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| Subject: Science Year: UKS2 Year 6– Living things and their habitats (classification)NC/PoS: * 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.
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| **Prior Learning** (what pupils already know and can do)Know there is an animal kingdom grouped into vertebrates and non- vertebrates. Vertebrates can be grouped into mammals, fish, birds, reptiles, and amphibians. Know there is a plant kingdom which can be grouped into flowering and non-flowering plants. Use of sorting tree. Know the features of living things are movement, respiration, sensitivity, growth, reproduction, excretion, and nutrition |
| **End Goals** (what pupils MUST know and remember)* Know Carl Linnaeus as a pioneer of classification
* Know to classify flowering plants into grasses, shrubs, cereals, and deciduous trees
* Know to classify non-flowering plants into algae, mosses, ferns, and coniferous trees
* Know to classify animals which are vertebrates – have backbones - (birds, fish, reptiles, mammals, amphibians)
* Know to classify animals which are invertebrates – no backbones- into molluscs, annelids, arachnids, crustaceans, sponges, echinoderms, and insects
* Know micro-organisms can be classified into bacteria, viruses, fungi, algae, and protozoa
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| **Key Vocabulary**Invertebrates, branching tree, ferns, spores, micro-organism, nucleus, unicellular, multicellular, bacteria, fungi, viruses, protists, algae, decomposers, penicillin, yeast, antibiotics |
| **Curriculum Connections*** Mathematics: Using classification keys and tally charts to organise and represent data.
* Geography: Understanding the distribution of flora and fauna
* History: Learning about Carl Linnaeus and the development of taxonomy.
* PSHE: Emphasising biodiversity and its importance to ecosystems.
* Computing: use vector drawing for the branching diagram
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| **Career Opportunities*** Taxonomist: Classifies living organisms based on characteristics.
* Marine Biologist: Studies aquatic species
* Ecologist: Analyses relationships among organisms and their environments.
* Microbiologist: Investigates microorganisms
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| Session 1: review prior learningRecap: Life cycles of an insect, mammal, amphibian, reptile, amphibian, and birdIntroduce Carl Linnaeus – all living things can be grouped – labelled all living things using binomial system (2 names)<https://www.youtube.com/watch?v=-LVunuIOT4w> BBC Teach – Carl Linnaeus<https://www.youtube.com/watch?v=Gb_IO-SzLgk> Carl Linnaeus Natural History Museum |
| Session 2: Recap – who is Carl Linnaeus? Classifying vertebratesChildren learn to classify animals which are invertebrates – no backbones- into molluscs, annelids, arachnids, crustaceans, sponges, echinoderms, and insectsLo: Using a branching key to classify invertebratesRecap: classification of vertebrates from the animal kingdom – mammals, birds, reptiles, fish, and amphibians. Sort photographs of animalsInclude misconceptions - dolphin, whale, platypus, shark, bat and a bee and a snail.Where would the bee and snail fit?Introduce invertebrates through watching <https://www.youtube.com/watch?v=19x1rkFgrF4> and how we group them into insects, spiders, snails, and worms and moreCreate a branching tree using photographs of 4 invertebratesGive reasons for classificationVocabulary: invertebrates, insects, spiders, snails, and worms, branching tree, classify |
| Session 3: Recap: Give children a selection of invertebrates and ask them to group them according to their classification Lo: To present data on invertebrate found in the local environmentExplore grounds using insect pooter and collect animals.Safety: Model how to use pooter and ensure animals are returned to place where they were foundGive reasons for classifyingChildren record and represent data (tally, bar graph)Vocabulary: environment, representation, pooter |
| Session 4: Recap: invertebrates from in the local environment, life cycle of a flowering plantChildren learn to classify flowering plants into grasses, shrubs, cereals, and deciduous trees and non-flowering plants into algae, mosses, ferns, and coniferous treesLo: Using observation to classify plants<https://www.youtube.com/watch?v=cgVlrtGnG6s> classifying and grouping plantsSort photographs into the groups: Flowering plants, conifers, ferns, mossesExplore grounds to find examples of plants and classify (look in woodland for ferns and mosses) give reasons for classificationFlowering plants include grasses, shrubs, cereal, and deciduous treesNon-flowering plants are mosses, ferns, and conifersN.B. flowering plants and conifers produce seeds, ferns and mosses produce spores)Vocabulary: mosses, ferns, flowering plants, conifers, shrubs, cereal, grasses, spores |
| Session 5: Recap: How are plants classified?Children learn micro-organisms can be classified into bacteria, viruses, fungi, algae, and protozoaLo: to research microorganisms<https://www.youtube.com/watch?v=9JW63U2mzqo> A microorganism is an organism which is microscopic, making it too small to be seen unaided by the human eye Children research microorganisms through internet and books.* Bacteria are single celled organisms and come in all sorts of shapes including rods, spirals, and spheres
* Fungi have complex cells like animals and plants and get food by decomposing matter
* Viruses do not have an organised cell structure and can infect animals and plants and make them sick
* Protists are any other organism that is not a plant, animal, bacteria, or fungi
* Algae are protists that perform photosynthesis and are very similar to plants but don’t have leaves, roots, and stems

Investigate the microorganisms on hands by pressing hand in bread and storing in a clear Ziplock bag. Do not open bag because of spores. Who has the hands with the most microbes on?Set up a clear zip bags or boxes with different foods in for the children to see the different types of moulds. E.g. strawberries, orange, and other fruitsVocabulary: micro-organism, nucleus, unicellular, multicellular, bacteria, fungi, viruses, protists, algae |
| Session 6: Recap: the different types of microorganismsLO: to research the uses of microorganismsWatch PowerPoint from cgp plusUsed in some cleaning products, food production, aid digestion, penicillin and can be decomposersVocabulary: uses of, food production, cleaning products, decomposers, penicillin, yeast, antibiotics |