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| Year Group: Year 6 | | Term: Spring 2 | | Topic: Evolution and inheritance | |
| **National Curriculum Links**  Pupils in Key Stage Two 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.   **Working Scientifically**   * 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 recording 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 such as displays and other presentations * identify scientific evidence that has been used to support or refute ideas or arguments. | | | | | |
| Prior Learning | | | Future Learning | | |
| * Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (**Y2** - Living things and their habitats) * Notice that animals, including humans, have offspring which grow into adults. (**Y2** - Animals, including humans) * Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (**Y3** - Plants) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (**Y3** - Rocks) * Recognise that environments can change and that this can sometimes pose dangers to living things. (**Y4** - Living things and their habitats) * Describe the life process of reproduction in some plants and animals. (Living things and their habitats - **Y5**) | | | * Heredity as the process by which genetic information is transmitted from one generation to the next. (**KS3**) * A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model. (**KS3**) * The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection. (**KS3**) * Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction. (**KS3**) | | |
| Common Misconceptions | | | | | |
| Some children may think:   * your heart is on the left side of your chest * the heart makes blood * the blood travels in one loop from the heart to the lungs and around the body * when we exercise, our heart beats faster to work the muscles more * some blood in our bodies is blue and some blood is red * we just eat food for energy * all fat is bad for you * all dairy is good for you * protein is good for you, so you can eat as much as you want * foods only contain fat if you can see it * all drugs are bad for you. | | | | | |
| **Global Goals**  This global goal would be perfect to fit with this unit of learning:   * Sustainable Development Goals (SDGs) and Disability | United Nations EnableAdd your activities here   **Catholic Social Teaching**   * **Add your activities here** | | | | | |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 1**  I can understand the importance of fossils.  Add the W/S that you are developing in this lesson | Children should be able to identify why fossils are important and how they have enabled scientists to figure out what happened years ago.  Allow time during this lesson to retrieve previous knowledge from LKS2.  By the end of the lesson children will be able to answer the question what is a fossil and why are the important?  Task 1:  Watch video <https://www.nhm.ac.uk/discover/how-are-fossils-formed.html>  Allow children to record notes on paper or white boards.  P1 & P2 describe the stages of how a fossil is created e.g  1. The animal dies.  2. Soft parts of the animal's body, including skin and muscles, start to rot away. Scavengers may come and eat some of the remains.  3. Before the body disappears completely, it is buried by sediment - usually mud, sand or silt. Often at this point only the bones and teeth remain.  4. Many more layers of sediment build up on top. This puts a lot of weight and pressure onto the layers below, squashing them. Eventually, they turn into sedimentary rock.  5. While this is happening, water seeps into the bones and teeth, turning them to stone as it leaves behind minerals.  This process can take thousands or even millions of years.  Task 2:  Children to stick in how a fossil is made work sheet and match up the sequences. Creating a booklet to stick in books. | | | | **LA to have a simple zig zag booklet to stick in.**  HA to be able to summarise how a fossil is made in writing  Add a WAGOLL |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 1** (continued)  I can understand key words and use them in context.  See knowledge organiser  Add the W/S that you are developing in this lesson | Chn must learn and understand what key vocabulary they will come across in this unit. So that they can use these words in context with their own work. Children to create their own knowledge organise / glossary.    More lesson structure needed.  Add retrieval activities for example. | | | | **Offspring**  **Inheritance**  **Variation**  **Characteristic adaptation habitat environment**  What are the expectations of all pupils? |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 2:**  I can understand adaptation.  Add the W/S that you are developing in this lesson | Animals or plants feature are suited to its habitat and to the type of food and environment it lives in – habitat.  What is a habitat?  A place a plant or animal lives. Can we name any?  Carnivores eat meat.  Herbivores eat plants.  Omnivores eat both.  Some animals are adaptable (which is great) it means they can move around and live in different places and climates, others are less so.  <https://www.youtube.com/watch?v=ZT8YswmQuAg> – watch video on Flamingo.  Can you think of any adaptable animals?  Cats, dogs, red foxes,  Understand how animals adapt to stay within their habitat (explore that some animals migrate).  To be able to discuss how animals have adapted over time.  The otter:  The badger:  The bats:  Show children pictures of animals in groups and allow them time to write the features of these animals.  This to be done in groups.  Show children answers and then in books recall three things about the animals next to pictures.  Plenary:  Describe each animal in 15 words or less verbal. | | | | LA – To have picture of a common animal that they will be able to identify traits of. Such as a cat or dog.  HA to be able to explain what adaption is and retrieve three facts about an animal. |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 3:**  I can understand that creatures adapt to their habitat.  Add the W/S that you are developing in this lesson | Recap: what is a fossil?  What is adaptation? Give children some key vocabulary from previous lesson and ask them to write a power paragraph using the words (knowledge organiser can be used).  Chn to look at pictures and film clips, talk about which animals might live where, what makes that habitat liveable for that animal.  <https://www.youtube.com/watch?v=B_73M4FHbOw>  Talk about animals around the world and how the environment is changing for these animals how might that affect them. (world link) Link to how humans are affecting the world and what we can do to help.  CLIMATE CHANGE! Show image of animals losing home.  What can we do to help?  Task 1:  Children to pick a habitat and discuss how humans are damaging that part of the world. How might this impact on those animals?  Polar Bears (rising water levels), Turtles (building cities near seas), Albatross (litter).  What impact does this have on the next generation of animals? Extinction. | | | | LA to have pictures as prompts and to label around the outisde.  Year 1 & 2 do a similar activity – can this be extended or adapted for challenge? |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 4**  I can understand that living things produce offspring.  Add the W/S that you are developing in this lesson | Starter question:  Recap plants sexual and asexual what do these mean?    Cross breeding is the process of breeding two of the same species together but with different characteristics which then create a new type of species.  Chn should understand that all living things produce offspring, but it is not always identical.  Task 1:  Variety of different characteristics in front of children.  Children match up characteristics with animals. Such as black and white animal with trunk (zebra and elephant). Although these are extremely different it is teaching children that these characteristics are taken from both set of parents and a new species is created. Poodle and a Labrador (labradoodle).  Task 2:  Plants, children visited RHS and discussed plants and how they have changed and adapted over time. RE discuss the spider plant and tulips. One is cross breeds (sexual and the other not (asexual).  Chn should consider how humans influence offspring through selective breeding and cross-breeding (dogs).  Task 3:  Advantages and Disadvantages of cross breeding.  Chn should explore the question should humans intervene?  Should humans intervene in this way? Why? Why not?  What effect will this have on living things in the future? | | | | Add differentiation |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 5**  I can understand the theories of evolution.  Add the W/S that you are developing in this lesson | Read the theories of evolution to the children, explaining that over time these thoughts changed.  Whose theories? Where from? Is there a text/reading paper?  Retell the story of evolution with just words and actions.  Chn will create a timeline and put the theories in order from the earliest to the latest.  Chn will then record what they can remember about each theorist. | | | | add differentiation  <https://www.youtube.com/watch?v=T0B6os-6uuc> |
| Knowledge and  Skills Objectives | Activity | | | | Differentiation |
| **Lesson 6**  I can examine evidence for evolution.  Add the W/S that you are developing in this lesson | Explain why the idea of human evolution was a controversial idea and how it was received.  Highlight the main sources of evidence that supports the idea of human evolution. Where is this evidence from?  Children sort the pictures into the three categories based on physical features. What features are you expecting the children to look for?  Why do you think it is more/less closely related to humans? What similarities and differences can you see?  Explain the current understanding of how humans evolved. Address the fact that this is a field of study where new discoveries are common and there are competing theories e.g. whether Homo Neanderthalensis is a different species and where our genetic inheritance comes from. | | | | Children compare modern humans with Australopithecus Afarensis.  Children compare modern humans with Homo Neanderthalensis, and Australopithecus Afarensis.  Children to select and compare modern humans with three different human ancestors of their choice using the Human Evolution Faces Diagram and Human Evolution Skulls Diagram. |
| **Applied Write opportunities**   * To write a biography about Charles Darwin. * Create a website about a range of different animals and how they have adapted – computing | | | | | |
| Assessment Opportunities | | | | | |
| * Can draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do * Produces a piece of writing that demonstrates the key knowledge e.g. explanation text, job description of the heart | | | | | |
| Key Vocabulary | | | | | |
| **Tier 2:** soils, sandstone, crystals, animals, herbivore, omnivore, carnivore, bones, skeletons, fossils, adaption,  **Tier 3:** evolution, characteristics, reproduction, genetics | | | | | |