are. Key features of this are:

- Recognise that conclusions may be uncertain due to difficulties controlling and measuring variables accurately.

- That measurement always introduces some error. Understand that repeating experiments helps to identify what the true value

Key vocabulary	
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Mary Anning

Mary Anning (21 May 1799 – 9 March 1847) was an English fossil collector, dealer, and palaeontologist who became known around the world for important finds she made in Jurassic marine fossil beds in the cliffs along the English Channel at Lyme Regis in the county of Dorset in Southwest England.

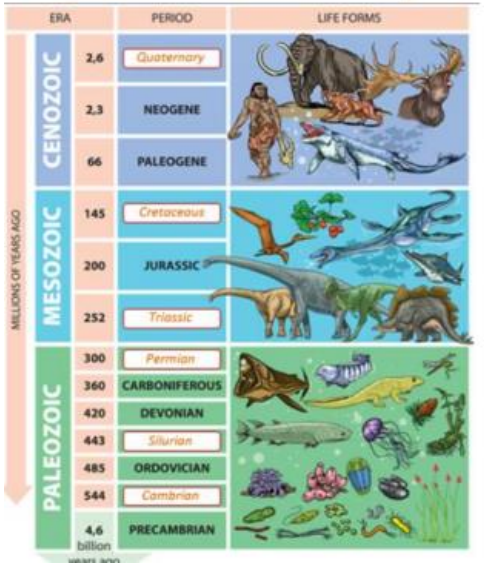
Carl Linnaeus

Carolus Linnaeus was a Swedish naturalist. He created two scientific systems: the system for classifying plants and animals and the system for naming all living things. Linnaeus is also called the Father of Systematic Botany. Botany is the study of plants.

is and that data points far from the mean are likely to be inaccurate and should be discounted.

- Adapting experiments to produce more precise conclusions when the question requires it, especially when seeking to find maximum, minimum or specific values

Geological Time



Classification

People have always given living organisms names and attempted to group them together based on their similarities. The first system that has stuck around is the classification system described by Carl Linnaeus, in which he sorted organisms according to their structure (anatomy) and characteristics. He came up with a hierarchical system, where the larger groups contain all the smaller groups below them. It is called the Linnaean system, after him. These groups, in order of size (based on how many organisms fit in each one) are called: kingdom, phylum, class, order, family, genus and species. Species are what you think of as individual types of organism – like tigers, oak trees or great white sharks

Connections / deepening understanding	**RADE**	**Assessment**
How is the understanding of this area deepened in other areas of the curriculum? What inks are there in the other subjects in the curriculum?	Are the rights of the child relevant in this area of study - do they get referred to in the work?	By the end of the unit the children will be able to … Details of the objectives that they will have covered within this unit of work
History – Work of significant scientists in history. English – Non-chronological reports. Maths – creation of timelines and Venn diagrams.		

Assessment recording for the unit - checking the level of pitch of the work			
Key skill(s)/ knowledge to be assessed by the end of the unit	**Lower attaining**	**Middle attaining**	**Higher attaining**
• The Earth is very old. Around 4.2 **billion** years. We know this from dating rocks • **Fossils** are one of the main sources of evidence for evolution. They show when new organisms appear and when they go **extinct**. • Due to the nature of fossil formation and discovery, fossils only provide an incomplete record of evolution. • All living (and **extinct**) **organisms** are classified into groups based upon their physical features. • This includes animals, plants, fungi, and **microorganisms** like **bacteria**. • Within each of these broad groups, organisms are classified into small subgroups. Animals- invertebrates, mammals, birds, amphibians, reptiles and fish, Plants- flowering plants, ferns, conifers, moss. • Bacteria are a group of organisms that are not visible to the naked eye but are very abundant and have distinct physical features we can only see under powerful **microscopes**.	The Earth is very old and we know this from dating of rocks. Fossils are a source of how organisms have changed over time. All living (and **extinct**) **organisms** are classified into groups based upon their physical features. Including animals, plants, fungi, and **microorganisms**	The Earth is very old and we know this from dating of rocks. Fossils are a source of how organisms have changed over time. Fossils only give an incomplete record of evolution. All living (and **extinct**) **organisms** are classified into groups based upon their physical features. Including animals, plants, fungi, and **microorganisms** like **bacteria**. Within each of these broad groups, organisms are classified into small subgroups. Children begin to name some of the sub groups (see higher attaining column.)	The Earth is very old and we know this from dating of rocks. Fossils are a source of how organisms have changed over time. Fossils only give an incomplete record of evolution. All living (and **extinct**) **organisms** are classified into groups based upon their physical features. Including animals, plants, fungi, and **microorganisms** like **bacteria**. Within each of these broad groups, organisms are classified into small subgroups. Animals- invertebrates, mammals, birds, amphibians, reptiles and fish, Plants- flowering plants, ferns, conifers, moss. Bacteria are a group of organisms that are not visible to the naked eye but are very abundant and have distinct physical features we can only see under powerful **microscopes**.

NB: The assessments are completed for two reasons – to enable the class teacher and in turn the subject leader to evaluate the pitch of the learning within the unit in order to consider any necessary updates and for the class teacher to report to parents on the attainment of pupils in the end of year reports.