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| Blyton cum Laughton Church of England Primary School  Reading-Inspired Curriculum D:\Blyton School Logo.jpg  CURRICULUM KNOWLEDGE & SKILLS PROGRESSION: SCIENCE  Subject Responsibility: Mrs Fernandez | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EYFS | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | **Summer 1** | | | | | | **Summer 2** | | | | |
|  | **Ongoing observational skill development:**  Explore the natural world around them by taking part in nature sessions and making observations and drawing pictures of animals and plants. Understand the need to respect and care for the natural environment and all living things | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ivy  Year 1/2  Cycle 1 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | **Summer 1** | | | | | | **Summer 2** | | | | |
| **We’re All Wonders** | | | | | | **To Infinity and Beyond** | | | | | | **Expedition: Ice** | | | **Tropical** | | | | | **The Secret of Black Rock** | | | | | | **Dinosaur Park** | | | | |
| **Everyday Materials** | | | | | | **Everyday materials** | | | | | | **Animals including humans** | | | **Animals including humans** | | | | | **Plants** | | | | | | **Plants** | | | | |
| Extraordinary Lives  (Super Scientists) | **INNOVATOR**: John Dunlop (car tyre) | | | | | | **EXPLORER**: Chris Hadfield (Astronaut)  [The Darkest Dark](https://www.amazon.co.uk/Darkest-Dark-Chris-Hadfield/dp/150982409X/ref=sr_1_1?s=books&ie=UTF8&qid=1523364295&sr=1-1&keywords=the+darkest+dark&dpID=51vrfkMbfHL&preST=_SX218_BO1,204,203,200_QL40_&dpSrc=srch)**Book**:  **The Darkest Dark by Chris Hadfield & the Fan Brothers** | | | | | | **INNOVATOR**: Margaret A Wilcox (car heater)  Brilliant Ideas From Wonderful Women - 9781786037046**Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | **CARER:** Rachel Carson (naturalist)  See the source image**Book: HerStory by Katherine Halligan & Sarah Walsh** | | | | | **CARER**: Joseph Banks (botanist) | | | | | | See the source image**INNOVATOR:** Anna Atkins (botanist)  **Book: The Bluest of Blues by Fiona Robinson** | | | | |
| Key vocabulary | material  wood  plastic  metal  glass  brick  rock  solid  flexible  hard  soft  rough  smooth  bendy  stretch  absorbent  waterproof | | | | | | compare  group  properties  transparent  opaque  investigate | | | | | | fish  amphibian  reptile  bird  mammal  carnivores  herbivores  omnivores  record  observe  changes | | | fish  amphibian  reptile  bird  mammal  carnivores  herbivores  omnivores  record  observe  changes | | | smell  taste  touch  hear  see  human body  head  chin  cheek  ear  nose  mouth  hand/fingers  feet/toes  back  knee  elbow  ankle | | common  garden  wild  plant  flower  tree  deciduous  evergreen  seed  bulb  growth  sprouting  magnifying glass  observe | | | | | | survive  label  changes  compare  leaf  flowers  blossom  fruit  bulb  seed  root  petal  stem  trunk  bark  branch  bough | | | | |
| Assessment | Can children:   * explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) * organise things into groups? * find simple patterns (or associations)? * say whether things happened as they expected? * find out about people who developed useful new materials? | | | | | | | | | | | | Can children:   * identify and name a variety of animals? * identify and name examples of carnivores, herbivores and omnivores? | | | Can children:   * know some differences between varieties of animals, e.g. reptiles and amphibians? * name some of the basic parts of the human body? * name the part of the body linked with each sense? | | | | | Can children:   * observe changes over time? * name a variety of common, wild and garden plants? * describe the meaning of deciduous and evergreen? | | | | | | Can children:   * describe what plants need to survive? * label a flower using scientific vocabulary? * describe how a plant, tree or flower changes over time? (whole year observation) | | | | |
| Content | **EVERYDAY MATERIALS**  **Distinguish between an object and the material from which it is made**    **Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** (within the classroom environment and linked to class text)  What is the best material for…..?  (a jumper, book shelf, pencil case, football, tyre.  Why? Answer including vocabulary such as hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy (flexible), waterproof/not waterproof, absorbent/not absorbent, opaque/transparent   * Ask simple questions scaffolded by the teacher and recognise that they can be answered in different ways exploring a range of everyday materials and objects including rubber * Use simple equipment to observe closely such as hand lenses * Use his/her observations and ideas to suggest answers to questions * Identify and classify * Perform simple tests * Gather data by sorting, comparing and grouping materials   **Observe changes across the four seasons**  Choose a tree to observe across the year.  What is the tree for all seasons like on 1st of every month?  Have photographic representation of tree from playground on the wall.  What animals can you see throughout the seasons?  Mini beast hunt using hand lenses.   * Ask simple questions scaffolded by the teacher and recognise that they can be answered in different ways * Use his/her observations and ideas to suggest answers to questions | | | | | | **EVERYDAY MATERIALS**  **Describe the simple physical properties of a variety of everyday materials: which materials can you bend, stretch, etc?**  **Compare and group together a variety of materials on the basis of their simple physical properties**  What is the best material for an astronaut’s suit? visor – transparent visor, opaque visor, helmet, space ship/rocket, cable to connect astronaut to rocket  <https://explorify.wellcome.ac.uk/en/activities/mystery-bag/materials-for-a-spacesuit>  Use Safety goggles as a spaceman visor with different coverings of e.g. acetates, fabric, bubble wrap, sweet wrappers and use scientific language of opaque and transparent within investigation.   * Gather and record data to help in answering questions * Ask simple questions scaffolded by the teacher and recognise that they can be answered in different ways * Use his/her observations and ideas to suggest answers to questions   **Observe changes across the four seasons**  Photograph each month of the Tree of all seasons) - observing changes using I-Naturalist app  How have plants changed over time?  [**https://explorify.wellcome.ac.uk/en/activities/whats-going-on/seasons**](https://explorify.wellcome.ac.uk/en/activities/whats-going-on/seasons)  **Observe and describe weather associated with the seasons and how day length varies**  Class data chart to show changes in weather across the seasons using ICT  What life can you see? | | | | | | **ANIMALS, INCLUDING HUMANS**  **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals**  Which animals can….?  Learn the appropriate vocabulary and use to answer the questions.  **Identify and name a variety of common animals that are carnivores, herbivores and omnivores**  Where does the wolf fit in (carnivore, omnivore, herbivore)   * Tad: Amazon.co.uk: Davies, Benji: BooksIdentify and classify animals, recording data in charts, tables, pictograms   Fanatical About Frogs (Owen Davey Animals Series): Amazon.co.uk ...  **Books: Fanatical About Frogs by Owen Davey**  **Tad by Benji Davies**  **Observe changes across the four seasons**  Continue work on four seasons observing changes  Photograph each month of the Tree of all seasons) - observing changes using I-Naturalist app  How have plants changed over time?  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/falling-in-to-place>  Looking at videos and photographs  What animals can you see throughout the seasons? | | | **ANIMALS, INCLUDING HUMANS**  **Describe and compare the structure of a variety of common animals** (fish, amphibians, reptiles, birds and mammals including pets)  Ask simple questions about animals and their characteristics.  Which animals produce milk?  Which animals have live young?  Which animals make good pets and why?   * Children to ask their own questions about pets using scientific vocabulary from prior learning. * Identify and classify * Gather and record data to help in answering questions   **Observe changes across the four seasons**  Continue work on four seasons observing changes  Photograph each month of the Tree of all seasons) -  observing changes using I-Naturalist app  How have plants changed over time?  **Identify, name draw and label basic parts of the human body and say which part of the body is associated with each sense**  Use songs, actions, games and rhymes to consolidate identification of body parts.   * Record data in the form of charts, tables, pictures   Enjoy the Seasons with Sam Usher : The Booklist Reader  **Book: Rain by Sam Usher** | | | | | **PLANTS**  **Identify and name a variety of common, wild and garden plants including deciduous and evergreen trees**  Grow and monitor a wide range of seeds, bulbs, (e.g. runner bean, hyacinth) and record in a variety of ways  Be a plant detective: Plant ID hunt  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/shooting-sprouts>   * Use simple equipment to observe closely using magnifying glasses * Gather and recording data using charts, tables and digital media   **Flower Garden eBook: Eve Bunting, Kathryn Hewitt: Amazon.co.uk ...Book: Flower Garden by Eve Bunting & Kathryn Hewitt**  **Observe changes across the four seasons**  Continue work on four seasons observing changes  Photograph each month of the Tree of all seasons) -  observing changes using I-Naturalist app  How have plants changed over time?  Is the Tree for all seasons deciduous or evergreen? How do you know? | | | | | | **PLANTS**  **Identify and describe the basic structure of a variety of common flowering plants including trees**  Compare and contrast a variety of plants by drawing their own diagrams of seeds and bulbs grown and compare to scientific diagrams i.e. draw the hyacinth and label with appropriate vocabulary such as leaf, flowers/blossom, fruit, bulb, seed, root, petal, stem– relate this to the work of focused botanists.  Name and label parts of a tree including trunk, bough, branch, bark   * Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum * Gather and record data (information) to help in answering questions   **The Big Book of Blooms: Amazon.co.uk: Yuval Zommer: 9780500651995 ...Books: The Big Book of Blooms by Yuval Zommer**  **Observe changes across the four seasons**  Continue work on four seasons observing changes  Photograph each month of the Tree of all seasons) - observing changes using I-Naturalist app  How have plants changed over time?  Is the tree for all seasons deciduous or evergreen? How do you know? Is that still the case? | | | | |
| Ivy  Year 1/2  Cycle 2 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | **Summer 1** | | | | | | **Summer 2** | | | | |
| **We are Architects** | | | | | | **Passport to the World** | | | | | | **Florette /Robin Hood** | | | | | | | | **Animal Island** | | | | | | **Animal Island** | | | | |
| **Uses of Everyday Materials** | | | | | | **Animals including humans**  **Living Things and their Habitats** | | | | | | **Plants** | | | | | | | | **Living Things in their Habitats** | | | | | | | **Animals, including Humans** | | | |
| Extraordinary Lives  (Super Scientists) | See the source image**INNOVATOR:** Charles Macintosh (waterproof fabric) | | | | | | See the source image**CARER:** Dian Fossey (mountain gorillas) | | | | | | **FIGURE OF FAITH:** G Nammalvar (agriculturist & green crusader)  **INNOVATOR:** Tia Kansara  See the source imageDr Tia Kansara Hon FRIBA (@tiakansara) | Twitter | | | | | | | | **EXPLORER:** Charles Darwin  See the source image**Book: What Mr Darwin Saw by Mick Manning & Brita Granstrom** | | | | | | | **INNOVATOR:** Marie Curie  **INNOVATOR:** Louis Pasteur  Marie Curie and Her Daughters: Imogen Greenberg: Bloomsbury Children's Books  **Book: Marie Curie and her Daughters by Imogen and Isabel Greenberg** | | | |
| Key Vocabulary | wood  plastic  metal  glass  brick  rock  solid  flexible  hard  soft  rough | | | | | smooth  bendy  stretch  absorbent  waterproof  compare  group  properties  transparent  opaque  investigate | fish  amphibian  reptile  bird  mammal  carnivores  herbivores  omnivores  record  observe  changes | | | | | | common  garden  wild  plant  flower  tree  deciduous  evergreen  seed  bulb  growth  sprouting  magnifying glass  survive  label  observe | | | | changes  compare  leaf  flowers  blossom  fruit  bulb  seed  root  petal  stem  trunk  bark  branch  bough | | | | living things  habitat  microhabitat  food chains  shelter  seashore  woodland  ocean  rainforest  conditions  survival  food source | | | | | | | exercise  balanced diet  hygiene/hygienic  health/y  unhealthy  lifestyle | | | |
| Assessment Questions | Can children:   * describe the simple physical properties of a variety of everyday materials? * compare and group together a variety of materials based on their simple physical properties? * use – see, touch, smell, hear or taste – to help them answer questions? * use some scientific words to describe what they have seen or measured? * find out about people who developed useful new materials? * identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses? | | | | | | **Animals, including Humans**  Can children:   * describe what animals need to survive**?** * explain why animals have offspring which grow into adults? * describe the life cycle of some living things? * explain the basic needs of animals, including humans for survival? (water, food, air)   **Living Things and their Habitats**  Can children:   * explain the differences between living and non-living things? * describe some of the life processes common to plants and animals, including humans? | | | | | | Can children:   * observe and describe how seeds and bulbs grow into mature plants? * investigate and describe the impact of removing light, soil and water from a growing or germinating plant? * observe changes over time? * suggest how to find things out? * use prompts to find things out? | | | | | | | | Can children:   * match certain living things to the habitats they are found in? * describe how a habitat provides for the basic needs of things living there? * describe how some animals get their food using basic food chains? * describe how plants and animals are suited to their habitat? * find things out using secondary sources of information? * use – see, touch, smell, hear or taste – to help them answer questions? * organise things into groups? | | | | | | | Can children:   * describe why exercise, balanced diet and hygiene are important for humans? Can they suggest how to find things out? * find things out using secondary sources of information? | | | |
| Content | **USES OF EVERYDAY OBJECTS**  **Identify and compare the suitability of a variety of materials including wood, metal, plastic, glass, brick, rock, paper and cardboard**  Which of these materials are….?  Identify, group and classify suitability of materials – where is wood used in the classroom and why?   * Generate own questions using question STEM spinner from Jane Banham   **Find out how the shape of solid objects made from some materials can be changed by squashing, bending, twisting and stretching**  Investigate a range of What if questions using Explorify  Provide children with a range of materials.  Which materials are more suited for construction? Why? Children to use the above vocabulary when explaining.   * Perform simple comparative tests * Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns – squashing, bending, twisting and stretching * Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns with regard to uses of everyday materials in and around the school with materials found in other places. * Record their observations on charts where the children have to independently add more rows for all of their evidence (By the end of the year the children will be able to draw own charts independently with a ruler)   **Compare fire safety at the time of the Great Fire to modern times**   * Gather and record data to help in answering questions about fire safety at the time of the Great Fire of London to modern times. Look at secondary sources to find out which materials burn and which do not. | | | | | | **ANIMALS, INCLUDING HUMANS**  **Know that animals including humans have offspring that grow into adults**  Do all animals produce off spring the same way?  Look at mammals including meerkats, gorillas and humans and compare with birds/ amphibians/ reptiles.  Mad About Monkeys (Owen Davey Animals Series): Amazon.co.uk: Owen ...Look at the life span of a baby to adult and tadpole to frog. What is the same/different about each life span?  **Book: Mad About Monkeys by Owen Davey**   * Order images of the life span   **Find out and describe the basic needs of animals including humans for survival (water, food, air)**  [**https://explorify.wellcome.ac.uk/en/activities/whats-going-on/special-delivery**](https://explorify.wellcome.ac.uk/en/activities/whats-going-on/special-delivery)  How are birds and humans different? What do we need in order to survive?   * Gather and record data regarding basic needs for survival of animals and humans (fish, amphibians, reptiles, birds and mammals) to help in answering questions (include secondary sources of information)   **LIVING THINGS IN THEIR HABITATS**  **Explore and compare the differences between things that are living, dead and things that have never been alive**  Provide a range of objects/pictures for the children to sort/collate/classify and record on a three column chart.  Describe how they decided where to place things   * Identify, group and classify according to whether they are living, dead or never alive. * Use observations and ideas to suggest answers to questions such as Is a deciduous tree dead in winter? noticing similarities, differences and patterns | | | | | | **PLANTS**  **Observe and describe how seeds and bulbs grow into mature plants**  **Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy**  What do plants need to germinate, grow and survive?  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/shooting-sprouts>  (Consolidation from Year 1 Term 5)  Investigate different types of seed (cress, pepper, tomatoes, flowering seeds such as poppies, snapdragons (relate to The boy who grew dragons) bulb (flowers) and bulb for vegetable. Visitor – possible garden centre (Kirton) Spotted Dog Flower company (Blyton) talk about what flowers they grow? Create a flower/herb garden.   * Ask simple questions and recognise that they can be answered in different ways such as: * Does a plant need light…..? * Does a plant need water …………? * including use of scientific language from the national curriculum. * Perform simple comparative tests * Use simple equipment to observe closely including changes over time- using IPADs to photograph stages of growth – 9am, 12 noon and 3pm and discuss the changes observed over a period of time – children to observe and explain the changes * Gather and record data to help in answering questions including from secondary sources of information – sorting activities- things that grow above the ground and those which do not   Explore fruit and vegetables which are grown in Lincolnshire: fresh and processed, e.g. types of peas – frozen, fresh, mushy, tinned etc. Repeat with potatoes. Explore the idea that the vegetable grows from same plant, plant produces peas, treated differently at the point of manufacture so end result is different.  cid:b324c138-b636-4dd2-8d8d-ae20e870464b@GBRP265.PROD.OUTLOOK.COM**Flying Eye Books I Ate Sunshine for Breakfast: ...Plants Around ...Books: From Tiny Seeds by Amelia Vost**  **I Ate Sunshine for Breakfast by Michael Holland & Philip Giordano** | | | | | | | | **LIVING THINGS IN THEIR HABITATS**  **Know 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**  Taking on the role of Darwin, explore the plants and animals found in their habitats observing how living things depend on each other – trip to Laughton Woods compared with Darwins trip to the Galapagos Islands.   * Create labelled and annotated diagrams of the things they have observed.   How does the woodland provide for the creatures living in it?  i.e. Trees provide shade for shade loving plants to grow which are a food source for some creatures and shelter for insects like woodlice etc.  **Identify and name a variety of plants and animals in their habitats, including microhabitats**  Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.  Children to independently ask questions using prior learning such as: Could Meerkats live in the forest habitat?  They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes); and find out how the conditions affect the number and type(s) of plants and animals that live there.   * Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum   **Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.**  Do all animals need the same food sources for survival? Investigate simple food chains. | | | | | | | **ANIMALS, INCLUDING HUMANS**  **Know the importance for humans of exercise, eating the right amounts of different types of food and hygiene.**  How does exercise keep us healthy?  What foods are healthy and why? If we only ever ate pizza what do you think would happen to our bodies? Use clip of citizens of ship in WALL-e  <https://www.youtube.com/watch?v=s-kdRdzxdZQ&safe=active>  Cloudy with a Chance of Meatballs  <https://www.youtube.com/watch?v=ORnF6nLMau4&safe=active>  Discuss the film clip.  Show children an unhealthy meal for the day e.g. breakfast and donuts. What could the children substitute for it which would be a healthier alternative?  How do the foods grown in previous terms relate to healthy lifestyle?  How important is it to be hygienic?  Why should we wash our hands before eating food?  Why do we clean our teeth twice a day?  Create simple songs and rhymes to help remember how to do these tasks.   * Ask simple questions and recognise that they can be answered in different ways including us e of scientific language  |  | | --- | |  | | | | |
| Willow  Year 3/4  Cycle 1 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **Stone Age Investigators** | | | | | | **The Legend of Podkin One-Ear** | | | | | | | | | **The Roman Empire** | | | | | | | | | | **Vikings and Dragons** | | | | | |
| **Y3 Rocks** | | | | | | **Y4 States of Matter**  **Y3 Forces and Magnets** | | | | | | **Y3 Animals Including Humans** | | | **Y3 Plants** | | | | | | **Y3 Light** | | | | **Y4 Living Things and their Habitats** | | | | | |
| Extraordinary Lives  (Super Scientists) | **EXPLORER:** Mary Anning  **The Fossil Girl: Amazon.co.uk: Brighton, Catherine: BooksBook: The Fossil Girl: Mary Anning’s Dinosaur Discovery by Catherine Brighton** | | | | | | **INNOVATOR:** Dmitri Ivanovich Mendeleev  **CARER**: Alexander Von Humboldt (naturalist)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...**Book: Super Scientists: 40 Inspiring Icons by Anne Blanchard & Tino** | | | | | | **CARER:** Avicenna (human anatomy)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...**Book: Super Scientists: 40 Inspiring Icons by Anne Blanchard & Tino** | | | **INNOVATOR:** Wangari Maathai (environmentalist)  **Seeds of Change : Wangari's Gift to the World: Amazon.co.uk: Jen ...Book: Seeds of Change by Jen Cullerton Johnson & Sonia Lynn Sadle** | | | | | | **INNOVATOR:**  Roger Bacon (spectacles and rainbow refraction)  **40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...Book: Super Scientists: 40 Inspiring Icons by Anne Blanchard & Tino** | | | | **INNOVATOR:** Eugenie Clark  **Swimming with Sharks: Amazon.co.uk: Heather Lang: 9780807521878: BooksBook: Swimming with Sharks: The Daring Discoveries of Eugenie Clark by Heather Lang & Jordi Solano** | | | | | |
| Key Vocabulary | rocks  fossil  soil  mineral  natural  man-made  sedimentary  igneous  erosion  permeable  palaeontologist  extinct  microorganisms  decaying | | | topsoil  subsoil  regolith  bedrock  sand  silt  compressed  inner core  outer core  crust  mantle  prehistoric  erosion  ammonite | | | **Y4 States of Matter**  solid  liquid  gas  freeze  compare  group  similarities  differences  particles  properties  compress  evaporat/e/ion  condens/e/ation  precipitation  degrees Celsius  fahrenheit changing state  solidify  temperature  thermometer  water vapour  water cycle | | | | | **Y3 Forces and Magnets**  force  magnet/ism/ic  push  pull  forcemeter  spring  stretch  Newton meters  gravity  weightless  compass  attract  repel  Magnetic Poles  steel  copper  aluminium  iron  alloy | nutrients  starches  protein  balanced diet  carbohydrates  fibre  digestive system  minerals  diet  energy  healthy  carnivores  herbivores  predators | | organs  collar bone  ribs  femur  fibula  tibia  pelvis  vertebrae  shoulder blade  skull  vertebrates  invertebrates  muscle  contract | anatomy  function  growth  pollination  seed formation  seed dispersal  botanist  evaporates  pollen  reproduction  sepal  stamen  carpel  anther  filament | | | | style  stigma  ovary nutrients  roots  stem  flower  leaf  seed  moisture  absorb  minerals  soil  non-flowering  flowering  nectar | | light  shadow  dark  emit  light sources  reflection  day  night | | axis  dawn  dusk opaque  transparent  translucent  shadows  source  reflects | | habitat  environment  omnivore  carnivore  herbivore  mammal  bird  reptile  arachnid  annelids  crustacean  warm/cold blooded  oxygen  annelid  insect  amphibian  mollusc | | | | | characteristics  predator  prey food chain  organism  reproduce  classify/  classification  skeleton  exoskeleton  vertebrate  invertebrate  branching key  deforestation  global warming  climate change  protect/  protection  endangered |
| Assessment Questions | Can children:   * compare and group different rocks on the basis of their appearance and simple physical properties? * describe and explain who different rocks can be useful to us? * describe in simple terms how fossils are formed when things that have lived are trapped under a rock? * recognise that soils are made from rocks and organic matter? * describe what they have found using scientific language? * classify objects in different ways? * use different ideas and suggest how to find something out? | | | | | | **Y4 States of Matter**  Can children:   * compare and group materials together, according to whether they are solids, liquids or gases? * explain what happens to materials when they are heated or cooled? * measure or research the temperature at which different materials change state in degrees Celsius? * describe how materials changes state at different temperatures? * use measurements to explain changes to the state of water? * explain everyday phenomena including the water cycle? * evaluate and communicate their methods and findings? * use a range of scientific equipment to take accurate measurements or readings?   **Y3 Forces and Magnets**  Can children:   * compare how things move on different surfaces? * observe that magnetic forces can be transmitted without direct contact? * observe how some magnets attract or repel each other? * identify and classify which everyday materials are attracted to magnets and which are not? * notice that some forces need contact between two objects, but magnetic forces can act at a distance? * describe magnets having two poles (N&S) and predict whether two magnets will attract or repel each other depending on which poles are facing? * make and record a prediction before testing? * take accurate measurements using different equipment and units of measure? * set up a simple fair test to make comparisons? * explain what they found out and use their measurements to say whether it helps to answer their question? * Record their observations in different ways? (labelled diagrams/charts?) | | | | | | Can children:   * explain the importance of a nutritionally balanced diet? * identify that animals, including humans, cannot make their own food: that they get nutrition from what they eat? * describe and explain the skeletal system of a human? * describe and explain the muscular system of a human? * describe what they have found using scientific language? * describe what they have found out using secondary sources? | | | Can children:   * identify and describe the functions of different parts of flowering plants? * explore the requirements of plants for life and growth (air, light, water, nutrients from soil, room)? * investigate the way in which water is transported within plants? * explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal? * record observations in different ways? * plan and set up a fair test and explain why it is fair? * explain what they havev found out and use their measurements to say whether it helps to answer their question? * set up a simple test to make comparisons? | | | | | | Can children:   * recognise that they need light in order to see things? * recognise that dark is the absence of light? * notice that light is reflected from surfaces? * recognise that light from the sun can be dangerous and that there are ways to protect their eyes? * recognise that shadows are formed when the light from a light source is blocked by a solid object? * find patterns in the way that the size of shadows change? * explain the difference between transparent, translucent and opaque? * describe what they found using scientific language? * record their observations in different ways? (labelled diagrams/charts?) | | | | Can children:   * recognise that living things can be grouped in a variety of ways? * Classify and identify into broad groups? * explore and use a classification key to group, identify and name a variety of living things? * recognise that environments can change and this can sometimes pose a danger to living things? * explain how environmental changes have an impact on living things * record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? * explain their findings in different ways? | | | | | |
| Content | **Y3 ROCKS**  **Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties**  What is a rock? Where do they come from?  Identify natural and man-made rocks and their uses.  Rock Walk Survey of local area: What rocks did they see? What were there uses? Why?  Sort rocks into natural and man-made using tables, Venn diagrams and Carroll diagrams.  Be a rock detective: use magnifying glasses to make detailed observational drawings.  How are rocks made? Use starbursts sweets to show the formation: metamorphic, sedimentary and igneous.  <https://fun-science.org.uk/fun-science-edible-rock-cycle/>  What does erosion mean?  Grand Canyon: Amazon.co.uk: Chin, Jason: BooksShow pictures of Grand Canyon. How do you think these were formed?  **Book: Grand Canyon by Jason Chin**  Set up an experiment to test different rocks for erosion and/or permeability? (acid testing using vinegar for erosion)   * Ask relevant questions and use different types of scientific enquiry to answer using microscope/ magnifying glasses/app on Ipad * Gather, record, classify and present data in a variety of ways: Carroll diagram, Venn diagrams and tables. * Record findings using simple scientific language, drawings and labelled diagrams * Report on findings from enquiry, including oral and written explanations. Use results to draw simple conclusions regarding the hardest and most permeable * Use visualiser to discuss findings * Use sound tins and written explanations prior to oral presentation (filmed using imovie)   **Describe in simple terms how fossils are formed**  Show children examples of fossils. How did that fossil get there?  <https://www.primarysciencebee.com/lower-ks2>  <https://bpes.bp.com/introducing-evolution-and-inheritance>  What can you tell about the animal just from its fossil?  <https://www.edenproject.com/learn/schools/lesson-plans/great-fossil-hunters>  <https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/z2ym2p3>  Lucky dip fossil activity: 20 questions matching fossil to animal.  Can the children ask questions using scientific vocabulary to eliminate options, e.g. Is it longer than 3cm?  Share and discuss different types of fossils, e.g. trace, mould and cast, amber fossils.  Show mosquito in amber clip from Jurassic park (preserved fossil) and recreate using jelly.  What kind of fossil does this represent? (amber)  How is this type of fossil different from other types? Jelly was once liquid and represents the sap.  How would it encase the insect? (ran onto it and covered)  The jelly was put in the refrigerator to harden. What does this represent? (sap hardening and changing to amber)  What happens to the insect inside? (preserved)  Order stages and explain how fossils are formed.   * Include scientific vocabulary * Use scientific evidence to answer questions * Using secondary sources to help answer questions which cannot be answered using scientific investigations   **Recognise that soils are made from rocks and organic matter**  What is soil and what does it consist of?  Investigate what could be in the soil samples? Label and compare the differences from the different sites. Why are the soils different/same? Do all soils have \_\_\_\_\_\_ in them?   * Record as an annotated diagram. * Children record results on a chart * Use results to draw simple conclusions.   **Higher Order Questions**  An animal dies near a volcano, what happens next? | | | | | | **Y4 STATES OF MATTER**  **Compare and group materials together, according to whether they are solids, liquids or gases**  Know there are 3 states of matter: solid, liquid and gas.  Sort picture cards into the 3 states of matter using scientific vocabulary.  Explain trickier materials, e.g. honey being a liquid even though it is viscous, sponge is a solid but the spaces inside are full of air etc.  <https://www.bbc.co.uk/bitesize/clips/zrdkjxs>  Which materials can they spot and which states of matter are they?  Physical Theatre: Discuss particle behaviour in each state of matter and demonstrate in groups how they behave by being the particles (iPad)   * Gather, record, classify and present data in a variety of ways to help in answering questions using simple annotated diagrams. * Record findings using simple scientific language and accurate definitions   **Observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius (°C)**  **Focus: Water**  Investigation: What happens to an ice cube out of the freezer?  Hold an ice cube. Describe what is happening using scientific vocabulary. Record and annotate changes using photographs over time explaining the change in state.  Could you make a hand shape out of liquid water?  What are the differences between liquid water and solid water (ice)? Does water exist in any other form? Can they have water and ice at the same time?     * Gather, record, classify and present data in a variety of ways to help in answering questions using simple annotated diagrams. * Record findings using simple scientific language and accurate definitions     **Know the impact of evaporation and condensation in the water cycle and associate the rate of evaporation with temperature**  Share books: **Water is Water by Miranda Paul and Jason Chin**  **Rhythm of the Rain** The Rhythm of the Rain: Amazon.co.uk: Baker-Smith, Grahame, Baker ...Water Is Water: A Book About the Water Cycle by Miranda Paul**by Grahame**  **Baker-Smith**  Investigation: Does temperature effect the speed of evaporation?  Record in a table the capacity of 4 different containers with 100ml of water over the course of 14 days in 4 locations with different temperatures.  Follow teacher model then complete a line graph showing the capacity changes over that period.  Teach the story of how a line graph reflects what is happening within a science test.  **Y3 FORCES AND MAGNETS**  **Compare how things move on different surfaces.**  What is a force?  Demonstrate then investigate how a toy car moves over different ramp surfaces. Record using a table. Repeat using different vehicles.   * Make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment   **Notice that some forces need contact between two objects** **but magnetic forces can act at a distance.**  **Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic** **materials.**    Link to Stig of the Dump. Watch how magnets are used in scrapyards Explain how the magnets are sorting the different materials  <https://www.bbc.co.uk/bitesize/clips/zcntsbk>  Share a range of materials from Stig’s Den. Are these magnetic? How do we know? What could we do to find out? Investigate. Record in a table. What sort of materials are magnetic? Are all metals magnetic? Can you explain how a magnet works?   * Children to create own recording chart. * Gather, record, classify and present data in a variety of ways to help in answering questions Set up simple practical enquiries, comparative and fair tests.   **Predict whether two magnets will attract or repel each other. Observe how magnets attract or repel each other and other materials.**  Explain to children that magnets have different poles and that they are linked to the North and South Poles. Explain that the Earth’s core is like one giant magnet.  <https://www.bbc.co.uk/bitesize/clips/zk9rkqt>  Physical Theatre: children to show how magnets attract and repel and how they can act at a distance.  Investigation: Do magnets have different strengths?  Predict, measure (e.g. the distance each magnet will attract a paperclip) record (table and bar chart). | | | | | | **Y3 ANIMALS, INCLUDING HUMANS**  **Identify that animals. Including humans, need the right types and amount of nutrition, and they cannot make their own food; they get nutrition from what they eat**  **Identify that humans and some other animals have skeletons and muscles for support, protection and movement**  Why do we need to stop at lunchtime? Discuss the reasons.  Are there any other times in the day when it would be important to have a break?  What would happen if we didn’t stop for lunch? Tea? (compare to refuelling a car)  Share a range of food and begin to discuss food groups, e.g. a variety of fresh vegetables (name these).  How could we group these foods? What’s the rationale behind eating 5 a day? See current updates. How can we make sure we eat 5 a day?  <https://explorify.wellcome.ac.uk/en/activities/the-big-question/which-breakfast-is-best>  Do all living things get nutrition in the same way as humans?  **Identify that humans and some other animals have skeletons and muscles for support, protection and movement**  What would happen if our bones were bendy?  Compare a range of skeleton images (including x-rays) What have they all got in common? (e.g. skull, backbone)  What is the purpose of a skeleton?  Why do arms and legs have more than one bone? Discuss how they move.  Demonstrate how muscles move using model (elastic band) Draw and annotate using scientific vocabulary.   * Record findings using simple scientific language   See the source image  **Books:**  See the source image**Who Owns These Bones? by Henri Cap, Raphael Martin & Renaud Vigourt**  **When We Became Humans by Michael Bright & Hannah Bailey** | | | **Y3 PLANTS**  **Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers**  What's Inside A Flower?: And Other Questions About Science and Nature: And  Other Questions about Science & Nature: Amazon.co.uk: Rachel Ignotofsky:  9780593176474: BooksThe Big Book of Blooms: Amazon.co.uk: Yuval Zommer: 9780500651995 ...Use **Book: The Big Book of Blooms by Yuval Zommer and Rachel Ignotofsky’s What’s Inside a Flower** to compare real flowers with an anatomical image. Draw and label an anatomical image explaining functions of different parts of a flowering plant.  **Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and space for growth) and how they vary from plant to plant.**  What do plants need to grow?  Design aninvestigation to answerthe question: What do plants need for life and growth?  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/growing-seed>   * Record findings using simple scientific language, drawings and labelled diagrams * Look at findings after a week. Do predictions need to change based on findings? Why? Give reasons.   **Investigation: How is water transported within plants?**  White carnation investigation using food colouring (undiluted) - length of stem to be set prior to investigation.  **Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal**  [**https://explorify.wellcome.ac.uk/en/activities/zoom-in-zoom-out/brown-and-sticky/classroom**](https://explorify.wellcome.ac.uk/en/activities/zoom-in-zoom-out/brown-and-sticky/classroom) | | | | | | **Y3 LIGHT**  **Recognise that we need light in order to see things and that dark is the absence of light**  What is light? Address misconceptions of moon, window and mirror being light sources. Sort sources of light cards and discuss natural and man-made sources of light.  What is dark? Can we see in the dark? Discuss children’s own experiences of dark.    **Know that light is reflected from surfaces**    <https://www.bbc.co.uk/bitesize/clips/ztcg9j6>  **What does it look like if a material reflects light?**  **Which colours do you think reflect most light?**  **What are reflective materials used for?**  **Link to DT Viking bag design: What materials would you use to design a school book-bag with a reflective strip?**  **Investigate a range of materials to find the most reflective material for the bag.**   * Predict, gather, record, classify and present data in a variety of ways to help in answering questions using simple annotated diagrams. * Record findings using simple scientific language and accurate definitions   **Recognise that light from the sun can be dangerous and that there**  **are ways to protect their eyes**  Carry out an investigation to classify a selection of classroom objects as transparent, translucent or opaque. Use a Venn diagram to record results.  **Recognise that shadows are formed when the light from a light source is blocked by an opaque object**  **Find patterns in the way that the size of shadows change**  Shadow stick investigation – set up a shadow stick in a sunny spot to see what happens to the shadow throughout the day.  What time of day was the shadow the shortest? Why? When was the shadow at its longest? Why?  Light Waves by David A. Adler: 9780823445417 | PenguinRandomHouse ...  **Book: Light Waves by David A Adler & Anna Raff** | | | | **Y4 LIVING THINGS IN THEIR HABITAT**  **Recognise that living things can be grouped in a variety of ways**  How would we group the dragons in *How to train your Dragon*? E.g. colour, size, land/air/water, diet.  Explain that all living things can be classified in different ways.  <https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-ivys-plant-workshop-grouping-living-things/zfjxcqt>  Classify pictures of mammals, birds, reptiles into groups.  Introduce terms vertebrate and invertebrate. Can the children classify again using these groups?  **Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment**  Minibeast hunt in school grounds to identify and name using classification key.  Using the book *Swimming with Sharks* explore and group sharks according to: habitat, size, shape. Use branching key to identify.  <https://www.sharktrust.org/activities-downloads>  **Recognise that environments can change and that this may pose dangers to living things**  Introduce vocabulary relating to risks to the natural world:deforestation, urbanisation, global warming/climate change, intensive farming and nature reserves  Using the book *Saving Species* discuss how the environments have changed and how these changes pose dangers to the animals.  School Grounds Audit: What is being done to protect wildlife and their habitats in the school grounds? How could it be improved? Is there a bird box, a school pond or a wildlife area? How will these improve the local environment? | | | | | |
| Willow  Year 3/4  Cycle 2 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **Everest** | | | | | | **Into the Jungle** | | | | | | **River Journey** | | | | | | | | | **Invasion** | | | | **Anglo-Saxon** | | | | | |
| **Y3 Rocks** | | | | | | **Y3 Animals including humans**  **Y4 Living Things and their Habitats** | | | | | | **Y3 Plants** | | | **Y3 Plants**  **Y3 Forces and Magnets** | | | | | | **Y3 Light** | | | | **Y4 States of matter** | | | | | |
| Extraordinary Lives  (Super Scientists) | **EXPLORER**: Mary Anning  **The Fossil Girl: Amazon.co.uk: Brighton, Catherine: BooksBook: Fossil Girl: Mary Anning’s Dinosaur Discovery by Catherine Brighton** | | | | | | **CARER**: Alexander Von Humboldt (naturalist) | | | | | | **CARER:** Joseph Banks | | | **INNOVATOR:** William Gilbert (physician – the first scientist to make a magnet) | | | | | | **INNOVATOR:** Martha Coston  (Sea Flares)  Brilliant Ideas From Wonderful Women - 9781786037046  **Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | | **INNOVATOR**: Stephanie Kwolek (Kevlar)  Brilliant Ideas From Wonderful Women - 9781786037046  **Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | | | |
| Key Vocabulary | rocks  fossil  soil  mineral  natural  man-made  sedimentary  igneous  erosion  permeable  palaeontologist  extinct  microorganisms  decaying | | | | topsoil  subsoil  regolith  bedrock  sand  silt  compressed  inner core  outer core  crust  mantle  prehistoric  erosion  ammonite | | **Y3 Animals including Humans**  nutrients  starches  protein  balanced diet  carbohydrates  fibre  digestive system  minerals  diet  energy  healthy  carnivores  herbivores  predators organs  collar bone  ribs  femur  fibula  tibia  pelvis  vertebrae  shoulder blade  skull  vertebrates  invertebrates  muscle  contract | **Y4 Living Things and their Habitats**  habitat  environment  omnivore  carnivore  herbivore  mammal  bird  reptile  arachnid  annelids  crustacean  warm/cold blooded  oxygen  annelid  insect  amphibian  mollusc  characteristics  predator/prey  food chain  organism  reproduce  classif/y/ication  skeleton  exoskeleton  vertebrate  invertebrate  branching key  deforestation  global warming  climate change  protect/ion  endangered | | | | | anatomy  function  growth  pollination  seed formation  seed dispersal  botanist  evaporates  pollen  reproduction  sepal  stamen  carpel  anther  filament | style  stigma  ovary nutrients  roots  stem  flower  leaf  seed  moisture  absorb  minerals  soil  non-flowering  flowering  nectar | | **Y3 Forces and Magnets**  force  magnet/ism/ic  push  pull  forcemeter  spring  stretch  Newton meters  gravity  weightless  compass  attract  repel  Magnetic Poles  steel  copper  aluminium  iron  alloy | | | | | | light  shadow  dark  emit  light sources  reflection  day  night  axis  dawn  dusk opaque  transparent  translucent  shadows  source  reflects | | | | solid  liquid  gas  freeze  compare  group  similarities  differences  particles  properties  compress  evaporat/e/ion  condense/ condensation  precipitation  degrees Celsius  fahrenheit changing state  solidify  temperature  thermometer  water vapour  water cycle | | | | | |
| Assessment Questions | Can children:   * compare and group different rocks on the basis of their appearance and simple physical properties? * describe and explain who different rocks can be useful to us? * describe in simple terms how fossils are formed when things that have lived are trapped under a rock? * recognise that soils are made from rocks and organic matter? * describe what they have found using scientific language? * classify objects in different ways? * use different ideas and suggest how to find something out? | | | | | | **Y4 Living Things in their Habitats**  Can children:   * recognise that living things can be grouped in a variety of ways? * Classify and identify into broad groups? * explore and use a classification key to group, identify and name a variety of living things? * recognise that environments can change and this can sometimes pose a danger to living things? * explain how environmental changes have an impact on living things * record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? * explain their findings in different ways? | | | | | | Can children:   * identify and describe the functions of different parts of flowering plants? * explore the requirements of plants for life and growth (air, light, water, nutrients from soil, room)? * investigate the way in which water is transported within plants? * explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal? * record observations in different ways? * plan and set up a fair test and explain why it is fair? * explain what they havev found out and use their measurements to say whether it helps to answer their question? * set up a simple test to make comparisons? | | | **Y3 Forces and Magnets**  Can children:   * compare how things move on different surfaces? * observe that magnetic forces can be transmitted without direct contact? * observe how some magnets attract or repel each other? * identify and classify which everyday materials are attracted to magnets and which are not? * notice that some forces need contact between two objects, but magnetic forces can act at a distance? * describe magnets having two poles (N&S) and predict whether two magnets will attract or repel each other depending on which poles are facing? * make and record a prediction before testing? * take accurate measurements using different equipment and units of measure? * set up a simple fair test to make comparisons? * explain what they found out and use their measurements to say whether it helps to answer their question? * record their observations in different ways? (labelled diagrams/charts?) | | | | | | Can children:   * recognise that they need light in order to see things? * recognise that dark is the absence of light? * notice that light is reflected from surfaces? * recognise that light from the sun can be dangerous and that there are ways to protect their eyes? * recognise that shadows are formed when the light from a light source is blocked by a solid object? * find patterns in the way that the size of shadows change? * explain the difference between transparent, translucent and opaque? * describe what they found using scientific language? * record their observations in different ways? (labelled diagrams/charts?) | | | | **Y4 States of Matter**  Can children:   * compare and group materials together, according to whether they are solids, liquids or gases? * explain what happens to materials when they are heated or cooled? * measure or research the temperature at which different materials change state in degrees Celsius? * describe how materials changes state at different temperatures? * use measurements to explain changes to the state of water? * explain everyday phenomena including the water cycle? * evaluate and communicate their methods and findings? * use a range of scientific equipment to take accurate measurements or readings? | | | | | |
| Content | **Y3 ROCKS (FOSSILS)**  **Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties**  Investigation: Rocks  Set up practical enquiries and comparative tests.  Are rocks the same? Appearance? Rough/ smooth, crystalline, grainy?  What type and where are rocks used in school/ local area? e.g. buildings. gravestones, walls,  Visit Blyton Church. How is rock used inside/outside?  What’s the impact of rocky soil on local farming?  Refer to previous learning from Year 1 – hard/soft soils  Sort and record using Venn/Carroll diagrams  Use scientific vocabulary to describe properties of rocks  <https://explorify.wellcome.ac.uk/en/activities/the-big-question/why-don-t-all-rocks-look-the-same>   * Ask relevant questions and use different types of scientific enquiry to answer (microscope/ magnifiers/apps * Gather, record, classify and present data in a variety of ways to help answer questions, e.g. Carroll diagram, before/after photos as a chart i.e. the impact of erosion on rocks * Record findings using simple scientific language, drawings, labelled diagrams * Order photographs, e.g. hardest to softest * Report on findings from enquiries, including oral and written explanations. Use results to draw simple conclusions regarding which rock is the hardest. * Use visualiser to discuss findings. * Sound tins/written explanations prior to oral presentation.   **Know that fossils are formed when things that have lived are trapped within rock**  How did that fossil get there?   |  | | --- | |  |   Demonstrate using bed of sand and various objects such as model dinosaur, shell, leaf to create a mould and fill with layers of sediment  Write an explanation on how fossils are created in **sedimentary** rock | | | | | | **Y3 ANIMALS, INCLUDING HUMANS**  **Identify that animals including humans need the right types and amount of nutrition, and they cannot make their own food; they get nutrition from what they eat.**  Research different food groups. How do they keep us healthy? Design balanced meals based on findings.   * Ask relevant questions and use different types of scientific enquiry to answer them   What do we need to eat in order to have a healthy diet?  Look at Healthy Eatwell plate from NHS website. Compare food plate from 2007 to present day.   * Identify changes related to simple scientific ideas. * Gather, record, classify and present data in a variety of ways to help in answering questions   Explorify –What if you only ate chips?  <https://explorify.wellcome.ac.uk/en/activities/what-if/you-only-ate-chips>  Which breakfast is best?  <https://explorify.wellcome.ac.uk/en/activities/the-big-question/which-breakfast-is-best>   * Use straightforward scientific evidence to answer questions or to support his/her findings   Compare and contrast the diets of different animals (including pets)  Identify differences, similarities using simple scientific vocabulary (carnivores, omnivores and herbivores) Record 5 different criteria on a chart. (peteducationresources.co.uk for information- Wood Green Animal Shelter)  Which foods are ‘high’ in energy and suitable for an explorer? – relate to a PE lesson – what foods would help recovery quickly? Discuss.  **Know humans and some other animals have skeletons and muscles for support, protection and movement**  See the source image**Book: Who Owns These Bones by Henri Cap, Raphael Martin & Renaud Vigourt** | | | | | | **Y3 PLANTS**  **Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers**  Observe and explore a range of flowering plants, labelling diagrams and explaining the different functions of each part  **Know plants have specific needs for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant**.  The Big Book of Blooms: Amazon.co.uk: Yuval Zommer: 9780500651995 ...  **Book: The Big Book of Blooms by Yuval Zommer**    Why did Joseph Banks need a conservatory?  Experiment: Cloche grow seedlings under ‘conservatory’ conditions (plastic bottle)  Discuss how air plants and water-based plants thrive. Link to Monet’s  Water Lilies.  Compare succulent plants to other varieties of indoor plants, e.g. cactus, spider plants.  Compare seedlings grown in spacious or cramped conditions.  Watch Monty Don – Gardeners World – pricking out plants – Explore why?   * Set up simple practical enquiries, comparative and fair tests. * Make systematic and careful observations and, where appropriate, take accurate measurements using standard units with a range of equipment. * Gather, record, classify and present data in a variety of ways to help in answering questions. * Record findings using simple scientific language, drawings, labelled diagrams, keys and tables * Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusion * Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions | | | **Y3 Plants (Plant seeds and observe the growth)**  **Y3 FORCES AND MAGNETS**  **Compare how things move on different surfaces.**  Investigation: Do Kurling stones move differently on different surfaces? Kurling team to be leaders On which surface do they travel the furthest? Why?   * Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.   **Know some forces need contact between two objects** **but magnetic forces can act at a distance**  Why is football not played on ice? Why does a Goalkeeper wear gloves? Different boots for different surfaces – football boots, trainers, astro turf boots. Link to *Defenders* book.  **Know that magnets have two poles**.  Predict whether two magnets will attract or repel each other depending on the position of each pole  **Know magnets attract or repel each other and attract some materials and not others.**  How can we move another magnet without touching it? Investigate.  **Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic** **materials.**  Collate a list of materials attracted to a magnet. Know the difference between the object and the material from which it is made.  Explore household objects which contain magnets such as can opener, door latches, fridge door, fridge magnets to hang things on, toy train magnets on engines.   * Create own recording chart * Gather, record, classify and present data in a variety of ways to help in answering questions * Set up simple practical enquiries, comparative and fair tests. | | | | | | **Y3 LIGHT Recognise that we need light in order to see things and that dark is the absence of light**  **Know that light is reflected from surfaces**  What materials can you see your face in? Why? Set up a range of materials in intervention room (dark) and classroom with light on.   * Compare results and make observations. * Report on findings from enquiries, including oral and written explanations.   **Know shadows are formed when the light from a light source is blocked by an opaque object.**  **Know light travels in straight lines**  Investigate a range of objects to determine how a shadow is formed.  Explore making shadows against a wall using a range of objects/light sources.  Photographic evidence on learning walls.  **Recognise that light from the sun can be dangerous and that there are ways to protect eyes** (sunglasses and ski goggles)  **Find patterns in the way that the size of shadows change**  Create a human sundial and interpret results of shadows | | | | **Y4 STATES OF MATTER**  **Compare and group materials together, according to whether they are solids, liquids or gases**  Investigate a range of everyday household materials and explain using Chatterpix whether they are solid, liquid or gas and why?   * Record findings using simple scientific language and accurate definitions * Gather, record, classify and present data in a variety of ways to help in answering questions   **Know some materials change state when they are heated or cooled**  Measure or research the temperature at which this happens in degrees Celsius (°C)  Prove that some materials will change their state and explain why using all of the Working Scientifically attainment statements for this investigation. **This will be an independent task.**  Investigate a range of foods such as chocolate, butter, ice cream and water. | | | | | |
|  | * Include scientific vocabulary in explanations * Use straightforward scientific evidence to answer questions * Using secondary sources to help answer questions which cannot be answered using scientific investigations   **Know that soils are made from rocks and organic matter**  What is soil? Investigate different soils using hand lenses/magnifying glasses/apps. Compare. What does each example contain? Gather and record using profile strips.  **Soil Test 1**: 3 bottles to a table: one each for sand, peat and clay: children take empty water bottles in pairs and prepare measuring scale on the side using masking tape and pencil. Add water, shake and let it settle into different layers. Once settled, measure each layer.  Record as an annotated diagram  **Soil Test 2**: Soakers and drainers  Using different soils and a funnel inside each beaker (cotton wool in funnel hole). Add same amount of water and observe how water drains through/absorbed. Which soil drains best? Which one retains water?   * Children record results on results chart * Use results to draw simple conclusions   Raise further questions such as: Give a picture of different environments, e.g. mountain, jungle, farm (with manure) and ask how the soil samples might differ in the photos to our soil samples.  https://static.wixstatic.com/media/df731a_eb7ab188cc9146d7b5647eb100c91e50~mv2.jpg/v1/fill/w_118,h_147,al_c,q_80,usm_0.66_1.00_0.01/df731a_eb7ab188cc9146d7b5647eb100c91e50~mv2.jpg  **Book: The Street Beneath My Feet by Charlotte Guillain & Yuval Zommer**  **Higher Order Questions**  An animal dies near a volcano, what happens next? | | | | | | Why do humans and some animals have skeletons and muscles?  Invertebrate and vertebrate- Sort a variety of pictures. How can we record this information? (Carroll diagram)   * Record findings using simple scientific language. * Ask relevant questions and use different types of scientific enquiries to answer them.   Suggest ways to classify these animals.  Animals from *Into the Jungle*: identify and use classification keys, e.g. diet, living in different layers of rainforest.  **Y4 LIVING THINGS IN THEIR HABITATS**  **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 environments can change and that this can sometimes cause dangers to living things**  How can we group living things? Vertebrate animals into fish, amphibians, reptiles, birds and mammals and invertebrates into snails and slugs, worms, spiders and insects.  Link to animals from the UK and India and plants from rain  forests.  Crazy About Cats (Owen Davey Animals Series): Amazon.co.uk: Owen ...  **Book: Crazy About Cats by Owen Davey**   * Gather, record, classify and present data in a variety of ways to help in answering questions * Discuss why some methods of recording are not appropriate * Record findings using simple scientific language linked to classification keys. | | | | | | Take part in the National Potato competition- growing seed potatoes  In order to win this competition what ultimate conditions are needed to grow the seed potatoes?   * Ask relevant questions and use different types of scientific enquiries to answer them   How do Lincolnshire farmers know which crops grow best on their land?  Is there an impact from environmental issues – weather, environments, climate change?  How can they maximise their crops? For Example; use of fertiliser. Visit from a local farmer/Lincolnshire showground tractor visit/Riseholme college.  **Investigate the way in which water is transported within plants**  White carnation/celery investigation using food dye to show water transportation   * Use straightforward scientific evidence to answer questions or to support his/her findings   **Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal**  Why is bird food full of seed? (sunflowers, goose grass, dandelions, brambles)  Focus: Dandelion seed dispersal  Time lapse photography from flower to seed.  Investigation: How far do seeds disperse? On playground create a dartboard around a person standing in the middle. Hold dandelion and wait for wind to take the seed. Which way is the wind blowing? What would happen if the seeds blew onto different environments such as tarmac, earth, car? | | | **Know that magnetic forces can act at a distance**  At what distance does the magnet attract the paperclip? What do the results from the class tell us about the strength of the school magnets? | | | | | |  | | | |  | | | | | |
| Fig  Year 4/5  Cycle 1 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **The Age of Technology** | | | | | | | | | | | | **Malamander** | | | **The Explorer** | | | | | | **Secrets in the Sun** | | | | | | | | | |
| **Y4 Electricity** | | | | | | **Y5 Forces** | | | | | | **Y5 Living Things and their Habitats** | | | **Y4 Animals Including Humans**  **Y5 Animals Including Humans** | | | | | | **Y5 Earth and Space** | | | | **Y5 Properties and Changing Materials** | | | | | |
| Extraordinary Lives  (Super Scientists) | 40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...**INNOVATOR:** James Clerk Maxwell (electricity, magnetism and light)  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino | | | | | | **EXPLORER**: Sir Isaac Newton (gravity and light)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino | | | | | | **EXPLORER:** Marie Tharp (mapped ocean floor)  Solving the Puzzle Under the Sea: Marie Tharp Maps the Ocean Floor ...  **Book: Solving the Puzzle Under the Sea by Robert Burleigh & Raul Colon** | | | **CARER:** Joan Procter (reptiles)  **Books - Patricia ValdezBook: Joan Procter Dragon Doctor by Patricia Valdez & Felicita Sala** | | | | | | **INNOVATOR:** Katherine Johnson  **Counting on Katherine: How Katherine Johnson Put Astronauts on the ...**  **Book: Counting on Katherine by Melanie Becker & Dow Phumiruk** | | | | **EXPLORERS**: Stephen Hawkin (black holes) & Vera Rubin (astrophysicist)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino | | | | | |
| Key Vocabulary | electricity  circuits  conductors  components  static electricity  current electricity  universe atoms  protons  electrons  power source  battery | | | | wire  bulb  complete circuit  mains electricity  appliances  plug  power station  caution  recharge  insulator  voltage | | force  gravity  Earth  weight  gravitational pull  centre (of the Earth)  meteorite  atmosphere | | | | eroded  friction  resistance  forcemeter  Newtons  grams  Sir Isaac Newton  streamlined | | **Y5 Living Things and their Habitats**  fertilised  sexually  reprod/uce/uction  pollination  genetic information  asexual  sexual reproduction  offspring  sperm  embryo  female sex cell  pregnant  hermaphrodites  gestation period  incubate  pupa  breeding | | | **Y4 Animals including Humans**  food chain  diet  producers  consumers  teeth  tongue  liver  gall bladder  large intestine  small intestine  oesophagus  stomach  pancreas  anus  digestion  digestive system  incisors  canines  molars  premolars  milk teeth | | | | saliva  enzymes  bloodstream  bile  fat  hydrates  absorbs  toxins  bacteria  **Y5 Animals including Humans**  mammal  growth  development  exercise  life cycle  gestation  infancy  childhood  adolescence  adulthood  old age  life expectancy | | Sun  Earth  Moon  sphere/spherical  space  astronauts  horizon  diameter  rotate/rotation  shadow  axis  time zones  sunrise/sunset  orbit | | satellite  crater  meteors  emits  reflects  waning crescent  waning gibbous  waxing cresent  waxing gibbous  half moon  new moon  full moon  calendar | | properties  materials  dissolve  solid  liquid  gas  solution  particles  transparent  react  float  sink  soluble/insoluble  evaporation  reversible  filtering  filtration | | | | | sieving  water cycle  effervescent  substance  heating  cooling  temperate  condensation  freezing  melting  vapour  ignite  flammable  transparent  malleable  brittle  translucent |
| Assessment Questions | Can children:   * identify common appliances that run on electricity? * construct a simple series electric circuit? * identify and name the basic parts in a series circuit, including cells, wires, bulbs, switches and buzzers? * recognise symbols to represent simple series circuit diagrams? * identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery? * recognise that a switch opens and closes a circuit? * associate a switch opening with whether or not a lamp lights in a simple series circuit? * recognise some common conductors and insulators? * associate metals with being good conductors? * plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? * suggest improvements and predictions? | | | | | | Can children:   * explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object? * identify the effects of air resistance, water resistance and friction that act between moving surfaces? * recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect? * present a report of their findings through writing, display and presentation using appropriate scientific vocabulary? * use a graph to answer scientific vocabulary? * use test results to make predictions to set up comparative and fair tests? | | | | | | Can children:   * describe the differences in the life cycles of a mammal, amphibians, an insect and a bird? * identify the reproductive processes of some animals? * describe the life cycles of common plants * explore the work of well-know naturalists and animal behaviourists? * present a report of their findings through writing, display and presentation? | | | **Y4 Animals, including Humans**  Can children:   * identify, name and describe the functions of the basic parts of the digestive system in humans? * identify the simple function of different types of teeth in humans? * identify and classify herbivores, carnivores and omnivores? * identify, construct and interpret a variety of food chains, identifying producers, predators and prey? * identify differences, similarities or changes related to simple scientific ideas or processes?   **Y5 Animals. Including Humans**  Can children:   * describe the changes as humans develop to old age * compare the gestation periods of humans and compare them to other animals * use a graph to answer scientific questions * present a report of their findings through writing, display and presentation? | | | | | | Can children:   * identify and explain the movement of the Earth and other planets relative to the sun in the solar system? * explain how seasons and the associated weather is created? * describe and explain the movement of the Moon relative to the Earth? * describe the Sun, Earth and Moon as approximately spherical bodies? * use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky? * present a report of their findings through writing, display and presentation using appropriate scientific vocabulary? * use evidence from secondary sources to explore their own and other people’s ideas? | | | | Can children:   * compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity and response to magnets? * explain how some materials dissolve in liquid to form a solution? * explain what happens when dissolving occurs? * use their knowledge of solids, liquids and gases to decide and describe how mixtures might be separated, including through filtering, sieving and evaporating? * give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic? * describe changes using scientific words (evaporation/ condensation)? * demonstrate that dissolving, mixing and changes of state are reversible changes? * explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda? * use the terms ‘reversible’ and ‘irreversible’? * plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables? * make a prediction with reasons? * use test results to make predictions to set up comparative and fair tests? * take repeat readings when appropriate? * record more complex data and results using scientific diagrams, labels, classification keys, table, scatter graphs, bar and line graphs? | | | | | |
| Content | **Y4 ELECTRICITY**  **Identify common appliances that run on electricity**  Collect objects which run on electricity including common misconceptions (torches, cats eyes on the road, battery operated objects).  Explore the difference between mains and stored electricity. Discuss safety. How do laptops store electricity? iPads?  Record findings using Venn diagram with headings created by children.  **Know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers**  **Know if a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery**  Give a prediction with explanation based on previous investigation.  **Know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit**  What objects have a switch? Why? How does this work? Transfer prior knowledge to create an investigation to prove this. Is there more than one way of creating a switch? (e.g. pressure switch and slider)  **Know some common conductors and insulators**  **Know that metals are good conductors**  Test a range of objects to make a circuit. Which items allow electricity to pass through? Independently select ways of recording their results. Use this information to answer some of these questions:   * Why is a plug made from wire and plastic? * Why do we not put fingers /pencils in electric sockets? * Why are cables covered and not bare? * Should you charge an iPad if wires are exposed   **Cool Circuits and Wicked Wires: Special, Sparky Experiments (Next ...Book: Cool Circuits and Wicked Wires** **by Susan Martineau, Nick Bushell & Kim Hankinson** | | | | | | **Y5 FORCES**  **Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object**  **How can we make the egg fall to the ground safely?**  **Identify the effects of air resistance, water resistance and friction, that act between moving surfaces**  Egg Drop: Amazon.co.uk: Grey, Mini: Books  **Books: Egg Drop** by Mini Grey  In the Sky : Harriet Evans : 9781848579408  **In the Sky** by Harriet Evans & Goncalo Viana  Investigation: Egg Parachutes  Change variables such as holes, length of string, size, shape and material of canopy. Groups to focus on one area of enquiry and use imovie to film activity and feed back to class (Include: prediction; what they did; what the evidence shows; conclusions, How would the design impact on a real parachute jump?)  Why are safety parachutes used?   * Plan different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary * Take measurements using a range of scientific equipment (e.g. stopwatch) with increasing accuracy and precision, taking repeat readings when appropriate * Record data and results of increasing complexity using tables * Look for different causal relationships in their data and identify evidence that refutes or supports their ideas   **Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect**  [**https://www.dkfindout.com/uk/science/simple-machines/gears/**](https://www.dkfindout.com/uk/science/simple-machines/gears/)  **Demonstrate using a bike how gears work.**  [**https://explorify.wellcome.ac.uk/en/activities/whats-going-on/whirring-wonders**](https://explorify.wellcome.ac.uk/en/activities/whats-going-on/whirring-wonders)  Using the Explorify link create running commentary on how the mechanism works using scientific vocabulary. | | | | | | **Y5 LIVING THINGS IN THEIR HABITAT**  **Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird**  **Describe the life process of reproduction in some plants and animals**  Look at the different stages in the life cycles from the final product such as the bird, frog, butterfly and the human and work backwards to how it started life.  Compare and contrast similarities and differences.  Is it only birds that come from eggs? (turtles)  **Describe the life process of reproduction in some plants and animals**  <https://www.bbc.co.uk/bitesize/topics/zgssgk7/articles/zyv3jty>  Sexual reproduction  germination, pollination, fertilisation and dispersal  Asexual – tubers underground  Where have snowdrops come from? | | | **Y4 ANIMALS, INCLUDING HUMANS**  **Describe the simple functions of the basic parts of the digestive system in humans**  Augmented reality t-shirt  Gut Garden: A Journey into the Wonderful World of Your Microbiome ...**Link to The Gut Garden**  **Book: Gut Garden by Katie Brosnan**  Write a job description for each part of the digestive system.  **Identify the different types of teeth in humans and their simple functions (**arrange Dentist visitor**)**  [**https://www.bbc.co.uk/bitesize/topics/z27kng8/articles/zsp76yc**](https://www.bbc.co.uk/bitesize/topics/z27kng8/articles/zsp76yc)  **Construct and interpret a variety of food chains, identifying producers, predators and prey**  Wild Animals of the SouthMake a simple food chain for 3 different habitats including marine (link to Flotsam and Malamander), the Amazon (The Explorer) and Wild Animals of the South (southern hemisphere)  **Wild Animals of the South** by Dieter Braun  **Know that producers start the food chain and consumers end the chain**  Compare each food chain.  Is it always a large animal at the top of the food chain?  Explorify – enus fly trap  **Y5 ANIMALS, INCLUDING HUMANS**  **Describe the changes as humans develop to old age**  Explorify – What if the average lifespan of a human was 200?  Draw a timeline to show stages of growth and development in humans. | | | | | | **Y5 EARTH AND SPACE**  **Describe the Sun, Earth and Moon as approximately spherical bodies**  What shape is the Earth?  Know the Ancient Egyptians (link to Secrets of the Sun King), Vikings, Greeks and Chinese thought the world was flat.  What evidence is there to support the fact that the Earth, Sun and Moon are spherical bodies?   * **Use evidence from secondary sources to explore their own and other people’s ideas**   **Describe the movement of the Earth, and other planets, relative to the Sun in the solar system**  <http://www.bbc.co.uk/programmes/p00n6zgy>  <https://www.stem.org.uk/resources/elibrary/resource/31649/fruit-solar-system>  <http://nrich.maths.org/7753>  **Describe the movement of the Moon relative to the Earth**    How does the moon move?  Does it rotate?  Why is the moon only lit from one side?  Write an explanation text about the movement of the moon?  **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky**  [**https://commons.wikimedia.org/wiki/File:Sonne\_Zeitraffer\_-\_Sun\_Time\_Lapse\_3840x2160p\_24FPS\_CC\_(Royalty\_Free)\_(Kostenlos)\_10bit.webm**](https://commons.wikimedia.org/wiki/File:Sonne_Zeitraffer_-_Sun_Time_Lapse_3840x2160p_24FPS_CC_(Royalty_Free)_(Kostenlos)_10bit.webm)  **What is happening in these clips?**  [**https://explorify.wellcome.ac.uk/en/activities/whats-going-on/earth**](https://explorify.wellcome.ac.uk/en/activities/whats-going-on/earth)  <https://www.bbc.co.uk/bitesize/clips/zkynvcw>  Discuss then write an explanation about day and night using Chatterpix.  Identify where the sun rises and sets at school.  https://images-na.ssl-images-amazon.com/images/I/51%2B2od3YCGL._SX380_BO1,204,203,200_.jpg  **Book: Planetarium by Chris Wormell and Raman Prinja** | | | | **Y5 PROPERTIES AND CHANGING MATERIALS**  **Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical/thermal), and response to magnets**  Investigate the properties of 10 different materials. Predict whether the materials are electrical conductors, strong thermal conductors or magnetic. Record results in a table and Venn diagram (2 intersecting sets using 2 properties to group)  **Know that some materials will dissolve in liquid to form a solution, Know how to recover a substance from a solution**  Test whether different materials are soluble or insoluble in water.   * **Record findings on a chart**   Discuss possible variables which may affect dissolving, e.g. type of water, water temperature, time to dissolve. Investigate 2 variables.   * **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** * **Take repeat readings when appropriate, recording data and results of increasing complexity**   **Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating**  How could archaeologists separate sand/stones from artefacts buried in a tomb? (sieving)  How could the Ancient Egyptians make their water clean during a sandstorm? (filtering)    **Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic**  Children identify the materials that 4 objects are made from (link to Egyptian artefacts) and explain why they have been chosen with reference to their physical properties.  **Know that dissolving, mixing and changes of state are reversible changes (**link to Ancient Egyptians use of salt to embalm)  Identify whether some changes are reversible or not.  **Know some changes result in the formation of new materials, and that this kind of change is not usually reversible**  Classify some changes as reversible (e.g. dissolving) and others as irreversible (e.g. burning)  Link to Ancient Egyptian candles. | | | | | |
| Fig  Year 4/5  Cycle 2 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **Outlaw** | | | | | | **A Christmas Carol** | | | | | | **World Wide Web of Sound** | | | | | | | | | **The Mayans** | | | | **Journey to Space** | | | | | |
| **Y5 Forces** | | | | | | **Y4 Electricity** | | | | | | **Y4 Sound** | | | **Y4 Living things and their habitats**  **Y4 Animals including Humans** | | | | | | **Y5 Properties and Changing Materials** | | | | **Y5 Earth and Space** | | | | | |
| Extraordinary Lives  (Super Scientists) | **INNOVATORS:** Sir Isaac Newton and Leonardo da Vinci  Inventions: Leonardo da Vinci | David Hawcock | 9781406318289**Book: Inventions: Pop-up models from the drawings of Leonardo da Vinci** | | | | | | **EXPLORER:** Thomas Edison and **INNOVATOR:** Lewis H Latimer  See the source image**Book: Edison by Torben Kuhlmann** | | | | | | **CREATOR:** Anoushka Shankar (sitar player: BBC Teach – Ten Pieces Trailblazers)  https://images-na.ssl-images-amazon.com/images/I/514vYAWqFHL._SX410_BO1,204,203,200_.jpg  **Book: Stories for South Asian Super Girls by Raj Kaur Khaira** | | | **CARER:** Jane Goodall  Jane Goodall (19) (Little People, BIG DREAMS): Amazon.co.uk ...**Book: Little People, Big Dreams: Jane Goodall by Isabel Sanchez Vegara & Beatrice Cerocchi** | | | | | | **INNOVATOR:** Ruth Benerito (wrinkle free cotton)  Brilliant Ideas From Wonderful Women - 9781786037046**Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | | **INNOVATOR:** Katherine Johnson (mathematician and physicist)  Brilliant Ideas From Wonderful Women - 9781786037046**Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | | | |
| Key Vocabulary | force  gravity  Earth  weight  gravitational pull  centre of the Earth  meteorite  atmosphere | | | | eroded  friction  resistance  forcemeter  Newtons  grams  Sir Isaac Newton  streamlined | | electricity  circuits  conductors  components  static electricity  current electricity  universe atoms  protons  electrons  power source  battery | | | | wire  bulb  complete circuit  mains electricity  appliances  plug  power station  caution  recharge  insulator  voltage | | sound  vibrations  sound waves  air particles  materials  sound-proofing  orchestra  pitch  volume  length  tightness  thickness | | | habitat  environment  omnivore  carnivore  herbivore  mammal  bird  reptile  arachnid  annelids  crustacean  warm/cold blooded  oxygen  annelid  insect | | | | amphibian  mollusc  characteristics  predator/prey  food chain  organism  reproduce  classif/y/ication  exo/skeleton  in/vertebrate  branching key  deforestation  global warming  climate change  protect/ion  endangered | | properties  materials  dissolve  solid  liquid  gas  solution  particles  transparent  react  float  sink  soluble/insoluble  evaporation  reversible  filtering/ filtration | | sieving  water cycle  effervescent  substance  heating  cooling  temperate  condensation  freezing  melting  vapour  ignite  flammable  malleable  brittle  translucent | | Sun  Earth  Moon  sphere/spherical  space  astronauts  horizon  diameter  rotate/rotation  shadow  axis  time zones  sunrise/sunset  orbit | | | satellite  crater  meteors  emits  reflects  waning crescent  waning gibbous  waxing cresent  waxing gibbous  half moon  new moon  full moon  calendar | | |
| Assessment Questions | Can children:   * explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object? * identify the effects of air resistance, water resistance and friction that act between moving surfaces? * recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect? * present a report of their findings through writing, display and presentation using appropriate scientific vocabulary? * use a graph to answer scientific vocabulary?   use test results to make predictions to set up comparative and fair tests? | | | | | | Can children:   * identify common appliances that run on electricity? * construct a simple series electric circuit? * identify and name the basic parts in a series circuit, including cells, wires, bulbs, switches and buzzers? * recognise symbols to represent simple series circuit diagrams? * identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery? * recognise that a switch opens and closes a circuit? * associate a switch opening with whether or not a lamp lights in a simple series circuit? * recognise some common conductors and insulators? * associate metals with being good conductors? * plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? * suggest improvements and predictions? * ask their own questions? * explain their findings in different ways (display, presentation, writing)? | | | | | | Can children:   * describe a range of sounds and explain how they are made? * associate some sounds with something vibrating? * compare sources of sounds and explain how the sounds differ? * Explain how to change a sound (louder/softer)? * recognise how vibrations from sound travel through a medium to an ear? * describe the relationship between the pitch of the sound and the features of its source/object that produces it? * find patterns between the volume of the sound and the strength of the vibrations that produced it, and the distance of the source? * investigate how different materials can affect the pitch and volume of sounds? * plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? * decide which information needs to be collected and decide the best way of collecting it? * evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? | | | **Y4 Living Things in their Habitats**  Can children:   * recognise that living things can be grouped in a variety of ways? * Classify and identify into broad groups? * explore and use a classification key to group, identify and name a variety of living things? * recognise that environments can change and this can sometimes pose a danger to living things? * explain how environmental changes have an impact on living things * record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? * explain their findings in different ways? | | | | | | Can children:   * compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity and response to magnets? * explain how some materials dissolve in liquid to form a solution? * explain what happens when dissolving occurs? * use their knowledge of solids, liquids and gases to decide and describe how mixtures might be separated, including through filtering, sieving and evaporating? * give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic? * describe changes using scientific words (evaporation/ condensation)? * demonstrate that dissolving, mixing and changes of state are reversible changes? * explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda? * use the terms ‘reversible’ and ‘irreversible’? * plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables? * make a prediction with reasons? * use test results to make predictions to set up comparative and fair tests? * take repeat readings when appropriate? * record more complex data and results using scientific diagrams, labels, classification keys, table, scatter graphs, bar and line graphs? | | | | Can children:   * identify and explain the movement of the Earth and other planets relative to the sun in the solar system? * explain how seasons and the associated weather is created? * describe and explain the movement of the Moon relative to the Earth? * describe the Sun, Earth and Moon as approximately spherical bodies? * use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky? * present a report of their findings through writing, display and presentation using appropriate scientific vocabulary? * use evidence from secondary sources to explore their own and other people’s ideas? | | | | | |
| Content | **Y5 FORCES**  **Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object**  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/pole-position>  What forces are acting on the athlete? How are these forces working?  Discuss soles of sports footwear and the friction working on them.  Compare other footwear, e.g. ice skates, running spikes, football boots.  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/bounce-and-turn>    Discuss how gravity acts between the Earth and the person jumping.  Javelin lesson – what forces are acting on the javelin? (Link the Javelin to arrows used in the book *Arrow*)    Explore how sycamore seeds fall and compare to objects of a similar mass, e.g. table-tennis ball. Why does a sycamore seed fall at a slower rate? (link to da Vinci’s helicopter/ screw instrument –*The Journal of Inventions*)   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment with increasing accuracy and precision * Take repeat readings when appropriate recording data and results of increasing complexity using tables * Look for different causal relationships in their data and identify evidence that refutes or supports their ideas     **Identify the effects of air resistance, water resistance and friction, that act between moving surfaces**  Investigation: Parachute – variables, e.g. holes, string length, size, shape and material of canopy. Groups focus on a line of enquiry, film activity and feed back, include: prediction; what they did; what the evidence shows; conclusions.  How does this impact on a real parachute jump?  Investigation: Water Resistance  Two cylinders, one filled with water. Plasticine balls of same size dropped from same height. Observe what happens. Ball in water will travel slower than cylinder that is empty. Why? Discuss. Use visualiser or film outcome. Compare to parachute and air resistance. When is air and water resistance useful/not useful?  **Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect**  <https://www.outstandingscience.co.uk/index.php?action=view_page&page=view_unit&unit=5e>  Use this knowledge to answer the question – How can you lift a teacher?  Pulleys – How would outlaws lift a tree? Compare a fixed pulley to a block and tackle pulley. Record and compare measurements from force meters. | | | | | | **Y4 ELECTRICITY**  **Identify common appliances that run on electricity**  **Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers**  **Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery**  **Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit**  **Recognise some common conductors and insulators, and associate metals with being good conductors**  **Higher Order Questions**  Rupert is creating a circuit. He is using a pencil to complete it. Will his bulb light up? Why?   |  | | --- | |  | | | | | | | **Y4 SOUND**  **Identify how sounds are made, associating some of them with something vibrating**  **Find patterns between the volume of a sound and the strength of the vibrations that produced it**  Create an investigation: e.g. the harder you pluck a string…the harder you tap… the harder you blow…  Explore vibrations: rice on drum skin; tracing paper on a comb to the lips; elastic bands on yoghurt pots, ukulele strings.   * Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Take measurements, using a range of scientific equipment (stopwatch) with increasing accuracy and precision * Take repeat readings when appropriate recording data and results of increasing complexity using tables   **Recognise that vibrations from sounds travel through a medium to the ear**  Investigation: How effective are different materials at blocking sound?  What is the effectiveness of the material as an insulator of sound and where would you use the material in an everyday situation?  Explorify investigation: <https://explorify.wellcome.ac.uk/en/activities/problem-solvers/protect-your-ears>  Why do children who are sensitive to sound wear ear defenders?   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment (stopwatch) with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using tables   **Find patterns between the pitch of a sound and features of the object that produced it**  How do Ravi and Anoushka get a different pitch of sound on a stringed instrument? Listen to their music and identify the different sounds. Test on ukulele, investigate the link between length of string to pitch   * Children to record results and formulate own conclusions independently. Can children relate their ukulele knowledge to other stringed instruments? * Predictions: I think that\_\_\_will\_\_\_\_because…   **Know that sounds get fainter as the distance from the sound source increases**  Record a phrase onto an iPad. Sound record at distances.   * Use results obtained to draw own conclusions. | | | **Y4 LIVING THINGS IN THEIR HABITAT**  **Recognise that living things can be grouped in a variety of ways** **(focusing on groups within different climate zones – polar, temperate and tropical)**  Sort pictures of animals from 3 climate zones using prior knowledge and experiences. Explore different ways of sorting. Consider similarities and differences between living things from each climate zone/scientific classifications such as mammals, reptiles, birds etc.   * Recording data and results of increasing complexity using tables   **Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment**  Explore how classification keys work using a range of living things (link to *The Big Book of Beasts*)  See the source image  **Book: The Big Book of Beasts by Yuval Zommer**   * Record as Yes/No Branching key   **Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things**  The positive effects of nature reserves, ecologically planned parks and the negative effects of population development of deforestation. Look at the work of Jane Goodall.  **Y4 ANIMALS, INCLUDING HUMANS**  **Construct and interpret a variety of food chains, identifying producers, predators and prey**  Make a simple food chain for each of the 3 climate zones studied. | | | | | | **Y5 PROPERTIES AND CHANGING MATERIALS**  **Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets**  Use a Carroll diagram.  Test materials where appropriate  **Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic**  Do all metals conduct electricity?  Use the results to explain why pan handles, pins on a plug, wood/ metal spoons are made of these materials.  **Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution**  Investigation: Sugar solution  Using a range of different sugars.  Observe the changes. Discuss reversible changes.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment with increasing accuracy and precision * Taking repeat readings when appropriate recording data and results of increasing complexity   **Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating**  How could the Mayans obtain clean water from a muddy sample?  How could the Mayans ensure that they had stoneless soil to cultivate their crops in?  Plan a test to demonstrate the best method of drying their clothes, e.g. fold, hang, lay flat.   * Look for different causal relationships in their data and identify evidence that refutes or supports their ideas   **Demonstrate that dissolving, mixing and changes of state are reversible changes**  Changes of state – Melting chocolate and solidifying, ironing of clothes (wrinkle free cotton)  **Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda**  What happens if……..? Making toast, matches/wood | | | | **Y5 EARTH AND SPACE**  **Describe the Sun, Earth and Moon as approximately spherical bodies**  What shape is the Earth?  Know the Ancient Egyptians, Vikings, Greeks and Chinese thought the world was flat.  What evidence is there to support the fact that the Earth, Sun and Moon are spherical bodies?   * **Use evidence from secondary sources to explore their own and other people’s ideas**   **Describe the movement of the Earth, and other planets, relative to the Sun in the solar system**  <http://www.bbc.co.uk/programmes/p00n6zgy>  <https://www.stem.org.uk/resources/elibrary/resource/31649/fruit-solar-system>  <http://nrich.maths.org/7753>  **Describe the movement of the Moon relative to the Earth**    How does the moon move?  Does it rotate?  Why is the moon only lit from one side?  Write an explanation text about the movement of the moon?  **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky**  [**https://commons.wikimedia.org/wiki/File:Sonne\_Zeitraffer\_-\_Sun\_Time\_Lapse\_3840x2160p\_24FPS\_CC\_(Royalty\_Free)\_(Kostenlos)\_10bit.webm**](https://commons.wikimedia.org/wiki/File:Sonne_Zeitraffer_-_Sun_Time_Lapse_3840x2160p_24FPS_CC_(Royalty_Free)_(Kostenlos)_10bit.webm)  **What is happening in these clips?**  [**https://explorify.wellcome.ac.uk/en/activities/whats-going-on/earth**](https://explorify.wellcome.ac.uk/en/activities/whats-going-on/earth)  <https://www.bbc.co.uk/bitesize/clips/zkynvcw>  Discuss then write an explanation about day and night using Chatterpix.  Identify where the sun rises and sets at school.  **Higher Order Questions**  How would the Solar System be affected if the Sun, Earth and Moon were not spherical? | | | | | |
| Clover Year 5/6  Cycle 1 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **Arrivals and Departures** | | | | | | | | | | | | **Letters from the Lighthouse** | | | | | | | | | **Adventures in Asia** | | | | | | | | | |
| **Y6 Evolution and Inheritance** | | | | | | **Y6 Living Things and their Habitats** | | | | | | **Y6 Electricity** | | | **Y6 Light** | | | | | | **Y6 Animals including Humans** | | | | | | | | | |
| Extraordinary Lives  (Super Scientists) | **EXPLORERS:** Focus Scientist: Darwin and Audubon  **INNOVATOR:** Rosalind Franklin (DNA discovery)  Children's Books – The Friends of Charles Darwin**Book: Charles Darwin’s On the Origin of the Species by Sabina Radeva** | | | | | | **EXPLORER**: Karl Linnaeus  **Book: Karl, Get Out of the Garden by Anita Sanchez & Catherine Stock**  Karl, Get Out of the Garden!: Carolus Linnaeus and the Naming of ... | | | | | | **INNOVATOR**: Sarah Mather  Underwater Periscope  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ... | | | **INNOVATOR:** Alan Turning  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ... | | | | | | INNOVATOR: Francoise Barre-Sinoussi (virus specialist)  **Book: Super Scientists: 40 Inspiring Icons** by Anne Blanchard & Tino  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ... | | | | | | | | | |
| Key Vocabulary | evolution  inheritance  inherited  offspring  characteristics  traits  distinctive  variation  disease  pigment  crossbreed  adapted  invertebrates  environment  palaeontologists  extinct  mammals  deforestation | organism  generation  predators  reproduce  survival  descended  classifying  natural selection  species  primates  prehensile  Carl Linnaeus  Charles Darwin  mutations  external factors  fossils  cross-pollination  selective breeding | | | | | plant  mammal  amphibian  bird  fish  reptile  insect  crustacean  arachnid  mollusc  organism  features  in/vertebrates  exoskeleton  warm/cold blooded  unsegmented  taxonomy  kingdom  binomial Nomenclature diseases  protists  Joseph Lister  sterilise | | segmented  echinoderm  annelid  myriapod  classification system  aquatic  carnivore  herbivore  omnivore  botanist  non/vascular  nutrients  roots  stem  rhizoids  spores  Carl Linnaeus  Order  Genesis  phylum  class  bacteria  fungi  viruses  oxygen | | | | electricity  circuits  volt  current  conductor  component  battery  cell  motor  insulator  amperes  wires  bulbs  buzzer  switch  open switch  closed switch | | | light  shadow  source  reflect/ion  cornea  lens  sclera  optic nerve  retina  pupil  iris  transparent  opaque  translucent | | | | | | urine  uterus  ovary/ovaries  bladder  vagina  vulva  embryo  breastfeed  breasts  hormones  glands  pituitary gland  sex hormones  pubic hair  armpit | ejaculate  periods  hips  menstruation  sanitary pads  tampons  wet dream  sweat  deodorant  antiperspirant  genitals  balanced diet  hygiene  adolescence  mature  pregnant | | balanced diet  energy  muscle  exercise  heart rate  vitamins  minerals  protein  carbohydrate  fibre  fat  sugars  starches  organs  immune system  digestive system  source of energy  nerve fibres  iron  calcium  magnesium  zinc  potassium  circulatory system | | | | | small intestine  absorbs  blood stream  heart  lungs  oxygen  carbon dioxide  bronchioles  arteries  scurvy  vitamin C  mortality rate  vitamin deficiencies  blood vessels veins  pulse rate  smooth/cardiac/ skeletal muscle  extensor  flexor  contract  relax | |
| Assessment Questions | Can children:   * 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 each other or to their parents? * give reasons why offspring are not identical to each other or to their parents? * explain the process of evolution and describe the evidence for this? * identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to extinction? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? * explain a scientific idea and what evidence supports it? | | | | | | Can children:   * 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? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? | | | | | | Can children:   * identify and name the basic parts of a simple electric series circuit * compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches? * use recognised symbols when representing a simple circuit in a diagram? * explore different ways to test an idea, choose the best way, and give reasons? * identify the key factors when planning a fair test? * vary one factor whilst keeping the others the same in an experiment and explain why they do this? * use information to make a prediction and give reasons for it? * use test results to make further predictions and set up further comparative tests? * find a pattern from their data and explain what it shows? * use a graph to answer scientific questions? * link what they have found out to other science? * suggest how to improve their work and say why they think this? | | | Can children:   * recognise that light appears to travel in straight lines? * use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye? * explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes? * use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them? * find a pattern from their data and explain what it shows? * use a graph to answer scientific questions? * link what they have found out to other science? * suggest how to improve their work and say why they think this? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? * draw conclusions from their work? * report findings from investigations through written explanations and conclusions using appropriate scientific language? | | | | | | Can children:   * identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood? * recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? * describe the ways in which nutrients and water are transported within animals and plants, including humans? * explain, in simple terms, a scientific idea and the evidence which supports it? | | | | | | | | | |
| Content | **Y6 EVOLUTION AND INHERITANCE**  **Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**  How have we changed during lockdown?  Explore the way humans evolve from newborn babies to old age and the way humans evolve from apes.  Explore the different ways mankind has evolved around the world.  Use photographic evidence to record.   * Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time   Examine fossil samples and record scientific evidence such as size and shape in order to make a possible identification.  To be scientifically accurate about the fossil what else do scientists need to know? E.g. Where did it come from? (land, sea, country of origin, place of origin, type of rock)  Recap learning from Y3/4 using terms sedimentary, igneous and metamorphic.  Using a map of the UK consider why fewer fossils are found in other areas compared with the Jurassic Coast (Why is the Jurassic Coast called this?) Link to subject of Geology.  **Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents**  **(**Liger, zeodonk and labradoodle)  [**https://explorify.wellcome.ac.uk/en/activities/odd-one-out/half-and-half**](https://explorify.wellcome.ac.uk/en/activities/odd-one-out/half-and-half)  **Human Evolution**  Why are we not all the same? Who do we look like? How does this happen?  <https://explorify.wellcome.ac.uk/en/activities/the-big-question/how-much-variation-is-there-in-how-we-look>  Focus on physical characteristics that we all share as humans but which are different between different groups, e.g. eye shape.  How could our current life style affect the way we evolve in the future? Link to Rosalind Franklin (DNA discovery)  Nobrow Press | Audubon, On the Wings of the WorldSee the source image**Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution**  **Books: When the Whales Walked by Dougal Dixon & Hannah Bailey**  **Audobon: On the Wings of the World by Fabien Grolleau & Jeremie Royer**  The Peppered Moth – link to The Industrial Revolution and its effect on the moths environment.  The evolution of trees. Examine shapes of leaves and the reasons for their shapes. Why are some tree types suited to particular environments? E.g. Rainforest leaves catching water. Look at Deciduous and Evergreen trees. Why do they lose their leaves? Specific locations.   * Observing and raising questions about plants and how they are adapted to their environment; comparing how some living things are adapted to survive in different conditions and locations. They might analyse the advantages and disadvantages of specific adaptations, such as size of leaf, colour of leaf and height of tree. | | | | | | **Y6 LIVING THINGS IN THEIR HABITAT**  **Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals**  **Give reasons for classifying plants and animals based on specific characteristics**    Independently classify a range of animals/plants using their own recording system.  Classification keys for trees and flowers.  Use Linnaeus’ 7 levels of classification chart to sort animals, moths, trees and plants which are likely to be found in different climate zones.   * Children generate own questions resulting from their classification criteria i.e. Can a moth come out in the daytime?   **Pupils work scientifically by exploring the work of Scientists and scientific research**  **(Audubon /Linnaeus)**   * Identifying scientific evidence that has been used to support or refute ideas or arguments   https://images-na.ssl-images-amazon.com/images/I/61FGg-rr7gL._SY498_BO1,204,203,200_.jpg**Book: Moth by Isabel Thomas & Daniel Egneus** | | | | | | **Y6 ELECTRICITY**  **Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit**  **Apply their knowledge of how to make a light brighter to the question of:**  How do we increase the volume of an air raid siren? – link to Letters from the Lighthouse book  **A compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches**  Create a pressure switch circuit  to illuminate or warn of intruders.  Create a morse code circuit including either light and sound  **Use recognised symbols when representing a simple circuit in a diagram** | | | **Y6 LIGHT**  **Recognise that light appears to travel in straight lines**  Prove the statement that light travels in straight lines.  Explorify – see round the bend  Link to submarines in WW2  .  **Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye**  Test with torches and label diagrams to explain  **Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes**  Glow in the Dark: Nature's Light Spectacular - Another Read ...  **Book: Nature’s Light Spectacular by Katy Flint and Cornelia Li**  **Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them**  Britain’s Got Talent – attraction shadow theatre and What a wonderful world shadow puppet- Mr Duke projector | | | | | | **Y6 ANIMALS, INCLUDING HUMANS**  **Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.**  Write a job description for different parts of the circulatory system.  Use graphs to interpret heart rates during exercise.  Make own blood- shows parts of blood  [**https://www.bbc.co.uk/bitesize/topics/zwdr6yc**](https://www.bbc.co.uk/bitesize/topics/zwdr6yc)  [**https://www.youtube.com/watch?v=-s5iCoCaofc**](https://www.youtube.com/watch?v=-s5iCoCaofc)  One of the ways which doctors will know about ill health of organs is with a blood test.  **Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function**  What does an athlete need to perform at his best?  Look at the different components of a diet. Using prior knowledge of diet and eating habits from the Eat Well plate, examine how an athlete (ballet dancer) would need to change in order to improve their performance.  Create a lifestyle plan for an elite athlete and for themselves and compare with their own. (link to local athletes coming in and drug awareness talk).  **Describe the ways in which nutrients and water are transported within animals, including humans**  In a cold climate, what is it your body needs to survive/function compared with everyday life?  <https://explorify.wellcome.ac.uk/en/activities/the-big-question/how-would-you-stay-warm-in-the-arctic>  Link to The Wolfwilder – stewing apples – warm/sugar compared to raw.  What animals and humans need to survive in cold temperatures?  Gut Garden: A Journey into the Wonderful World of Your Microbiome ...**Book: Gut Garden by Katie Brosnan** | | | | | | | | | |
| Clover Year 5/6  Cycle 2 | **Autumn 1** | | | | | | **Autumn 2** | | | | | | **Spring 1** | | | **Spring 2** | | | | | | **Summer 1** | | | | **Summer 2** | | | | | |
| **The Origin of the Species** | | | | | | **The Origin of the Species** | | | | | | **The Storm Keeper’s Island** | | | **The Storm Keeper’s Island** | | | | | | **Who Let the Gods out?** | | | | **Who Let the Gods out?** | | | | | |
| **Y6 Evolution and Inheritance** | | | | | | **Y6 Living Things and their Habitats** | | | | | | **Y6 Light** | | | **Y5 Properties and Changing Materials** | | | | | | **Y6 Electricity** | | | | **Y5 Animals including Humans**  **Y6 Animals including Humans** | | | | | |
| Extraordinary Lives  (Super Scientists) | **EXPLORER:** Charles Darwin  **EXPLORER:** Audubon  **INNOVATOR**: Rosalind Franklin  **Charles Darwin's On the Origin of the Species: Words That Changed the World:  Amazon.co.uk: Brett, Anna, Hayes, Nick: BooksBook: Words that Changed the World: On the Origin of the Species by Anna Brett & Nick Hayes** | | | | | | **INNOVATOR:** Carl Linnaeus  **Book: Karl, Get Out of the Garden by Anita Sanchez & Catherine Stock**  Karl, Get Out of the Garden!: Carolus Linnaeus and the Naming of ... | | | | | | **INNOVATOR:** Katherine Burr Blodgett (non-reflective glass)  Brilliant Ideas From Wonderful Women - 9781786037046**Book: Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | **INNOVATOR:** Marie Van Brittan (domestic surveillance system)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...**Book: Super Scientists: 40 Inspiring Icons by Anne Blanchard & Tino** | | | | | | See the source imageBrilliant Ideas From Wonderful Women - 9781786037046**INNOVATORS:** Thomas Edison & Marie Van Brittan Brown (Domestic surveillance system)  **Books: Edison by Torben Kuhlmann**  **Brilliant Ideas by Wonderful Women by Aitziber Lopez & Luciano Luzano** | | | | **INNOVATOR:** Pythagoras (vegetarian)  40 Inspiring Icons: Super Scientists: Amazon.co.uk: Blanchard ...**Book: Super Scientists: 40 Inspiring Icons by Anne Blanchard & Tino** | | | | | |
| Key Vocabulary | evolution  inheritance  inherited  offspring  characteristics  traits  distinctive  variation  disease  pigment  crossbreed  adapted  invertebrates  environment  palaeontologists  extinct  mammals  deforestation | | organism  generation  predators  reproduce  survival  descended  classifying  natural selection  species  primates  prehensile  Carl Linnaeus  Charles Darwin  mutations  external factors  fossils  cross-pollination  selective breeding | | | | plant  mammal  amphibian  bird  fish  reptile  insect  crustacean  arachnid  mollusc  organism  features  in/vertebrates  exoskeleton  warm/cold blooded  unsegmented  taxonomy  kingdom  binomial Nomenclature diseases  protists  Joseph Lister  sterilise | | | segmented  echinoderm  annelid  myriapod  classification system  aquatic  carnivore  herbivore  omnivore  botanist  non/vascular  nutrients  roots  stem  rhizoids  spores  Carl Linnaeus  Order  Genesis  phylum  class  bacteria  fungi  viruses  oxygen | | | light  shadow  source  reflect/ion  cornea  lens  sclera  optic nerve  retina  pupil  iris  transparent  opaque  translucent | | | properties  materials  dissolve  solid  liquid  gas  solution  particles  transparent  react  float  sink  soluble/insoluble  evaporation  reversible  filtering/ filtration | | sieving  water cycle  effervescent  substance  heating  cooling  temperate  condensation  freezing  melting  vapour  ignite  flammable  malleable  brittle  translucent | | | | electricity  circuits  volt  current  conductor  component  battery  cell  motor  insulator  amperes  wires  bulbs  buzzer  switch  open switch  closed switch | | | | urine  uterus  ovary/ovaries  bladder  vagina  vulva  embryo  breastfeed  breasts  hormones  glands  pituitary gland  sex hormones  pubic hair  armpit  ejaculate  periods  hips  menstruation  sanitary pads  tampons  wet dream  sweat  deodorant  antiperspirant  genitals  balanced diet  hygiene  adolescence  mature  pregnant | | | | | balanced diet  energy  muscle  exercise  heart rate  vitamins  minerals  protein  carbohydrate  fibre  fat  sugars  starches  organs  immune system  digestive system  source of energy  nerve fibres  iron  calcium  magnesium  zinc  potassium  circulatory system  small intestine  absorbs  blood stream  heart  lungs  oxygen  carbon dioxide  bronchioles  arteries  scurvy  vitamin C  mortality rate  vitamin deficiencies  blood vessels veins  pulse rate  smooth/cardiac/ skeletal muscle  extensor  flexor  contract  relax |
| Assessment Questions | Can children:   * 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 each other or to their parents? * give reasons why offspring are not identical to each other or to their parents? * explain the process of evolution and describe the evidence for this? * identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to extinction? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? * explain a scientific idea and what evidence supports it? | | | | | | Can children:   * 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? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? | | | | | | Can children:   * recognise that light appears to travel in straight lines? * use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye? * explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes? * use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them? * find a pattern from their data and explain what it shows? * use a graph to answer scientific questions? * link what they have found out to other science? * suggest how to improve their work and say why they think this? * record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? * draw conclusions from their work? * report findings from investigations through written explanations and conclusions using appropriate scientific language? | | | Can children:   * compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity and response to magnets? * explain how some materials dissolve in liquid to form a solution? * explain what happens when dissolving occurs? * use their knowledge of solids, liquids and gases to decide and describe how mixtures might be separated, including through filtering, sieving and evaporating? * give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic? * describe changes using scientific words (evaporation/ condensation)? * demonstrate that dissolving, mixing and changes of state are reversible changes? * explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda? * use the terms ‘reversible’ and ‘irreversible’? * plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables? * make a prediction with reasons? * use test results to make predictions to set up comparative and fair tests? * take repeat readings when appropriate? * record more complex data and results using scientific diagrams, labels, classification keys, table, scatter graphs, bar and line graphs? | | | | | | Can children:   * identify and name the basic parts of a simple electric series circuit * compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches? * use recognised symbols when representing a simple circuit in a diagram? * explore different ways to test an idea, choose the best way, and give reasons? * identify the key factors when planning a fair test? * vary one factor whilst keeping the others the same in an experiment and explain why they do this? * use information to make a prediction and give reasons for it? * use test results to make further predictions and set up further comparative tests? * find a pattern from their data and explain what it shows? * use a graph to answer scientific questions? * link what they have found out to other science? * suggest how to improve their work and say why they think this? | | | | **Y5 Animals. Including Humans**  Can children:   * describe the changes as humans develop to old age * compare the gestation periods of humans and compare them to other animals * use a graph to answer scientific questions * present a report of their findings through writing, display and presentation?   **Y6 Animals, including Humans**  Can children:   * identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood? * recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? * describe the ways in which nutrients and water are transported within animals and plants, including humans? * explain, in simple terms, a scientific idea and the evidence which supports it? | | | | | |
| Content | **Y6 EVOLUTION AND INHERITANCE**  **Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**  How dogs changed over time.  Butterfly changes over time  Examine fossils and discuss. What evidence have we got and not got? Why?   * Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time- Igneous, Metamorphic and Sedimentary   How does fossil evidence help modern day scientists?  **Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents**  **Human evolution**  Examine physical characteristics in families and twins.  Discuss DNA (Rosalind Franklin)  I**dentify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution**  Darwins finches –Galapagos Islands  Beak investigation – use a variety of implements to pick up a range of seeds. Discuss the need to adapt to their environments.  **Charles Darwin's On the Origin of the Species: Words That Changed the World:  Amazon.co.uk: Brett, Anna, Hayes, Nick: Books**  **Book: Words that Changed the World: On the Origin of the Species by Anna Brett & Nick Hayes**   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations   How butterflies adapt to their environments with camouflage.  Compare and contrast plants such as cacti and the adaptation to the environment they are found in. Examine shapes of leaves and the reasons for their shapes  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/a-sudden-downpour>   * Observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. * Analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers   **Higher Order Questions**  If Darwin and Linnaeus had not developed our understanding of evolution, what do you think we would understand about evolution today?  Do you think that science should interfere with evolution? Is your opinion different for animals or plants? | | | | | | **Y6 LIVING THINGS IN THEIR HABITAT**  **Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals**  **Give reasons for classifying plants and animals based on specific characteristics**  Independently classify a range of animals/plants using their own recording system.  Classification keys for birds, cats, butterflies and bees and flowers.  Use Linnaeus’ 7 levels of classification chart to sort animals which are likely to be found in different climate zones.  Sensational Butterflies: Amazon.co.uk: Rothery, Ben: 9780241361047 ...  **Book: Sensational Butterflies by Ben Rothery**   * Children generate own questions resulting from their classification criteria i.e. Is there any evidence that a tortoise can live in water?   **Pupils work scientifically by exploring the work of Scientists and scientific research**  **(Audubon/Darwin/Linnaeus)**   * Identifying scientific evidence that has been used to support or refute ideas or arguments   **Higher Order Questions**  What would be affected if plants didn’t reproduce? Think about the effect it would have on animals and us, as humans.  What would happen if living things did not die? | | | | | | **Y6 LIGHT**  **Recognise that light appears to travel in straight lines**  Children to set up own investigation based on this statement.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Recording data and results of increasing complexity using scientific diagrams and labels   **Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye**  Rear view mirror demo.  Discussion about magician’s use of mirrors in magical tricks.  Discuss non-reflective glass and its uses.   * Recording data and results of increasing complexity using scientific diagrams and labels   **Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes**    Annotate diagrams to explain the journey of light.  **Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them**  Investigate the distance between the torch and the object when creating the shadows.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking 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 and line graphs * Using test results to make predictions to set up further comparative and fair tests * Including causal relationships   Shadow puppets – Britain’s got Talent shadow group  **Extend experience of light by looking through a range of phenomena including rainbows, colours on soap bubbles, objects in water and colour filters (make a pinhole camera)**  Focus – colour filters and rainbows  **Higher Order Questions**  How is artificial light having an impact on our everyday lives?  Will this make us evolve in a different direction? | | | **Y5 PROPERTIES AND CHANGING MATERIALS**  **Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets**    Independently group a range of everyday materials. Examine the different ways of grouping in detail i.e. scientific classification rather than aesthetic.  How will the central character from the book stay warm?  What is meant by thermal clothing and why do people wear it?  Investigate which materials keep hot water warm and use the conclusions to compile an outfit to be worn in the cold.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking measurements, using a range of scientific equipment, with increasing * Recording data and results of increasing complexity using tables   **Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution**  Salt solution investigation   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking measurements, using a range of scientific equipment, with increasing * Recording data and results of increasing complexity using tables   Refer to book – salt on skin after swimming. Why has it remained on their skin?  **Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating**  Provide a seaside sample.  <https://explorify.wellcome.ac.uk/en/activities/problem-solvers/clean-up-the-beach>  Children to use prior knowledge to separate the different components, recognising the order of process needed, e.g. sieve first to retain the big elements of the sample, then filter and finally evaporate.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking measurements, using a range of scientific equipment, with increasing * Recording data and results of increasing complexity using tables and Scientific diagrams.   **Demonstrate that dissolving, mixing and changes of state are reversible changes**  (candle)- burning and melting are different things. Explain. Refer back to salt water investigation.  **Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda**  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/fire-fighting>  <https://explorify.wellcome.ac.uk/en/activities/whats-going-on/balloon-surprise>  **Higher Order Questions**  Scientists keep discovering new elements and materials all the time. Would it be possible/easy to group new ones with other materials? Explain your reasoning. | | | | | | **Y6 ELECTRICITY**  **Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit**  Do more cells make a buzzer louder?   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings from enquiries, including conclusions, causal relationships   **Compare and give reasons for variations in how components function, including the brightness of bulbs the loudness of buzzers and the on/off position of switches**  Create an intruder alarm where the volume can be increased and the alarm turned on and off.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings from enquiries, including conclusions, causal relationships   **Use recognised symbols when representing a simple circuit in a diagram**  Draw simple circuits and the circuit for their own alarm.   * Recording circuits using Scientific diagrams   **Higher Order Questions**  Do you think that an increase in energy will always make a bulb brighter or a motor faster? Explain your answer and include evidence.  Do you think that electricity has a negative impact on the world? | | | | **Y5 ANIMALS, INCLUDING HUMANS**  **Describe the changes as humans develop towards old age.**  Compare our puberty journey and its impact on our body with mid-life and beyond.  Draw time line.    **Higher Order Questions**  Would we see any differences in the results from different categories of people, e.g. those recovering from surgery? Those who smoke? Do you think that people had healthier diets in the pasts, or do we have healthier diets today? Explain your reasoning.  If we know the harmful effects of tobacco and alcohol, why do some people choose to take them?  **Y6 ANIMALS, INCLUDING HUMANS**  **Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood**  <https://www.bing.com/videos/search?q=you+tube+exploring+the+heart+circulatory+system&docid=607986907307575544&mid=B18783DA73E2B5D2077DB18783DA73E2B5D2077D&view=detail&FORM=VIRE&adlt=strict>  Label diagrams. Write job descriptions of each part of the circulatory system.  **Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function (modern day drug testing for performance)**  **Wilma Unlimited-** compare Olympic athlete then and now.  Effects on own heart during exercise. Measure own heartbeat.  Interpret heart graphs before and after exercise.   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking 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 tables, bar and line graphs.   **Describe the ways in which nutrients and water are transported within animals, including humans**  The Gut Garden book  Virtuali T shirt and app  **Gut Garden: A Journey into the Wonderful World of Your Microbiome ...**  **Book: Gut Garden by Katie Brosnan**  **Pupils work scientifically by exploring the work of scientists and scientific research about the relationships between diet, exercise, drugs, lifestyle and health(e.g. comparing healthy drinks and energy bars)**  Compare sugar content, marketing of product, eating of banana in tennis and other sports. Drinks consumed during sports such as tennis. Eating of pasta, jelly babies during sport to help with performance.  PSHE – link with how energy drinks can damage their immediate and future health and safety.   * Identifying scientific evidence that has been used to support or refute ideas or arguments | | | | | |
|  | **SCIENCE - WORKING SCIENTIFICALLY: STATUTORY REQUIREMENTS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **KEY STAGE ONE** | | | | | | | | | | | | **LOWER KEY STAGE 2** | | | | | | | | | **UPPER KEY STAGE TWO** | | | | | | | | | |
| QUESTIONING | **Asking simple questions, recognising they can be answered in different ways** | | | | | | | | | | | | **Asking relevant questions, using a range of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or support findings.** | | | | | | | | | **Planning range of scientific enquiries to answer questions, recognising and controlling variables where necessary.** | | | | | | | | | |
| OBSERVING | **Observing closely using simple equipment** | | | | | | | | | | | | **Making systematic, careful observations, taking accurate measurements.**  **Using a range of equipment, including thermometers and data loggers.** | | | | | | | | | **Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.** | | | | | | | | | |
| EXPERIMENTING | **Performing simple tests** | | | | | | | | | | | | **Setting up simple practical enquiries, comparative and fair tests** | | | | | | | | | **Using test results to make predictions to set up further comparative and fair tests.** | | | | | | | | | |
| CLASSIFYING | **Identifying and classifying** | | | | | | | | | | | | **Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions** | | | | | | | | | **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** | | | | | | | | | |
| APPLYING | **Using observations and ideas to suggest answers to questions** | | | | | | | | | | | | **Using results to draw simple conclusions, make predictions, suggest improvements and raise further questions.**  **Identifying differences, similarities or changes related to scientific ideas and processes** | | | | | | | | | **Identifying scientific evidence that has been used to support or refute ideas or arguments.** | | | | | | | | | |
| RECORDING | **Gathering and recording data to help in answering questions** | | | | | | | | | | | | **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.**  **Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions.** | | | | | | | | | **Reporting and presenting findings fro 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.** | | | | | | | | | |

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