Meden School Curriculum Planning						
Subject	Biology	**Year Group**	7	**Sequence No.**	1	**Topic**	Classification

Retrieval	Core Knowledge	Student Thinking
What do teachers need **retrieve** from students before they start teaching **new content**?	What **specific ambitious knowledge** do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to **development of our students thinking, encouraging them to see the inequalities around them** and 'do something about them!'
KS2 Y6 Classification is the name given to the process of grouping things due to similar characteristics. Keys are used to identify animals by using questions linked to specific characteristics. **KS2 Y4** Animals without backbones are called invertebrates and include insects, worms, spiders and snails. **KS2 Y4** Animals are grouped into animals with backbones called vertebrate. These are grouped into Mammals, reptiles, fish, amphibians and birds (MRFAB). **KS2** Introduction to classification and Carl Linneas, in 1760-ish his original classification was mammals, birds, fish, amphibians, insects, vermes (worms or rather all non arthropoda invertebrates).	**L1**: **Vertebrates** are animals with a **spinal column** or backbone. Invertebrates do not have a spinal column. There are five major groups of vertebrates **ie MRFAB** (**Mammals, Reptiles, Fish, Amphibians and Birds**) identified mainly based on a key number of characteristics. Birds are **warm-blooded**, have **feathers** and lay eggs encased in a hard-shell, fish are **cold-blooded**, breathe through **gills**, have wet skin with scales and lay eggs, mammals are warm-blooded, breathe through **lungs**, have fur, mainly give birth to live young and **produce milk**, reptiles are cold-blooded, breathe through lungs, have dry scaly skin and lay eggs with a leathery shell, amphibians are cold-blooded, have gills when young but lungs as adults, have damp skin and lay eggs surrounded by a jelly. **Echidna's** are unusual mammals as they lay eggs, they are only found in Australia. **L2**: Identifying different vertebrates using written descriptions. Some features are shared by groups and so are not defining features e.g., egg-laying/giving birth to live young eg some sharks give birth to live young, some reptiles do as well. The key defining features are skin covering eg feathers for birds, wet scales for fish, dry scales for reptiles, fur/hair for mammals, moist skin for amphibians. There are currently about 69,000 known vertebrate species. We can only estimate the number of species as there are still remote places on the planet which have not been investigated yet. **L3**: Invertebrates are animals without backbones, there are 9 main groups **Porifera (Sponges), Coelenerates, Platyhelminthes, Echinoderms, Mollusks, Nemetodes, Arthropods, Annelids and Chordata.** Each group has its own core characteristics. Porifera= no body segments, no internal organs, no **tentacles**, live in water **eg sponges**. Coelenerates = no body segments, stinging tentacles, live in water **eg jellyfish and anemones**. Echnioderms= no body segments, spiny body, tube-like sucker feet, live in water **eg starfish and sea urchins**. Mollusks= large muscular foot, internal or external shell, no segments **eg snails and squid.** Nematods = long thin worm-like body, tubular digestive system with two openings, no segments. Platyhelminthes = flat worms, no body segments eg **tapeworms and flukes**. Annelids = round, segmented worms, long tube-like body, small organs in each segment **eg earthworm and leeches**. Arthropods = hard-shell like exoskeleton, body with two/ three segments, multiple pairs of	**L8**: Binomial names are used to identify different species in zoos and wildlife parks. Should organisms be kept in zoos? Some argue that the environment in zoos is not representative of their natural habitat, and animals lack mental stimulation. An example would be keeping Polar Bears in South Yorkshire. On the flip side, some of these species are endangered and zoos aid in the preservation and increase of their numbers. **L11**: Do students know who Mary Anning is? She was a Palaeontologist in the 1800's who discovered many Jurassic marine fossils along the cliffs at Lyme Regis in Dorset. Due to being a woman and a Protestant she was unable to fully participate in the scientific community. Also, as she was a woman, she did not receive full credit for her discoveries and could not join, or even attend meetings as a guest of the Geological Society of

| | | jointed legs. **Insects**= three body segments (head, thorax & abdomen), 3 pairs of jointed legs connected to the thorax, hard exoskeleton, pair of antennae **eg butterflies, bees and ants**. **Arachnids**= 2 body segments (head and body), 4 pairs of legs, no antennae or wings, flexible exoskeleton **eg spiders** . **Crustaceans**= three body segments (head, body, tail), two pairs of antennae, up to seven pairs of legs, hard exoskeleton made of calcium. **Myriapods** = multiple segments (9 pr more), pair of legs per segment, one pair of antennae, long-thin body with exoskeleton **eg millipedes and centipedes.** Chordata = soft body, with a spinal cord. There are over **1.3 million species of invertebrates**, the biggest individual group is the arthropods with 750,000 species.
L4: Identifying different invertebrates using written and/or visual information.
L5: **Biological keys** are a sequence of questions based on specific characteristics, each question has a simple yes/no answer eg does the animal have feathers? By choosing the sequence of questions carefully it is possible to identify individual species by working through a key.
L6: The platypus task, reviewing and applying the knowledge of the previous lessons to a classify an animal with slightly strange characteristics.
L7: Research and presentation project.
L8: **Linnean Classification**, **Carl Linneas** devised a system based on groups that could be divided into smaller and smaller divisions. His original classification of **mammals, birds, fish, amphibians, insects and vermes** was improved in the late 1760's to become the main classification system we still **use Kingdom, phylum, class, order, family, genus, species**. He also introduced the **latin, binomial name** which became the international way of naming. Give specific examples of classification eg dog is *Canis lupus.* **Taxonomy** is the name given to the sequence of naming a living thing eg the taxonomy of a domestic dog is: **Kingdom = animalia, Phylum = chordata, Class = mammalia, Order = carnivora, Family = Canidae, Genus= Canis, Species = lupus.**
L9: Improvements to the Linnean system by Carl Woese in1990 (Linneas and Woese both called Carl!). Improvements in technology such as electron microscopy, DNA sequencing and more understanding of the biochemistry of different organisms lead to Woese adding a new upper layer to the taxonomy tree called **Domains.** The three domains being **Eukaryota** (complex cells with membrane bound DNA), **Archaea** (primitive bacteria) and **Bacteria**
L10: A **phylogenetic tree** (also **phylogeny** or evolutionary tree) is a branching diagram or a tree showing the **evolutionary relationships** among various biological species or other entities based upon similarities and differences in their physical or genetic characteristics. All life on Earth is part of a single phylogenetic tree
L11: EoTT
L12: GPA | London. Anning sold many of the fossils she found, the gentleman who bought them were then attributed with the scientific description of these fossils, without Anning being mentioned. Should this have happened? Would it happen today? |