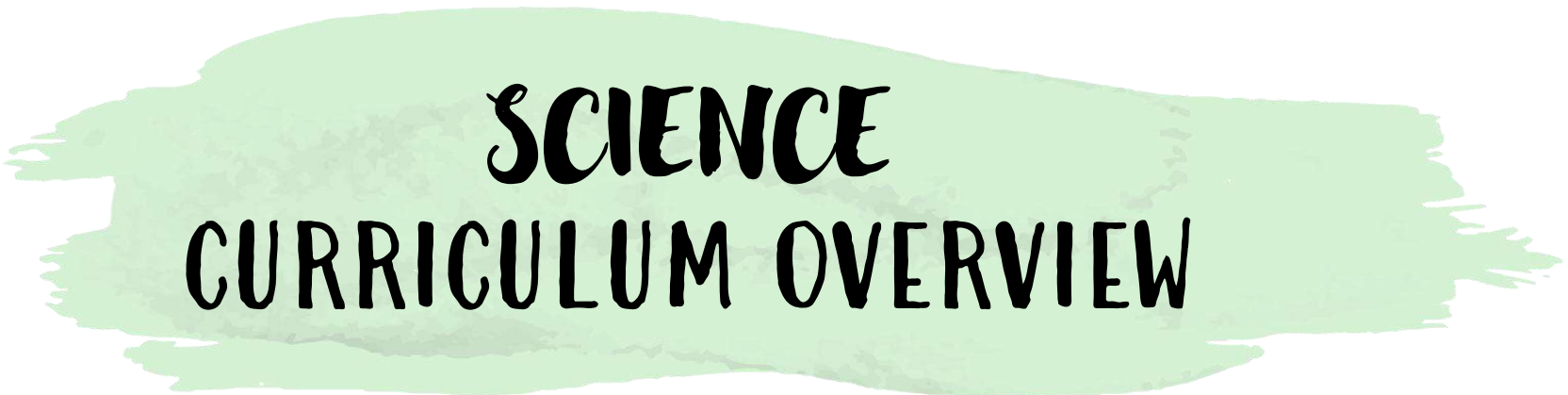




SCIENCE CURRICULUM OVERVIEW

SCIENCE

INTENT AND IMPLEMENTATION

INTENT:

At Corporation Road Primary School, we believe that by studying science, children will develop a sense of the world around them and how it works. We aim to use science as a tool to help children work together and begin to build the collaborative skills that they will continue to use as they grow older. Our curriculum aims to teach our pupils about the natural world as well as imparting the knowledge that they can take into their secondary education. We strongly believe that learning is better when it is kept simple and through discussions, demonstrations, experiences and 'hands on' learning, children will be better prepared to retain the knowledge and skills that they have been taught.

To develop a love of science, we teach and value the skills that our children will need to succeed in school and in their futures. We aim to generate enthusiasm about the subject of science so that our children are ready to continue their learning journey when they move onto secondary school. As teachers, we aim to educate our children about the importance of investigative and practical science so that they can ask questions and explore their curiosity about the ever-changing world around them. We believe children should be given opportunities to plan investigations and experiments and to understand the idea of fair testing. Ultimately, we aim to teach our children scientific knowledge so that they can make sense of the world around them.

IMPLEMENTATION:

At Corporation Road, our science curriculum includes broad scientific concepts that are embedded throughout the curriculum so that each one can be encountered multiple times. It also has a clear focus on disciplinary concepts so that pupils learn how to undertake scientific enquiry.

SCIENCE CONCEPTS

SCIENTIFIC CONCEPTS - GENERATIVE KNOWLEDGE

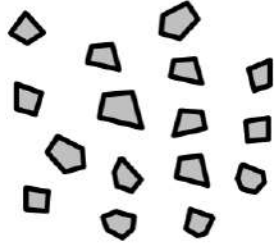
PARTICLES	ENERGY TRANSFER	FORCES	KINGDOMS	EARTH SCIENCE
Materials and the particles they are made up of e.g. the arrangements of particles within solids, liquids and gases and how they behave. Effects of heating and cooling on particles. Separating mixtures and solutions.	Energy in different forms (light energy, sound energy, electrical energy and chemical energy from food) that can be measured and transferred from one place to another.	Identifying different forces, describing their direction and size and explaining their effects.	Identifying characteristics of living things. Making connections and understanding life processes. Learning about habitats, adaption and evolution.	Changes in weather and seasons. Movement of the Earth and other planets relative to the Sun. Concept of Day and Night. Movement of the moon relative to the Earth.

DISCIPLINARY KNOWLEDGE AND SCIENTIFIC ENQUIRY:

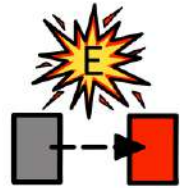
How we 'work' and 'think' like a Scientist.

EXPLAINING SCIENCE	CLASSIFICATION	DESIGNING EXPERIMENTS	DATA, TABLES & GRAPHS	MAKING CONCLUSIONS
Using knowledge and understanding of science, and appropriate vocabulary, to describe and explain what, where, why and how.	Sorting things into groups based upon common properties, features or behaviours. Objects may need to be identified by keys.	Investigating through predicting, changing and measuring. Observing and measuring over short and long periods of time.	Recording and analysing data within tables and charts. Constructing tables and graphs.	Recognising and describing patterns, trends and relationships. Using data to draw conclusions and evaluate.

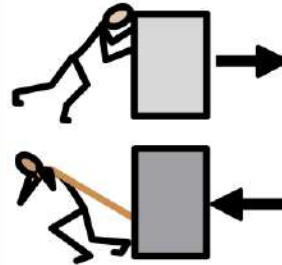
SCIENCE WIDGETS



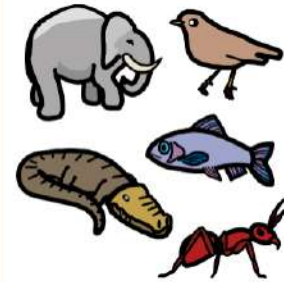
Particles



Energy
Transfer



Forces



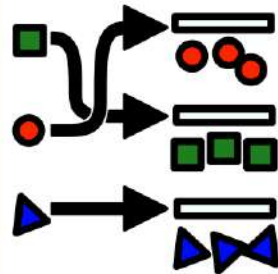
Kingdoms



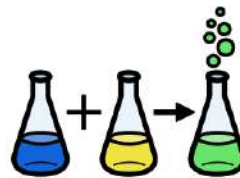
Earth
Science



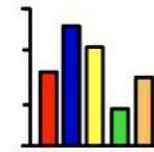
Explaining
Science



Classification



Designing
Experiments



Data,
Tables And
Graphs



Making
Conclusions

SCIENCE IMPACT

IMPACT:

At Corporation Road, we know we will have achieved our intent when our pupils are engaged and enthusiastic towards science, with many pupils expressing a desire to pursue science-related activities outside the classroom. Furthermore, we will observe pupils developing essential working scientific skills such as interpreting and communicating data, predicting, evaluating, asking questions, observing, measuring, setting up tests and recording data. Additionally, pupils will be able to confidently articulate their ideas and findings, demonstrating a clear understanding of scientific concepts. Furthermore, we know we will have achieved our intent as our children will be able to retain knowledge that gives them the foundations for understanding the world; they will be able to question ideas; reflect upon knowledge; gain resilience when outcomes challenge their ideas and children will work collaboratively to investigate and experiment, generating their own ideas for investigation where appropriate. Furthermore, we will have children who can articulate their knowledge with confidence and who can suggest improvements to their own work. Finally, we know we will have achieved our intent when analysis of assessment data demonstrates that most of our pupils meet or exceed age-related expectations in science as our end of unit assessments provide pupils with the opportunity to apply their understanding and knowledge. In conclusion, our intentional and well-implemented science curriculum will ensure that our pupils do not only acquire essential scientific knowledge but also develop the skills and passion necessary to thrive in an ever-evolving world.

SCIENCE

NATIONAL CURRICULUM

PURPOSE OF STUDY:

A high-quality science education 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.

AIMS:

The national curriculum for science aims to ensure that all pupils:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

WORKING SCIENTIFICALLY:

‘Working Scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.

The programmes of study for science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study.

SCIENCE

KEY STAGE ONE

KEY STAGE ONE:

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

SCIENCE

KEY STAGE TWO

LOWER KEY STAGE TWO:

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

UPPER KEY STAGE TWO:

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

SCIENCE EYES IN THE CURRICULUM

UNDERSTANDING THE WORLD:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

In Early Years, our children start to gain the scientific knowledge that they'll build on throughout their primary school years, such as developing their skills of observation, prediction and discussion. Furthermore, they will begin 'working scientifically' through conducting experiments as well as exploring different methods of discovery.

KNOW IT: Understanding the World: The Natural World

EYFS

SEASONS AND WEATHER

By the end of EYFS children should:

- ⇒ Understand changes in the natural world such as day and night and different seasons.
- ⇒ Know that there are four seasons within a year.
- ⇒ Describe changes that take place during these seasons within the natural world e.g. weather, plants and trees, animal hibernation.
- ⇒ Know and describe different weather conditions.
- ⇒ Know which types of weather are linked to different seasons.
- ⇒ Know the symbols used to represent common weather conditions.

MATERIALS

By the end of EYFS children should:

- ⇒ Know the names of some common materials in their immediate environment.
- ⇒ Know and use the vocabulary used to describe basic properties of some common materials.
- ⇒ Know that some materials can change through heating and cooling.
- ⇒ Understand that some materials are better for making objects than others.

ANIMALS, INCLUDING HUMANS

By the end of EYFS children should:

- ⇒ Know the names of a variety of animals and their basic physical features.
- ⇒ Know that different types of animals eat different food.
- ⇒ Know and identify the names of their own body parts.
- ⇒ Know and use some of the vocabulary linked to senses.
- ⇒ Describe some lifecycles such as chick and/or frog.
- ⇒ Know how to provide basic care to domestic animals.

PLANTS

By the end of EYFS children should:

- ⇒ Know that plants are living things that grow in the earth.
- ⇒ Know that most plants have stems, leaves and roots and that some have flowers.
- ⇒ Know that plants grow from seeds.
- ⇒ Know that plants need water to grow and stay healthy.
- ⇒ Know how to provide basic care to plants.
- ⇒ Observe and describe plants within their local environment.

FORCES AND MAGNETS

By the end of EYFS children should:

- ⇒ Know that objects can be moved by pushing or pulling.
- ⇒ Know that some objects can move down a ramp without being pushed or pulled.
- ⇒ Know that if an object is pushed or pulled harder, it will move further.
- ⇒ Know that heavier objects need more push or pull to move.
- ⇒ Know that lighter objects need less push or pull to move.
- ⇒ Know what magnets are and explore and observe the behaviour of magnets on some materials in their immediate environment.

LIGHT AND ELECTRICITY

By the end of EYFS children should:

- ⇒ Know that light comes from the sun.
- ⇒ Know that light is needed to see things.
- ⇒ Know that darkness is the absence of light.
- ⇒ Know some other light sources such as torch, lamp etc.
- ⇒ Know that electricity makes things work.
- ⇒ Know that some objects need electricity to work.
- ⇒ Know that some objects use batteries to make them work.
- ⇒ Know some of the risks linked to electricity and the sun.

LONG TERM PLAN

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Little Rockets	Seasonal Change					
	Classifying	Forces	States of Matter	Animals, Including Humans	Plants Living Things And Their Habitats	States Of Matter Forces
Nursery	Seasonal Change					
	Classifying	Forces	States of Matter	Animals, Including Humans	Plants Living Things And Their Habitats	States Of Matter Forces
Reception	Seasonal Change					
	Light And Electricity	Materials	Forces And Magnets	Plants	Animals, Including Humans	
Year 1	Seasonal Changes					
	Everyday Materials		Animals, Including Humans		Plants	
Year 2	Everyday Materials		Living Things And Their Habitats		Plants	Animals, Including Humans
Year 3	Light	Rocks	Forces And Magnets		Plants	Animals, Including Humans
Year 4	Electricity	Sound	States Of Matter		Living Things And Their Habitats	Animals, Including Humans
Year 5	Properties And Changes Of Material	Force	Earth And Space		Living Things And Their Habitats	Animals, Including Humans
Year 6	Light	Electricity	Evolution And Inheritance		Living Things And Their Habitats	Animals, Including Humans

NATIONAL CURRICULUM TOPICS OF STUDY	SCIENTIFIC CONCEPTS				
	PARTICLES	ENERGY TRANSFER	FORCES	KINGDOMS	EARTH SCIENCE
YEAR 1: Seasonal Changes		✓			✓
YEAR 1: Everyday Materials	✓				
YEAR 1: Animals including Humans				✓	
YEAR 1: Plants				✓	
YEAR 2: Uses of Everyday Materials	✓				
YEAR 2: Living Things and Habitats				✓	
YEAR 2: Plants				✓	
YEAR 2: Animals including Humans				✓	
YEAR 3: Light		✓			✓
YEAR 3: Rocks	✓				✓
YEAR 3: Animals including Humans				✓	
YEAR 3: Forces and Magnets	✓		✓		
YEAR 3: Plants				✓	
YEAR 4: States of Matter	✓				
YEAR 4: Sound	✓	✓			
YEAR 4: Animals including Humans		✓		✓	
YEAR 4: Living Things & Habitats				✓	
YEAR 4: Electricity		✓			
YEAR 5: Earth & Space		✓	✓	✓	✓
YEAR 5: Animals including Humans				✓	
YEAR 5: Living Things & Habitats				✓	
YEAR 5: Properties & Material Changes	✓				
YEAR 5: Forces	✓		✓		
YEAR 6: Animals including Humans				✓	
YEAR 6: Living Things & Habitats				✓	
YEAR 6: Evolution & Inheritance				✓	✓
YEAR 6: Light		✓			
YEAR 6: Electricity		✓			

SCIENCE VOCABULARY

VOCABULARY:

Key vocabulary has been identified for each unit of work. It is explicitly taught by staff and used by children.

	Seasonal Change	Everyday Materials	Animals, Including Humans	Plants
Year 1	Season, Sun, Sky, Autumn, Winter, Spring, Summer, Year, Month, Week, Day, Weather, Temperature, Rainfall, Day length, shadow.	Materials, Wood, Plastic, Glass, Metal, Water, Rock, Brick, Paper, Fabrics, Elastic, Foil, Properties, Hard/ soft, Stretchy/ stiff, Shiny/ dull, Rough/ smooth, Bendy/ not bendy, Waterproof/ not waterproof, Absorbent/ not absorbent.	Animals, invertebrate, worm, spider, insect, woodlouse, fish, amphibian, reptile, bird, mammal, head, neck, arm, elbow, hand, leg, knee, mouth, taste, eye, sight, ear, hear, nose, smell, touch.	Plant, daisy, roots, dandelion, stem, thistle, trunk, daffodil, branches, rose, twigs, tulip, bark, crown, leaves, flower, petals, fruit, bulb, seed, evergreen, deciduous, vegetables, wild, naturally, garden.
	Everyday Materials	Living Things And Their Habitats	Plants	Animals, Including Humans
Year 2	Object, material, wood, metal, plastic, wool, cotton, paper, cork, rock, glass, fabric, ceramic, rope, concrete, rubber, sponge, ice, water, water vapour, property, rigid, flexible, hard, soft, waterproof, absorbent, warm, cold, rough, smooth, dull, shiny, opaque, transparent, application, solid, liquid, gas, squash, bend, twist, stretch, force, sort, group, classify, criteria, equipment, variable, variable label, cause, effect, investigation, range, method.	Living, dead, non-living, movement, respiration, breathing, energy, sensitivity, sight, touch, hearing, smell, taste, growth, reproduction, offspring, excretion, waste, nutrition, habitat, microhabitat, conditions, adapted, adaptation, light, temperature, water, humidity, food chain, feeding, sort, group, classify, criteria, spider key.	Leaf, stem, root, flower, bud, shoot, tap root, lateral root, seed, bulb, germinate, grow, cotyledon, seedling, adult, water, light, temperature, survive, reproduction, experiment, variable, observe, measure, cause, effect, comparative test, fair test, method, data range, predict, pattern	Baby, offspring, toddler, child, adolescent, teenager, adult, reproduction, growth, water, hydrated, food, nutrition, diet, balanced, air, oxygen, breathing, respiration, exercise, fitness, heart rate, pulse, hygiene, microbes (bacteria, viruses, fungi), number track, number line, division, table of results, cause, effect, pictogram, block, block chart, bar, bar chart, axes, coordinate

	Light	Rocks	Forces And Magnets	Plants	Animals, Including Humans
Year 3	Light, dark, energy, quantity, transfer, source, eye, reflected, reflection, reflective, shiny, dull, transmitted, transparent, translucent, opaque, blocked, shadow, absorbed, variable, cause, effect, prediction, fair test, method, relationship, trend, data range, data interval.	Rocks (e.g. sandstone, limestone, chalk, shale, coal, conglomerate, granite, slate, marble, basalt, obsidian, pumice, etc.), texture, crystals, minerals, sedimentary, layers / bands, metamorphic, heat, pressure, igneous, magma, larva, fossil (body, trace, cast, mould), petrification, soil, clay, silt, sand, organic matter, key, spider key, criteria, classify (classification), sort, group, material, property, application.	Force, force arrow, contact force, push force, pull force, twist force, friction force, non-contact force, gravity force, movement, magnet (types), attract, repel, poles (north and south), magnetic, non-magnetic, magnetism, variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.	Life cycle, leaf, mid-rib, leaf-veins, petiole, stem, xylem vessels, flower, bud, petal, sepal, anther, filament, stigma, pollen, style, ovary, ovule, shoot, root, tap root, lateral root, root hairs, seed, seed coat (testa), bulb, grow, radicle, plumule, cotyledon, seedling, adult, water, light, temperature, survive, reproduction, absorb (absorbed), transported, healthy, nutrients, carbon dioxide, oxygen, germinate (germination), pollen, pollination, fertilise (fertilisation), dispersal, variable, cause, effect, prediction, pattern, comparative test, fair test, method, relationship, trend, data range, data interval.	Nutrition, photosynthesis, energy, transfer, diet, carbohydrate (sugar), protein, fat, vitamins, minerals, fibre, balanced, unbalanced, obesity, starvation, skeleton, bones (various, humerus, ulna, radius), joint (hinge), vertebrate, invertebrate, muscles (triceps, biceps), tendon, antagonistic, pull force, push force, number line, division, table of results, cause, effect, pictogram, block, block chart, bar, bar chart, axes, coordinate.
	Electricity	Sound	States Of Matter	Living Things And Their Habitats	Animals, Including Humans
Year 4	Electric (electricity), source, energy, transfer, flow, closed / open circuits, series, cell, battery, positive, negative, wire, bulb, buzzer, motor, switch, clip, light, sound, conductor, insulator, metal, copper, iron, steel, non-metals, plastic, wood, glass, rubber, pattern, trend, relationship, conclusion, valid (validity).	Sound, energy, transfer, source, ear, particles, solid, liquid, gas, vibration, volume, decibels, frequency, pitch, Hertz, reflected, transmitted, absorbed, fainter / louder, lower / higher, variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.	Material, substance, solid, liquid, gas, flow, compressed, state, particle, energy, movement, collision, attraction, heat, temperature (°C), ice, water, water vapour, melting, boiling, freezing, condensation, evaporation, speed (rate), melting point, boiling point, water cycle, rainfall (precipitation), variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.	Spores, seed cones, organism, Micro-organism, biodiversity, ecosystem, environment, habitat, micro-habitat, key, classification, animal, vertebrate, fish, amphibian, reptile, bird, mammal, invertebrate, snails, slugs, spiders, woodlice, insects, worms, plants, trees, flowering plants (grasses, etc), non-flowering plants (conifers, ferns, mosses).	Teeth, incisor, canine, molar, pre-molar, acid, bacteria, plaque, enamel, digestion, mouth, gullet (oesophagus), stomach, small intestine, large intestine, anus, liver, pancreas, food chain, producer, consumer, predator, prey, carnivores, herbivores, omnivores.

Properties And Changes Of Material	Force	Earth And Space	Living Things And Their Habitats	Animals, Including Humans
Material, particle, substance, mixture, compound, state, solid, liquid, gas, melting, boiling, evaporation, condensation, freezing, energy, attraction, dissolve (dissolving), solute, solvent, soluble (solubility), insoluble, opaque, translucent, transparent (transparency), conductive (conductivity), insulating (insulation), heat, temperature, thermal, flexible (flexibility), rigid (rigidity), elastic (elasticity), absorbent (absorbency), magnetic, filtration, sieving, permeable (permeability), chromatography, chemical, physical, reaction, bond (bonded), combined, reversible, irreversible, variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method.	Force, force arrow, contact force, non-contact force, push force, pull force, twist force, friction force, up thrust force, reaction force, gravity force, air resistance force, water resistance force, particle, solid, liquid, gas, balanced, unbalanced, resultant force, force meter, Newton (N), mass, weight, machine, lever (type 1,2 & 3), pivot, fulcrum, effort, load, pulley, mechanical advantage, force multiplier, gear, cog, turning force, speed, acceleration, table of results, cause, effect, repeats, bar chart, bar, coordinate, graph, data point, extrapolate, scale, plot, mean, trend line.	Solar system, sun, star, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Asteroids, moon, orbit, ellipses, gravity force, temperature, solid, liquid, gas, axis, tilted axis, day, night, month, year, satellite, atmosphere, surface, new moon, full moon, quarter moon, waxing, waning, crescent, gibbous, energy, transfer, Universe, telescope, astronomy, pattern, data, primary data, secondary data, trend, relationship, conclusion, valid (validity).	Sexual, asexual, growth, metamorphosis, puberty, reproduction, fertilisation, gamete, egg, sperm, embryo, foetus, larva, pupa (chrysalis), testes, uterus, gestation, birth, petals, sepals, carpel, stigma, ovary, anther, stamen, pollen, pollination, dispersal, vegetative, bulb, runner, tuber, rhizome, corm, stem, root, variation, clone, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, scale.	Baby, toddler, child, adolescent, adult, geriatric, growth, puberty, fertilisation, gestation, birth, egg, sperm, gamete, embryo, foetus, periods, pubic hair, testicle, scrotum, penis, vagina, vulva, cervix, uterus, ovary, erection, ejaculation.

	Light	Electricity	Evolution And Inheritance	Living Things And Habitats	Animals Including Humans
Year 6	Light, source, energy, transfer, reflection (reflected), transmits (transmitted), absorbs (absorbed), shiny, dull, mirror, transparent, translucent, opaque, ray, eye, receptor, shadow, angle, incidence, perpendicular, pattern, data, primary data, secondary data, trend, relationship, conclusion, valid (validity), limitation.	Electric (electricity), source, energy, transfer, Voltage, flow, Current, resistance, insulator, conductor, closed / open circuits, series, cell, battery, positive, negative, wire, bulb, buzzer, motor, switch, clip, metal, light energy, sound energy, heat energy, kinetic energy, Voltmeter, variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, precision, error.	Inherit (inheritance), variation, asexual, sexual, reproduction, sperm, egg, cell, nucleus, gene, characteristic, trait, environment, parent, offspring, selection (selected), adapt (adaptation), species, evolution, fossil, extinct (extinction), survival, table of results, cause, effect, repeats, bar chart, bar, coordinate, graph, data point, extrapolate, scale, plot, mean, trend line, linear, non-linear.	Classification, taxonomy, characteristic, diversity, variation, Kingdom, phylum, class, order, family, genus, species, binomial, animal, plant, fungi, Protista (single-celled), Monera (bacteria), virus, vertebrate, invertebrate, agar, sort, group, re-group, classify, criteria, spider key, number key.	Circulation (circulatory), heart, atrium (atria), ventricle (ventricles), valve, vessel, artery, vein, capillary, blood, red blood cell, white blood cell, platelets, plasma, lungs, oxygen, oxygenated, deoxygenated, carbon dioxide, nutrients, obesity, exchange, exercise, pulse, recovery time, drugs (various), variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, precision, error.

SCIENCE

SMSC

SPIRITUAL DEVELOPMENT

Science encourages children to wonder about the world around them. At Corporation Road, pupils explore units such as the life cycles of plants and animals, which offer profound insights into the beauty of nature. By fostering creativity and encouraging questions about existence and life itself, we nurture spiritual growth of our pupils. They learn to appreciate the marvels of the universe and reflect on their own beliefs and values.

MORAL DEVELOPMENT

Our science curriculum promotes moral development. As students learn about ecosystems and biodiversity, they engage in discussions about environmental responsibility. Units of work about conservation instill a sense of duty towards the planet and its inhabitants. Children are encouraged to think about the consequences of their actions and their impact on the environment, fostering a sense of stewardship.

SOCIAL DEVELOPMENT

Science lessons often involve collaborative enquiries, where pupils work in groups to conduct experiments or investigate scientific concepts. This teamwork nurtures social skills such as communication, respect and empathy. Children learn to listen to each other's ideas, make compromises and celebrate their success together, which is invaluable for their overall development.

CULTURAL DEVELOPMENT

We celebrate cultural diversity within our science curriculum by exploring scientists from various backgrounds. Lessons incorporate different cultural perspectives on scientific advancements and environmental practices. This approach helps children appreciate the richness of various cultures and understand that science is a global endeavor.

SCIENCE

FUNDAMENTAL BRITISH VALUES

DEMOCRACY

Democracy is vital in the classroom environment. In our science lessons, children can participate in discussions, share their ideas and make collective decisions on experiments and investigations. For example, when designing a scientific investigation pupils can vote on which investigation and independent variable to pursue, thereby fostering a sense of ownership and active engagement in their learning process.

RULE OF LAW

The rule of law is an essential aspect of scientific enquiry. We as teachers, explain the importance of following procedures during experiments and investigations to ensure accurate results and fair testing. This not only reinforces the scientific method but also teaches pupils the significance of rules and guidelines, which are crucial for safety in the classroom and working environment.

INDIVIDUAL LIBERTY

Individual liberty encourages pupils to develop their own opinions and interpretations of scientific methods and concepts. At Corporation Road, pupils will explore various scientific theories and outcomes, and they will learn to express their thoughts about such theories respectfully. This enables pupils to understand their rights to voice their views while acknowledging that others may have differing perspectives.

MUTAL RESPECT AND TOLERANCE

At Corporation Road, tolerance and mutual respect are paramount in creating an inclusive learning environment. Our science lessons promote a culture where students appreciate diverse contributions during group projects or discussions. For example, recognising and respecting the different ways in which classmates approach a problem, nurtures collaborative skills and appreciation for diversity among peers.

SCIENCE VIRTUES

KINDNESS

We promote teamwork and collaboration in science activities, as students are encouraged to share ideas, listen to peers and support one another. By fostering a culture of kindness, we help our children understand the importance of empathy and working together, which is vital in scientific enquiry.

RESPECT

Respect is foundational in our science lessons. Students learn to respect nature, their peers' perspectives and the scientific process itself, appreciating the intricate connections that bind us all. By embedding respect into our science curriculum, we prepare our students not only to think like skilled scientists but also thoughtful and responsible citizens of the world.

HONESTY

Honesty is integral to scientific practice. We teach our students the significance of accurate observation and reporting of findings. Encouraging them to be truthful in their work cultivates a sense of integrity, helping them understand that honesty is as important in life as it is in science.

COURAGE

In our science lessons, we celebrate effort and curiosity. When children feel safe to express their ideas and ask questions, they develop a love for learning that propels them into the future.

RESILIENCE

Resilience is an essential part of scientific learning. When conducting experiments, children often encounter unexpected results. We encourage them to view these challenges as opportunities for learning and growth rather than setbacks. This mindset prepares them to tackle problems with determination in all aspects of their lives.

INDEPENDENCE

We aim to promote independence through pupils independently making their own predictions, carrying out scientific investigations on their own and drawing their own conclusions that are informed by their findings and existing theories.

SCIENCE ASSESSMENT

FORMATIVE ASSESSMENT

Every lesson includes formative assessment opportunities for teachers to use. These opportunities are identified in the lesson plan and are included to ensure that misconceptions are recognised and addressed if they occur. They vary from teacher observation to verbal questioning.

All science lessons start with retrieval questions which help children to prepare for their lesson. This includes a retrieval question from the previous and current topic as well as a thinking task that allows children to link their past and present learning.

At the end of every lesson, pupils are invited to assess how well they feel they have met the learning objective.

SUMMATIVE ASSESSMENT

At the end of a unit of work, pupils are given an end of unit summative assessment which assesses their knowledge and skills. The end of unit assessments are used to indicate if pupils are working at the expected standard.

CAREERS IN THE CURRICULUM

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Jim Cantore (Meteorologist)					
	Archimedes (Mathematician And Physicist)	Chester Greenwood (Engineer And Inventor)	Leonardo Da Vinci (Scientist)	Prem Singh Gill (Polar Scientist)	Joan Beauchamp Procter (Zoologist)	
Year 1	Liam Dutton (Meteorologist)					
	Charles Macintosh (Chemist And Inventor)		Jane Goodall (Zoologist And Primatologist)		Beatrix Potter (Botanist)	
Year 2	Leo Baekeland (Chemist)		Dr Kelly Blacklock (Veterinary Surgeon)		Marie Clark Taylor (Plant Biologist)	Rachel Carson (Marine Biologist)
Year 3	Sir Isaac Newton (Physicist)	Mary Anning (Fossilist)	George Cayley (Engineer And Inventor)		Dr Kelsey Byers (Biologist)	Yann Le Meur (Sports Scientist)
Year 4	Thomas Edison (Inventor)	Alexander Graham Bell (Inventor)	Marie Curie (Physicist And Chemist)		Jaques Cousteau (Oceanographer)	William Beaumont (Surgeon)
Year 5	Becky Schroeder (Inventor)	Archimedes (Mathematician And Physicist)	Stephen Hawkins (Physicist And Cosmologist)		Sarah Fowler (Zoologist)	David Attenborough (Biologist And Naturalist)
Year 6	Alhazen (Astronomer)	Joseph Swan (Physicist And Chemist)	Charles Darwin (Naturalist And Geologist)		Carl Linnaeus (Biologist)	William Harvey (Physician)
			Emma Dunne (Paleobiologist)			

READING IN SCIENCE

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Little Rockets	A Walk In The Woods					
	Match The Colour		The Melting Ice Rescue		My First 100 Animals	
Nursery	A Stroll Through The Seasons					
	Match The Shape	Forces	Don't Put Your Finger In The Jelly	Search And Find Book	Sam Plants A Sunflower	I See A Cloud
Reception	Tree: Seasons Come, Seasons Go					
	The Dark	Magical Playdough	Magnets	Little Caterpillar	First Animal Encyclopedia	
Year 1	A Year In Nature: Explore The Countryside Month By Month					
	Everyday Materials		Awesome Weird Animals		Lulu Loves Flowers	
Year 2	The Great Paper Caper		One Day On Our Blue Planet		Roots, Stem, Leaves And Flowers	Growing And Changing: All About Lifecycles
Year 3	Step Into Science: Light	The Pebble In My Pocket: A History Of Our Earth	Boom Science: Forces		The Night Flower	Wild Animals Of The World
Year 4	Investigating Electricity	Step Into Science: Sound	What Is Matter?		Habitats	The Diversity of Life on Earth
Year 5	Properties And Changes Of Material	Gut-Wrenching Gravity	Counting On Katherine		Amazing Animals Homes	
Year 6	Heroes Of Light And Sound	How It Works: Electricity	Charles Darwin Little People, Big Dreams		Our Planet Meet The Microbes	DNA