Year 2 Science Long Term Plan

Our Rationale

At Courthill we believe that the purpose of Science is to encourage children to question how and why things are and how they happen. We want our pupils to question the world around them and to think critically. We believe that a high-quality science education provides the children the foundations for them to achieve these skills. Science has impacted the world in many ways, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key knowledge and concepts, pupils will be encouraged to understand how science can be used to explain what is happening, predict what they think will happen and analyse results. We want our children to leave us with the 'Big Idea' that there are a wide variety of living things which have similar and different characteristics and need different conditions to thrive. The other 'Big Idea' is that there are different materials that are made out of particles; have different properties and are used for different things

Our aims are to:

- Provide an exciting and though-provoking curriculum that promotes and satisfies their curiosity
- Encourage children to question, explore and observe, so that they can make observations about themselves and their environment
- Help children to develop the skills needed to find out answers to their questions
- Develop positive attitudes to science and increase individual's scientific knowledge
- Encourage children to be open-minded and consider other's thoughts and ideas
- Develop children's growth mind set and explore alternative ways to find out their answers whilst supporting them to work collaboratively and independently
- Develop a confidence to broaden their vocabulary and use appropriate scientific language
- Develop an ability to interpret findings critically and make links to what they already know about the world around them
- Develop skills of investigation – including observing, measuring, predicting, hypothesizing, experimenting, communicating, interpreting, explaining and evaluating
- Foster concern about, and active care for our environment
- Learn about Scientists eg David Attenborough

Our main aim at Courthill infant school is to develop children's knowledge, skills and understanding. We encourage children to ask as well as answer scientific questions about not only about what they do not know but also looking at the things they think they know already. They use computing within the lessons where it enhances their learning. We try to encourage a love of learning by using many creative skills for example role-play and art and discussions. They engage in a wide variety of problem solving activities across all areas of the curriculum. Wherever possible, the children are involved in 'real' scientific activities and investigations, and making links with other curriculum areas to maximise their learning opportunities. We utilise the environment around us with walks to the park to look at the changes through the seasons to trips to the Science museum for some hands on experience on a grander scale and celebrate all things Science with focused topics and visitors. At Courthill Infant School we strive to provide all pupils with a broad and balanced curriculum that meets the specific needs of individual pupils with suitable challenge. Our curriculum aims to respond to pupils' diverse needs across the school and to overcome any barriers to their learning.

Key knowledge and skills have been identified in **bold** with the expectation that all pupils will achieve these outcomes by the end of the year. We strive to address the key objectives through differentiated questioning, demonstrating and scaffolding, as well as using different approaches to teaching and learning to overcome barriers.

Term	Autumn 1 (8 weeks)	Autumn 2 (7 weeks)	Spring 1/2 (7 weeks)	Summer 1 (5 weeks)	Summer 2 (7 weeks)
Big idea	There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive (Living Things)	There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive (Living Things)	That there are different materials that are made out of particles; have different properties and are used for different things (Materials)	There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive (Living Things)	There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive (Living Things)
Knowledge and facts (NC)	**- Plants grow from seeds and bulbs** **-Plants need water, light and the right *temperature*.** -*Germination* is when a seed starts to grow. -Know that seeds and bulbs need to be buried underground in soil and that they will grow into adult plants under the right conditions (water, warmth) -Know that plants that are deprived of light, food (water) or the right temperature will not grow and will die. -Know that plants produce seeds that grow into new plants that are the same. **-Identify if something is *alive, dead*, or *never alive*.** Know Living things move, grow, consume nutrients and reproduce (plants incl seeds and animals) Know that dead things used to do these things, but no longer do; and that things that never lived have never done these things. Dead things include dead animals and plants as well as parts of plants and animals that are no longer attached e.g. leaves and branches, shells, fur, hair and feathers.	**Know humans need to eat good foods like *vegetables, fruits*, things like *rice* and *bread* and potatoes, and *protein*, and not too much *fat* and *sugar*.** **Understand that to stay *healthy*, humans need to -*exercise*** to help their body stay strong and fit **-keep things clean,** including washing and brushing teeth, -Eat the right amounts of different types of food -Know the basic food groups: fruit and vegetables, carbohydrates, protein, dairy, fat and sugary foods -Know that more than half of our diet should be made up of carbohydrates, fruit and vegetables -Know that fats and sugary foods should be eaten rarely and in small amounts -Know that people need to exercise often	Know that applying forces **(e.g. *bending, squashing and twisting)*** to objects can change their shape -Know rigid means something that will not bend without breaking -Flexible is something that can bend without breaking -Know the difference between opaque, transparent **For at least two materials, link a property to how suitable these materials are for particular uses**, eg bricks used for houses cannot be squashable, material used for windows must be transparent. Know that materials can have useful properties that make them suitable for a given job (including being waterproof, flexible, rigid, opaque and transparent) Know that many types of plastic are **waterproof,** that metal is usually **strong**, that rock is hard and **rigid,** some plastics are **flexible**,	**The habitat provides food, water and *shelter*.** **Know that animals and plants live in a habitat to which they are suited**, which means that animals have suitable features that help them move and find food. Plants have suitable features that help them grow well: e.g. polar bears, sharks, cacti **Know that within a habitat there are different microhabitats (e.g. in a woodland, the leaf litter or on the bark of trees), which has different conditions (e.g. light / dark, damp / dry)**	**Know animals including humans have babies** (*offspring)* **that grow into adults**. **Know they need food, water and *air*** **Know what a food chain is and understand that the arrows on a food chain show the direction that the energy travels.**
Context	plants	humans	materials	animals	animals