MEDIUM TERM PLANNING | UNIT OBJECTIVES
Nunthorpe Primary Academy

Year Group: 5

Science

Science Intent
Through science, children are taught to be curious about the world around them. Our curriculum is stimulating, engaging and challenging and ensures full coverage of the National Curriculum. It fosters a sense of wonder about natural phenomena. Children develop and use a range of scientific skills including questioning, fair-testing and drawing conclusions. Scientific vocabulary is taught and built upon as topics are revisited progressively in different year groups and across key stages.

Science – National Curriculum / Skills	Overview
Properties and Changes of Materials – Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution – Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating – Demonstrate that dissolving, mixing and changes of state are reversible changes Work Scientifically by: • 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 test results to make predictions to set up further comparative and fair tests.	The pupils will learn about different materials, their uses and their properties, as well as dissolving, separating mixtures and irreversible changes. The children will sort and classify objects according to their properties. They will explore the properties of materials to find the most suitable material for different purposes. The children will work scientifically and collaboratively to investigate the best thermal insulator to make a flask, making predictions and forming conclusions. Furthermore, they will have chance to find the best electrical conductor, in the context of making floodlights brighter. They will have the opportunity to work in a hands-on way to explore dissolving, identifying the different variables in their own investigations. They will find out about different ways to separate mixtures of materials, using filtering, sieving and evaporating. Finally, they will learn about irreversible changes, and participate in two exciting investigations to create new materials, including casein plastic and carbon dioxide.

• identifying scientific evidence that has been used to support or refute ideas or arguments	
Science – National Curriculum knowledge/skills	Overview
Forces 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 Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect Work scientifically by: • 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 • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions and causal relationships.	The pupils will learn about types of forces such as gravity, friction, water resistance and air resistance. Children will also learn about the use of mechanisms such as levers, gears and pulleys. The children will identify forces and find out about Isaac Newton and his discoveries about gravity, completing a comprehension about his life and his work. The children will look for patterns and links between the mass and weight of objects, using newton meters to measure the force of gravity. They will also work collaboratively to investigate air and water resistance, participating in challenges to design the best parachute and boat. They will have the opportunity to work in a hands-on way to explore friction, developing their own brake pad for a tricycle or scooter. During some of the practical science work, the children will discuss how variables other than the one being tested can be kept the same to help make a test fair. Finally, they will find out about different mechanisms, including levers, gears and pulleys, and will design their own marvellous machine.

Scientific Vocabulary: Force, Gravity, air resistance, water resistance, lever, pulley, weight, Newton, motion, pressure, streamlining, balance, aerodynamics.	
Science – National Curriculum/ Skills	Overview
Earth and Space – see cross curricular topic	
Science – National Curriculum/ Skills	Overview
Living things and their habitats - Life Cycles - 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. Use practical skills to find out about different types of reproduction, including sexual and asexual reproduction in plants Use research skills and observation of insects, amphibians, fish and birds to find out about reproduction in animals. Work scientifically by: • observing and comparing the life cycles of plants and animals in their local environment • asking pertinent questions and suggesting reasons for similarities and differences. • comparing how different animals reproduce and grow.	Children will dissect a daffodil, name relevant reproductive parts and describe in detail the process of reproduction in a flowering plant. They will compare this with reproduction in fish amphibians, insects and birds (as appropriate depending on the animals we are using in our 3 yearly cycle – chickens, frogs, butterflies). Reproduction in mammals is not covered at this stage. Children will also learn about how their own body changes through puberty.