**Progression of Skills in Science**

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|  | **Nursery** | **Reception** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| PLANTS | Pupils will make close  observations of  conkers, leaves,  pinecones.  Pupils will talk about why  leaves change colour.  Pupils will observe Spring  flowers growing and plant sunflower seeds. | Pupils will talk about where is the best place for a plant to grow?  Pupils will label parts of a plant.  (with support)  Pupils will observe seeds using  magnifying glasses.  Pupils will plant cress and beans. | Pupils will explore a variety of plants in the outdoor space.  Pupils will examine, sort and  taste a range of fruits and vegetables that  could be grown in a garden.  Pupils will plant and grow carrots.  Pupils will label a flower.  Pupils will closely observe the growth of a seed  to a sunflower.  Pupils will identify and classify deciduous and evergreen trees.  Pupils will identify and name a variety of wild plants (including trees).  Pupils will make close observations of  leaves and plants.  Pupils will identify and name a variety of garden  Plants. | Pupils will make close  observations and sort seeds.  Pupils will plant and grow  potatoes.  Pupils will describe a life  cycle of a sunflower.  Pupils will grow a range of seeds into mature plants.  Pupils will compare the  effects of 5 different  factors on plant  growth.  Pupils will compare bulbs  and seeds.  Pupils will research the  requirements for  British vegetables to grow.  Pupils will understand what  parts of plants we eat.  Pupils will explore the requirements for fruits around the world to grow. | Pupils will identify and describe the functions of the plant.  Pupils will investigate how  leaves, help convert sunlight into food.  Pupils will sort different parts  of plants we eat.  Pupils will research different  conditions different  plants, need for life and growth.  Pupils will investigate  whether soil type  affects plant growth.  Pupils will investigate the  rate of transportation  of water.  Pupils will classify seeds into  how they are  dispersed.  Pupils will know the steps in  the pollination cycle.  **Joseph Banks- or**  **Ahmed Mumin Warfa** | **In Living things**  **and their habitats pupils will:**  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 pose  dangers to living  things. | In Living things  and their habitats pupils will:  Describe the life process of  reproduction in  flowering plants  Describe the life process of asexual  reproduction in plants  Grow a new plant  from a parent plant. | In Living things  and their habitats pupils will:  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. |
| ANIMALS | Pupils will mirrors drawing of ourselves and  Families.  Pupils will name squirrels and hedgehogs  and other woodland animals.  Pupils will talk about the life cycles of a  chicken, and  observing life  cycle of  caterpillar | Pupils will find facts about  squirrels and  hedgehogs.  Pupils will complete 5 activities to  explore senses.  Pupils will find out about keeping happy and healthy and healthy eating.  Pupils will talk about the life cycle of a  frog | **(Humans)**  Pupils will identify parts of our body.  Pupils will identify and label parts of the human body.  Pupils will investigate different  heights of pupils in class to feet size(Maths)  Pupils will identify the five senses.  Pupils will use the sense of sound.  Pupils will use the sense of smell.  **(Animals)**  Pupils will name and identify  animals.  Pupils will identify UK mammals.  Pupils will identify birds and  mammals.  Pupils will identify fish and  amphibians.  Pupils will classify animals.  Pupils will sort/classify animals by what they eat.  Pupils will know animals bodies  are covered in different ways.  Pupils will know how to look after  animals.  **Chris Packham** | **(Humans)**  Pupils will investigate how germs spread  in a form of a sneeze.  Pupils will observe how germs are spread  through contact.  Pupils will sort and group the basic needs of a human (baby) for survival.  Pupils will sort food using a carroll diagram.  Pupils will analyse a school dinner.  Pupils will make a pizza using all food groups (DT)  Pupils will collect data about the impact of  exercise on the body.  Pupils will know how health and keeping healthy.  Pupils will observe photos of themselves as babies and compare them to  current photos.  **(Animals)**  Pupils will observe the life cycle of a  caterpillar as it grows.  Pupils will research the basic needs of  wild animals.  Pupils will match animals to their young.Pupils will make an exotic pet guide for owners  **Steve Irwin** | Pupils will research nutrients  Pupils will identify the right type of nutrition by  examining food groups.  Pupils will apply knowledge of  nutrients to make a sandwich (DT)  Pupils will identify and names  bones.  Pupils will explain the skeleton and some of its functions.  Pupils will classify bones that  protect organs and move.  Pupils will explore how muscles work.  Pupils will investigate whether children with taller legs  run faster.  Pupils will classify animals based on their skeletons.  Pupils will compare animals.  **Wihelm Rontghen -X**  **Rays** | Pupils will locate and order parts  of digestive system.  Pupils will research the simple functions of the basic parts of the digestive  system.  Pupils will identify the different  types of teeth in humans and their simple function.  Pupils will investigate and  explain how to keep teeth  and gums healthy.  Pupils will know and understand  simple food chains.  Pupils will make a video to describe the order and  basic functions of the digestive system.  Pupils will consolidate learning about the digestive system  **Ivan Pavlov- Digestive**  **System Mechanisms** | Pupils will draw timeline to  indicate stages in  growth and  development of  humans.  Pupils will present data to describe the development of babies in their first year.  Pupils will describe and  explain the main  changes that occur during puberty.  Pupils will identify the changes that take place in old age.  **Eva Crane -**  **Reproduction in**  **Bees** | Pupils will investigate and record data about resting pulse  rates.  Pupils will investigate how  exercise impacts a pulse.  Pupils will research the parts of the circulatory system.  Pupils will understand what  happened to the oxygen we breathe in.  Pupils will describe the function of  blood and blood vessels.  Pupils will describe the ways  nutrients and water are  transported through the  body (English).  Pupils will understand what a ‘balanced diet’ is and analyse healthy snacks.  Pupils will recognise the impact and dangers of alcohol and drugs.  Pupils will research and present  information about a scientist. |
| LIVING THINGS and their HABITATS | Pupils will learn about woodland  animals and their  habitats.  Pupils will learn the names of  spring flowers.  Pupils will explore outdoor spaces for mini-beasts. | Pupils will learn about pumpkins  and where they grow.  Pupils will explore arctic sceneries and arctic animals.  Pupils will go on a trip to the park. | In plants pupils will:  Identify and name a variety of common wild and garden plants, including  deciduous and  evergreen trees.  Identify and describe the basic structure of a variety of common flowering plants, including trees.  In animals pupils will:  Identify and name a variety of common  animals including  fish, amphibians,  reptiles, birds and  mammals.  Identify and name a variety of common animals that are carnivores,  herbivores and  omnivores. Describe and compare the  structure of a variety of common animals. | Pupils will explore and compare the  differences between things  that are living, dead or never been alive.  Pupils will map a habitat and  identify what is in it.  Pupils will match animals to their  habitats.  Pupils will explore animals and  plants from a seaside habitat  Pupils will compare two areas for  minibeast and carry out a  simple investigation.  Pupils will research a habitat and the animals and plants that  live in it.  Pupils will identify that most living  things live in habitats to which they are suited.  Pupils will explain how living things  in a habitat depend on each  other.  Pupils will describe how animals get their food.  **(Marine biologist); Rachel Carson** | In Plants pupils will:  Explore the part  that flowers  play in the life cycle of flowering  plants, including  pollination, seed  formation and seed dispersal. | Pupils will understand the  characteristics of a living things.  Pupils will ask questions, observe and record the living things in a local area.  Pupils will classify living things in  different of ways.  Pupils will create a classification  key to name living things.  Pupils will classify living things  found in different habitats.  Pupils will use fieldwork to  explore impact on the local environment.  Pupils will research the effects of cutting down trees in  rainforests.  Pupils will research how a natural disaster could affect an  environment.  **Cindy Looy-**  **Environmental Change and Extinction** | Pupils will describe the life process of reproduction in flowering plants.  Pupils will observe how plants can  reproduce asexually.  Pupils will compare and describe the life cycles and  reproduction  (metamorphosis) of insects and amphibians.  Pupils will compare and describe the life cycle and  reproduction of mammals and birds.  Pupils will research the life cycle and dangers of the green turtle.  Pupils will look for patterns about  the gestation period of different mammals.  **Jane Goodall: naturalist** | Pupils will recap ways of grouping  organisms according to their  characteristics.  Pupils will research scientist: Carolus Linnaeus  to understand the Linnaean System of classification.  Pupils will be able to identify  characteristics of different types of  animals.  Pupils will develop classification keys:  non- flowering plants and  flowering plants.  Pupils will research main characteristics  of a vertebrate group.  Pupils will create an imaginary animal that  has features from one or more  groups.  Pupils will research micro-organisms and  how they can be grouped.  Pupils will investigate what conditions make yeast grow. |
| LIGHT | In the provision:  Investigation station:  Pupils will use different coloured  lenses for glasses  that can be mixed  together, torches and mirrors. | In the provision:  Investigation station:  Pupils will use different coloured  lenses for glasses  that can be mixed  together, torches and  mirrors | In animals (including humans):  Identify, name, draw and label the  basic parts of the human body and  say which part of the body is  associated with each sense. (Y1 -  Animals, including humans) |  | Pupils will explore how different objects are more or less visible in different levels of lighting.  Pupils will explain that we need light to see things, and dark is the absence of light.  Pupils will investigate the reflective nature of different materials.  Pupils will identify and classify materials that are opaque,  transparent and translucent.  Pupils will investigate what material is best suited for a pair of  Sunglasses.  Pupils will investigate the difference in shadows when using different materials.  Pupils will investigate how moving the light source affects the  Shadow.  Pupils will choose suitable materials to make shadow puppets.  **To research scientist: James Clerk Maxwell** |  |  | Pupils will recognise that light travels in straight lines.  Pupils will use mirrors to show that light travels in a straight line.  Pupils will investigate how refraction changes the direction in which light travels.  Pupils will label the main parts of the human eye and explain their functions.  Pupils will investigate how light enables us to see colours.  Pupils will investigate how shadows can be changed.  **To research scientist: Patricia Bath, Thomas Young,**  **Percy Shaw or Ibn al-Haytham** |
| FORCES | In the  provision:  Pupils will use a magnet  investigation  station for  exploring,  sorting objects  that are  magnetic and  non-magnetic.  Pupils will conduct the stomp rocket  experiment,  explore the  idea of  gravity/no  gravity in space.  Mini pull  and go car  investigation  station. | In the  provision:  Pupils will use a magnet  investigation  station for  exploring,  sorting objects  that are  magnetic and  non-magnetic.  Pupils will conduct the stomp rocket  experiment,  explore the  idea of  gravity/no  gravity in space.  Mini pull  and go car  investigation  station. |  | In Uses of everyday materials:  Find out how the shapes of solid  objects made from some materials  can be changed by squashing,  bending, twisting and stretching | Pupils will identify push and pulls.  Pupils will investigate how objects move on different surfaces.  Pupils will classify materials according to whether they are  Magnetic.  Pupils will explore the way that magnets behave in relation to each  Other.  Pupils will explore how different objects move.  Pupils will classify coins.  Pupils will devise an investigation to test the strength of magnetics.  Pupils will investigate how magnets work at a distance through  Materials.  **To research scientist: The Wright Brothers (Airplanes)** |  | Pupils will demonstrate the effect of gravity acting on an  unsupported object.  Pupils will Investigate the effect of friction in a range of contexts.  Pupils will investigate the effects of air resistance in a range of contexts.  Pupils will investigate resistance in different liquids.  Pupils will explore how levers, pulleys and gears work.  Pupils will know that some levers and pulleys allow a smaller force to have a greater effect.  Pupils will make a product that involves a lever, pulley or gear (DT).  **To research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop**  **the theory of gravitation** |  |
| ROCKS |  |  | In 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. Describe the  simple physical properties  of a variety of everyday  materials.  Compare and group  together a variety of  everyday materials on the  basis of their simple  physical properties | In uses of everyday  materials:  Identify and compare the  suitability of a variety of  everyday materials,  including wood, metal,  plastic, glass, brick, rock,  paper and cardboard for  particular uses | Pupils will observe closely and classify rocks in a range  of ways, based on their appearance.  Pupils will devise a test to investigate the hardness of a  range of rocks  Pupils will investigate the properties of a rock.  Pupils will observe how rocks have changed over time.  Pupils will research and explain how fossils are formed.  Pupils will model fossil formation.  Pupils will observe and classify soils  To observe how soil can be separated through  Sedimentation.  **To research scientist: Mary Anning** |  |  | In 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 |
| SOUND | In the provision:  Pupils will do a range of  listening games. | In the provision:  Pupils will do a range of  listening games. | In animals (including humans):  Identify, name, draw and label the  basic parts of the human body  and say which part of the body is  associated with each sense. |  |  | Pupils will explore making sounds in a range of ways.  Pupils will classify sound sources.  Pupils will explore how vibrations from sounds travel through solids and liquids to the ear.  Pupils will investigate how sounds change with distance from the source.  Pupils will investigate muffling sounds by using materials.  Pupils will explore changing the volume of sounds.  Pupils will explore changing the pitch of sounds.  **To research scientist: Aristotle - Sound Waves** |  |  |
| ELECTRICITY |  |  |  |  |  | Pupils will sort and classify objects on how they are powered.  Pupils will explore how to make a lightbulb work.  Pupils will classify the materials that were suitable/not suitable for wires.  Pupils will investigate which metal is the is the best conductor of electricity.  Pupils will explore how to connect a range of different switches and investigate how they function in different ways.  Pupils will apply knowledge of conductors and insulators to design and make different types  of switch.  Pupils will make a circuit that can be controlled (Linked to DT).  **To research scientist: Thomas Edison** |  | Pupils will recap knowledge of electrical circuits.  Pupils will make circuits and draw circuit diagrams.  Pupils will investigate the relationship between cells/voltage and lamp brightness.  Pupils will Investigate the relationship between cells/voltage and buzzer volume.  Pupils will research and design an intruder alarm circuit.  Pupils will test circuits and make improvements to the design.  Pupils will prepare a presentation about an investigation to explain how circuits work.  Pupils will investigate what type of fruit makes the best battery.  **To research scientist: Nikola Telsa, Alessandro Volta or Edith Clarke** |
| MATERIALS | Pupils will explore  materials in the  sand and water.  Pupils will compare conkers,  melt chocolate  and observe ice  melting.  Pupils will explore floating and sinking. | Pupils will explore how animals keep  warm in cold  places.  Pupils will investigate  using cooking fat.  Pupils will investigate  floating and  sinking.  Pupils will make  pancakes and  observe changing  state. | Pupils will identify different materials around us.  Pupils will explore the difference between a  material and an  object.  Pupils will classify objects made of one material.  Pupils will describe materials according  to their property.  Pupils will identify natural and man made materials.  Pupils will investigate which  material is  waterproof.  **Pupils will learn about**  **scientist: William**  **Addis Toothbrush**  **Inventor** | Pupils will classify objects in  different ways.  Pupils will explore a range of  materials and their  suitability in the  environment.  Pupils will identify the unsuitability  of everyday materials for  objects.  Pupils will investigate the  absorbency of different paper (kitchen roll).  Pupils will investigate the most suitable materials for a coat.  Pupils will explore how to make an  absorbent material can be  made waterproof.  **To research scientist:**  **Charles Macintosh**  Pupils will investigate how  materials can be shaped.  Pupils will invent a new use for a  material/object. | In rocks:  Compare and  group together  different kinds of  rocks on the  basis of their  appearance and  simple physical  properties  Describe in  simple terms  how fossils are  formed when  things that have  lived are  trapped within  rock.  In rocks:  Notice that  some forces  need contact  between two  objects, but  magnetic forces  can act at a  distance |  |  |  |
| EARTH |  | Pupils will learn planet names.  Pupils will learn simple facts about weather. | In seasonal changes:  Observe changes across the four  seasons Observe and describe  weather associated with the seasons  and how day length varies. |  |  |  | Pupils will understand the movement of the Earth and the moon and use secondary sources to help create a model.  Pupils will use secondary sources to help make a model and explain why day and night occur.  Pupils will use data to draw conclusions about the sun at different times of the year.  Pupils will observe how shadows caused by the sun change throughout the day.  Pupils will describe the movement of the Earth, and other planets, relative to the Sun in the Solar System.  Pupils will describe the movement of the Earth relative to the moon.  Pupils will research a scientist of my choice linked to Space.  Pupils will summarise their learning. |  |
| EVOLUTION |  |  |  | In Living Things and  their Habitats:  Identify that most living  things live in habitats  to which they are  suited and describe  how different habitats  provide for the basic  needs of different  kinds of animals and  plants, and how they  depend on each other | In Rocks:  Describe in simple  terms how fossils are  formed when things  that have lived are  trapped within rock: | In Living Things and  their Habitats:  Recognise that  environments can  change and that this can  sometimes pose  dangers to living things. |  | Pupils will research the characteristics that make a plant suited to its environment.  Pupils will Identify characteristics that make an animal suited to its environment.  Pupils will create an animal suited to an unusual environment.  Pupils will research the evolution of the peppered moth.  Pupils will investigate if there is a pattern between the size and shape of a bird’s beak and what they eat.  Pupils will make close observations of parents and offspring  Pupils will create a model for inherited characteristics.  Pupils will make observations of fossils to identify living things that lived on Earth  millions of years ago and compare to modern day nimals.  Pupils will compare the ideas of Charles Darwin and Alfred Wallace on evolution.  **To research scientist: Mary Anning and how this provided evidence to**  **Evolution.** |