Cumwhinton School Curriculum – Science Y5 SPR

Year	NC Content	
5		Living things and their habitats 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 Animals, including humans describe the changes as humans develop to old age Properties and changes of 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 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 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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 Earth and space describe the movement of the Earth and other planets relative to the sun in the solar system describe 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 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, 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

Science

Scientific Knowledge & Understanding Science Enquiry & Working Scientifically Uses & Implications of Science today and for the future

Mapping across the Year

	AUTUMN	SPRING	SUMMMER
Scientific Knowledge & Understanding	Living Things & Their Habitats 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 Properties & Changes of 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 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 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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	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, 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 Earth & Space Describe the movement of the Earth and other planets relative to the sun in the solar system Describe 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	Animals including Humans Describe the changes as humans develop to old age

Science Enquiry & Working Scientifically	Living Things & Their Habitats Recording data and results of increasing complexity using scientific diagrams and labels. Identifying scientific evidence that has been used to support or refute ideas or arguments Properties & Changes of Materials 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	Forces 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, classification keys, tables, scatter graphs, bar and line graphs 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 Earth & Space Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Identifying scientific evidence that has been used to support or refute ideas or arguments	Animals including Humans Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Identifying scientific evidence that has been used to support or refute ideas or arguments
Uses & Implications of Science today and for the future	Living Things & Their Habitats Explain how a range of plants reproduce asexually e.g. strawberries Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. Properties & Changes of Materials Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify a suitable fabric for a coat. Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. Carry out comparative and fair tests involving non-reversible changes. Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).	Forces Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. Earth & Space Make a sundial. Research time zones. Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel, including flat Earth theorists.	Animals including Humans Can present information about the changes occurring during puberty as an information leaflet for other Y5 children or answers to 'problem page questions'

CONCEPTUAL SCHOOL AMBITION DRIVERS

	EYFS & KS1	LKS2	UKS2
AUT	Diversity	Fairness	Individuality
SPR	Truth	Change	Resilience
SUM	Responsibility	Equality	Sustainability

Science – SPRING 2 YEAR 5

INNOVATION - Resilience

Scientific Knowledge & Understanding Science Enquiry & Working Scientifically Uses & Implications of Science today and for the future

Which force?		
	NC	**CUMWHINTON CURRICULUM**
Finding out (Facts & knowledge)	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, 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	identify and explain the different forces acting on objects; explain how to increase the effects of air resistance; explain how different mechanisms work; design their own mechanism to achieve a given purpose;
Using (Applying & analysing)	Forces 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, classification keys, tables, scatter graphs, bar and line graphs 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	Investigations: Does the size of the parachute affect its air resistance? Does the shape of an object affect its air or water resistance? Explore and design a simple mechanism.
Concluding (Evaluating & summarising)	Forces Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.	Explain Newton's role in discovering gravity; explain Galileo's 'Tower of Pisa' experiment into gravity and air resistance

Science – SPRING 2 YEAR 5

INNOVATION - Resilience

Scientific Knowledge & Understanding Science Enquiry & Working Scientifically Uses & Implications of Science today and for the future

Which is the most resilient planet?

	NC	CUMWHINTON CURRICULUM
Finding out (Facts & knowledge)	Earth & Space Describe the movement of the Earth and other planets relative to the sun in the solar system Describe 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	drama activity – children be the sun and planets and demonstrate how the planets move around the sun, then how the moon moves around the earth name the planets in the solar system Distinguish between heliocentric and geocentric ideas of planetary movement.
Using (Applying & analysing)	Earth & Space Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Identifying scientific evidence that has been used to support or refute ideas or arguments	Support the idea that different places on Earth experience night and day at different times, with evidence.
Concluding (Evaluating & summarising)	Earth & Space Make a sundial. Research time zones. Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel, including flat Earth theorists.	Compare different time zones across the world. Investigate : If it's 6 am here, what time will it be in ……..? Make a sundial Make a Sundial KS2 Worksheet (teacher made) - Twinkl Look at how the theories of different scientists evolved eg. Ptolemy, Aristotle, Alhazen, Al-Katibi, Tusi, Copernicus, Tycho Brahe, Galileo, Kepler, Newton