**Science Curriculum**

**Great Linford Primary School**



At Great Linford we are committed to a high-quality science education that provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

**Curriculum Progression: Science Skills**

**Plants**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
| I can Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  I can identify and describe the basic structure of a variety of common flowering plants.  I can identify and name the roots, trunk, branches and leaves of trees.  . | I can observe and describe how seeds and bulbs grow into mature plants.  I can find out and describe how plants need water, light and warmth to grow and stay healthy. | I can identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers  I can explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal  I can explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants  I know the way in which water is transported between plants |  |  |  |

**Animals including humans**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
| I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.   I can identify and name a variety of common animals that are carnivores, herbivores and omnivores | I know that animals, including humans, have offspring which grow into adults    I know the basic stages in a life cycle for animals, including humans.    I can describe the basic needs of animals, including humans, for survival (water, food and air).  I can describe the importance for humans to exercise, eat the right amount of different types of food, and hygiene. | I can identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.   I know how nutrients, water and oxygen are transported within animals and humans.  I know about the importance of a nutritious, balanced diet.   I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. | I can describe the simple functions of the basic parts of the digestive system in humans.  I can identify the different types of teeth in humans and their simple functions.  I can construct and interpret a variety of food chains, identifying producers, predators and prey. | I can describe the changes as humans develop to old age.  I know the life cycle of different living things, e.g. Mammal, amphibian, insect bird.  I know the differences between different life cycles.  I know the process of reproduction in plants.  I know the process of reproduction in animals. | I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.  I can recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions.  I can describe the ways in which nutrients and water are transported within animals, including humans. |

**Evolution and inheritance**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | I know about evolution and can explain what it is.  I know how fossils can be used to find out about the past.  I recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents  I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago |

**Living Things & their Habitats**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
|  | I can explore and compare the difference between things that are living, dead and things that have never been alive.    I can 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.  I can identify and name a variety of plants and animals in their habitats, including micro habitats.  I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food. |  | I can recognise that living things can be grouped in a variety of ways.  I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.  I can recognise that environments can change and that this can sometimes pose danger to living things. |  | I can classify living things into broad groups according to observable characteristics and based on similarities and differences.  I can give reasons for classifying plants and animals based on specific characteristics. |

**Electricity**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
|  |  |  | I can identify common appliances that run on electricity.  I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.  I can 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.    I can recognise that a switch opens and closes the 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.    I know the difference between a conductor and an insulator; giving examples of each. |  | I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.  I can 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.  I can use recognised symbols when representing a simple circuit in a diagram. |

**Forces**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
|  | **There are no specified National Curriculum Objectives for forces at KS1 but year 2 children may have an awareness of how to make things stop and start, using simple pushes and pulls.**  **They may know about floating and sinking.** | I can compare how things move on different surfaces.  I know how a simple pulley works and use making lifting an object simpler  I can notice that some forces need contact between two objects, but magnetic forces can act at a distance.  I can observe how magnets attract and repel each other and attract some materials and not others.  I can 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.  I can describe magnets as having two poles.  I can predict whether two magnets with attract or repel each other, depending on which poles are facing. |  | I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives.  I can identify the effects of air resistance, water resistance and friction, which act between moving surfaces.  I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |  |

**Earth and Space**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system  I can describe the movement of the Moon relative to the Earth  I can describe the Sun, Earth and Moon as approximately spherical bodies  Describe the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. |  |

**Energy**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
| **Seasons and How they Change**  I can observe changes across the four seasons  I can observe and describe weather associated with the seasons and how day length varies. |  | **Light & Sight**  I can recognise that they need light in order to see things and that dark is the absence of light.  I can notice that light is reflected from surfaces. | **Sound**  I know how sound is made associating some of them with vibrating.  I know what happens to a sound as it travels from its source to our ears  .  I know the correlation between the volume of a sound and the strength of the vibrations that produced it.  I know how sound travels from a source to our ears.    I know the correlation between pitch and the object producing a sound. |  | **Light and Sight**  I can recognise that light appears to travel in straight lines.  I can 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.  I can 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.    I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.  I know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. |

**Materials**

| **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| --- | --- | --- | --- | --- | --- |
| I can distinguish between and object and the material from which it is made.  I can identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock,  I can describe the simple physical properties of a variety of everyday materials.    I can compare and group together a variety of everyday materials on the basis of their simple properties | I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.    I can find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties  I can describe in simple terms how fossils are formed when things that have lived are trapped within rock  I can recognise that soils are made from rocks and organic matter. | **Materials - Solids, Liquids & Gases**  I can compare and group materials together, according to whether they are solids, liquids or gases.    I can observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius.    I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | **Materials (Mixtures & Separation)**  I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.  I Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.    I can use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.  **Materials (Changes)**  I can 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.  I can conduct comparative and fair tests, for the particular uses of everyday materials, including wood, metals and plastic.  I can demonstrate that dissolving, mixing and changes of state are reversible changes.  I can explain that some changes result in the formation of new materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda. |  |