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| Subject: Science Year: Phase 3 – Year B 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. |
| 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 * Know the animal behaviourist Jane Goodall * Know amphibians and insects go through metamorphosis * Know how environments can change and how it can potentially pose a danger to living things -global warming, litter, oil spill, chemical pollution, deforestation, and land development * Know the naturalist David Attenborough |
| Key Vocabulary  invertebrates, insects, spiders, snails, and worms, branching tree, classify, environment, representation, pooter, mosses, ferns, flowering plants, conifers, shrubs, cereal, grasses, spores, micro-organism, nucleus, unicellular, multicellular, bacteria, fungi, viruses, protists, algae, uses of, food production, cleaning products, decomposers, penicillin, yeast, antibiotics |
| Session 1: review prior learning  Recap: Life cycles of an insect, mammal, amphibian, reptile, amphibian, and bird  Introduce 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 vertebrates  Children learn to classify animals which are invertebrates – no backbones- into molluscs, annelids, arachnids, crustaceans, sponges, echinoderms, and insects  Lo: Using a branching key to classify invertebrates  Recap: classification of vertebrates from the animal kingdom – mammals, birds, reptiles, fish, and amphibians. Sort photographs of animals  Include 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 more  Create a branching tree using photographs of 4 invertebrates  Give reasons for classification  Vocabulary: 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 environment  Explore grounds using insect pooter and collect animals.  Safety: Model how to use pooter and ensure animals are returned to place where they were found  Give reasons for classifying  Children 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 plant  Children learn to classify flowering plants into grasses, shrubs, cereals, and deciduous trees and non-flowering plants into algae, mosses, ferns, and coniferous trees  Lo: Using observation to classify plants  <https://www.youtube.com/watch?v=cgVlrtGnG6s> classifying and grouping plants  Sort photographs into the groups: Flowering plants, conifers, ferns, mosses  Explore grounds to find examples of plants and classify (look in woodland for ferns and mosses) give reasons for classification  Flowering plants include grasses, shrubs, cereal, and deciduous trees  Non-flowering plants are mosses, ferns, and conifers  N.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 protozoa  Lo: 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 fruits  Vocabulary: micro-organism, nucleus, unicellular, multicellular, bacteria, fungi, viruses, protists, algae |
| Session 6: Recap: the different types of microorganisms  LO: to research the uses of microorganisms  Watch PowerPoint from cgp plus  Used in some cleaning products, food production, aid digestion, penicillin and can be decomposers  Vocabulary: uses of, food production, cleaning products, decomposers, penicillin, yeast, antibiotics |
| Session 7: Recap what a microorganism is.  Children to learn about how environments can change and how it can potentially pose a danger to living things -global warming, litter, oil spill, chemical pollution, deforestation, and land development. Children to use secondary sources to investigate how these can cause a threat to habitats.  Children to look at the work Sir David Attenborough has done to make people aware of the damage threats to the environment are effecting habitats and nature.  Use secondary sources for research. |
| Link to career scientist:  <https://pstt.org.uk/application/files/7916/2851/6348/Marine_biologist_-_Dawood_Qureshi.pdf>  <https://pstt.org.uk/application/files/2416/2851/6697/Veterinary_Surgeon_-_Daniella_Dos_Santos.pdf>  <https://pstt.org.uk/application/files/6216/3525/6982/Plant_Biologist-_Angie_Burnett.pdf> |
| Scientists who have helped develop understanding in this field: Carl Linnaeus, Sir David Attenborough |