



Essentials Content



Milestone 1

Science Years 1 and 2

In Years 1 and 2 pupils:

- Ask simple questions.
- Observe closely, using simple equipment.
- Perform simple tests.
- Identify and classify.
- Use observations and ideas to suggest answers to questions.
- Gather and record data to help in answering questions.
- Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen.
- Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.
- Observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
- Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).
- Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- Notice that animals, including humans, have offspring which grow into adults.
- Investigate and describe the basic needs of animals, including humans, for survival (water, food and air).
- Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.
- Explore and compare the differences between things that are living, that are dead and that have never been alive.
- 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.
- Identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
- Identify how humans resemble their parents in many features.
- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.
- Describe the simple physical properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.
- Notice and describe how things move, using simple comparisons such as faster and slower.
- Compare how different things move.
- Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.
- Observe and name a variety of sources of sound, noticing that we hear with our ears.
- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit.
- Observe the apparent movement of the Sun during the day.
- Observe changes across the four seasons.
- Observe and describe weather associated with the seasons and how day length varies

Art and Design Years 1 and 2

In Years 1 and 2 pupils:

- Respond to ideas and starting points.
- Explore ideas and collect visual information.

- Explore different methods and materials as ideas develop.
- Use thick and thin brushes.
- Mix primary colours to make secondary.
- Add white to colours to make tints and black to colours to make tones.
- Create colour wheels.
- Use a combination of materials that are cut, torn and glued.
- Sort and arrange materials.
- Mix materials to create texture.
- Use a combination of shapes.
- Include lines and texture.
- Use rolled up paper, straws, paper, card and clay as materials.
- Use techniques such as rolling, cutting, moulding and carving.
- Draw lines of different sizes and thickness.
- Colour (own work) neatly following the lines.
- Show pattern and texture by adding dots and lines.
- Show different tones by using coloured pencils.
- Use repeating or overlapping shapes.
- Mimic print from the environment (e.g. wallpapers).
- Use objects to create prints (e.g. fruit, vegetables or sponges).
- Press, roll, rub and stamp to make prints.
- Use weaving to create a pattern.
- Join materials using glue and/or a stitch.
- Use plaiting.
- Use dip dye techniques.
- Use a wide range of tools to create different textures, lines, tones, colours and shapes.
- Describe the work of notable artists, artisans and designers.
- Use some of the ideas of artists studied to create pieces.

Computing Years 1 and 2

In Years 1 and 2 pupils:

- Control motion by specifying the number of steps to travel, direction and turn.
- Add text strings, show and hide objects and change the features of an object.
- Select sounds and control when they are heard, their duration and volume.
- Control when drawings appear and set the pen colour, size and shape.
- Specify user inputs (such as clicks) to control events.
- Specify the nature of events (such as a single event or a loop).
- Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?).
- From Year 3 onwards.
- From Year 3 onwards.
- Participate in class social media accounts.
- Understand online risks and the age rules for sites.
- Use a range of applications and devices in order to communicate ideas, work and messages.
- Use simple databases to record information in areas across the curriculum.

Design and Technology Years 1 and 2

In Years 1 and 2 pupils:

- Cut, peel or grate ingredients safely and hygienically.
- Measure or weigh using measuring cups or electronic scales.
- Assemble or cook ingredients.
- Cut materials safely using tools provided.
- Measure and mark out to the nearest centimetre.
- Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).
- Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).
- Shape textiles using templates.
- Join textiles using running stitch.
- Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).
- Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).
- Model designs using software.
- Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.
- Create products using levers, wheels and winding mechanisms.
- Design products that have a clear purpose and an intended user.
- Make products, refining the design as work progresses.
- Use software to design.
- Explore objects and designs to identify likes and dislikes of the designs.
- Suggest improvements to existing designs.
- Explore how products have been created.

Geography Years 1 and 2

In Years 1 and 2 pupils:

- Ask and answer geographical questions (such as: What is this place like? What or who will I see in this place? What do people do in this place?).
- Identify the key features of a location in order to say whether it is a city, town, village, coastal or rural area.
- Use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied.
- Use simple fieldwork and observational skills to study the geography of the school and the key human and physical features of its surrounding environment.
- Use aerial images and plan perspectives to recognise landmarks and basic physical features.
- Name, locate and identify characteristics of the four countries and capital cities of the United Kingdom and its surrounding seas.
- Name and locate the world's continents and oceans.
- Understand geographical similarities and differences through studying the human and physical geography of a small area of the United Kingdom and of a contrasting non-European country.
- Identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles.
- Identify land use around the school.
- Use basic geographical vocabulary to refer to:
 - key physical features, including: beach, coast, forest, hill, mountain, ocean, river, soil, valley, vegetation and weather.
 - key human features, including: city, town, village, factory, farm, house, office and shop.
- Use compass directions (north, south, east and west) and locational language (e.g. near and far) to describe the location of features and routes on a map.
- Devise a simple map; and use and construct basic symbols in a key. Use simple grid references (A1, B1).

History Years 1 and 2

In Years 1 and 2 pupils:

- Observe or handle evidence to ask questions and find answers to questions about the past.
- Ask questions such as: What was it like for people? What happened? How long ago?
- Use artefacts, pictures, stories, online sources and databases to find out about the past.
- Identify some of the different ways the past has been represented.
- Describe historical events.
- Describe significant people from the past.
- Recognise that there are reasons why people in the past acted as they did.
- Place events and artefacts in order on a time line.
- Label time lines with words or phrases such as: past, present, older and newer.
- Recount changes that have occurred in their own lives.
- Use dates where appropriate.
- Use words and phrases such as: a long time ago, recently, when my parents/carers were children, years, decades and centuries to describe the passing of time.
- Show an understanding of the concept of nation and a nation's history.
- Show an understanding of concepts such as civilisation, monarchy, parliament, democracy, and war and peace.

Languages Years 1 and 2

In Years 1 and 2 pupils:

- Read out loud everyday words and phrases.
- Use phonic (or logographic in Mandarin) knowledge to read words.
- Read and understand short written phrases.
- Read out loud familiar words and phrases.
- Use books or glossaries to find out the meanings of new words.
- Write or copy everyday words correctly.
- Label items and choose appropriate words to complete short sentences.
- Write one or two short sentences.
- Write short phrases used in everyday conversations correctly.
- Understand a range of spoken phrases.
- Understand standard language (sometimes asking for words or phrases to be repeated).
- Answer simple questions and give basic information.
- Give responses to questions about everyday events.
- Pronounce words showing a knowledge of sound (or pitch in Mandarin) patterns.
- Identify countries and communities where the language is spoken.
- Demonstrate some knowledge and understanding of the customs and features of the countries or communities where the language is spoken.
- Show awareness of the social conventions when speaking to someone.

Music Years 1 and 2

In Years 1 and 2 pupils:

- Take part in singing, accurately following the melody.
- Follow instructions on how and when to sing or play an instrument.
- Make and control long and short sounds, using voice and instruments.

- Imitate changes in pitch.
- Create a sequence of long and short sounds.
- Clap rhythms.
- Create a mixture of different sounds (long and short, loud and quiet, high and low).
- Choose sounds to create an effect.
- Sequence sounds to create an overall effect.
- Create short, musical patterns.
- Create short, rhythmic phrases.
- Use symbols to represent a composition and use them to help with a performance.
- Identify the beat of a tune.
- Recognise changes in timbre, dynamics and pitch.

Physical Education Years 1 and 2

In Years 1 and 2 pupils:

- Use the terms 'opponent' and 'team-mate'.
- Use rolling, hitting, running, jumping, catching and kicking skills in combination.
- Develop tactics.
- Lead others when appropriate.
- Copy and remember moves and positions.
- Move with careful control and coordination.
- Link two or more actions to perform a sequence.
- Choose movements to communicate a mood, feeling or idea.
- Copy and remember actions.
- Move with some control and awareness of space.
- Link two or more actions to make a sequence.
- Show contrasts (such as small/tall, straight/curved and wide/narrow).
- Travel by rolling forwards, backwards and sideways.
- Hold a position whilst balancing on different points of the body.
- Climb safely on equipment.
- Stretch and curl to develop flexibility.
- Jump in a variety of ways and land with increasing control and balance.
- Swim unaided up to 25 metres.
- Use one basic stroke, breathing correctly.
- Control leg movements.
- Athletic activities are combined with games in Years 1 and 2.



Milestone 2

By the end of Year 3 pupils should have a basic grasp of all of this content.

By the end of Year 4 pupils should have an advancing understanding of this content, whilst some will have a deep understanding.

Science Years 3 and 4

Years 3 and 4 pupils:

- Ask relevant questions.
- Set up simple, practical enquiries and comparative and fair tests.
- Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
- Identify differences, similarities or changes related to simple, scientific ideas and processes.
- Use straightforward, scientific evidence to answer questions or to support their findings.
- Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers.
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
- Investigate the way in which water is transported within plants.
- Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
- Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat.
- Construct and interpret a variety of food chains, identifying producers, predators and prey.
- Identify that humans and some animals have skeletons and muscles for support, protection and movement.
- Describe the simple functions of the basic parts of the digestive system in humans.
- Identify the different types of teeth in humans and their simple functions.
- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys.
- Recognise that environments can change and that this can sometimes pose dangers to specific habitats.

- Identify how plants and animals, including humans, resemble their parents in many features.
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- Identify how animals and plants are suited to and adapt to their environment in different ways.

Rocks and Soils

- Compare and group together different kinds of rocks on the basis of their simple, physical properties.
- Relate the simple physical properties of some rocks to their formation (igneous or sedimentary).
- Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.
- Recognise that soils are made from rocks and organic matter.

States of Matter

- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius ($^{\circ}\text{C}$), building on their teaching in mathematics.
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- 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.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.
- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by a solid object.
- Find patterns in the way that the size of shadows change. Identify how sounds are made, associating some of them with something vibrating.
- Recognise that vibrations from sounds travel through a medium to the ear.
- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- 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.
- Recognise that a switch opens and closes a 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.
- Describe the movement of the Earth relative to the Sun in the solar system.
- Describe the movement of the Moon relative to the Earth.

Art and Design Years 3 and 4 In Years 3 and 4 pupils:

- Develop ideas from starting points throughout the curriculum.
- Collect information, sketches and resources.
- Adapt and refine ideas as they progress.
- Explore ideas in a variety of ways.
- Comment on artworks using visual language.
- Use a number of brush techniques using thick and thin brushes to produce shapes, textures, patterns and lines.
- Mix colours effectively.

- Use watercolour paint to produce washes for backgrounds then add detail.
- Experiment with creating mood with colour.
- Select and arrange materials for a striking effect.
- Ensure work is precise.
- Use coiling, overlapping, tessellation, mosaic and montage.
- Create and combine shapes to create recognisable forms (e.g. shapes made from nets or solid materials).
- Include texture that conveys feelings, expression or movement.
- Use clay and other mouldable materials.
- Add materials to provide interesting detail.
- Use different hardnesses of pencils to show line, tone and texture.
- Annotate sketches to explain and elaborate ideas.
- Sketch lightly (no need to use a rubber to correct mistakes).
- Use shading to show light and shadow.
- Use hatching and cross hatching to show tone and texture.
- Use layers of two or more colours.
- Replicate patterns observed in natural or built environments.
- Make printing blocks (e.g. from coiled string glued to a block).
- Make precise repeating patterns.
- Shape and stitch materials.
- Use basic cross stitch and back stitch.
- Colour fabric.
- Create weavings.
- Quilt, pad and gather fabric.
- Create images, video and sound recordings and explain why they were created.
- Replicate some of the techniques used by notable artists, artisans and designers.
- Create original pieces that are influenced by studies of others.

Computing Years 3 and 4

In Years 3 and 4 pupils:

- Use specified screen coordinates to control movement.
- Set the appearance of objects and create sequences of changes.
- Create and edit sounds. Control when they are heard, their volume, duration and rests.
- Control the shade of pens.
- Specify conditions to trigger events.
- Use IF THEN conditions to control events or objects.
- Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions).
- Use variables to store a value.
- Use the functions define, set, change, show and hide to control the variables.
- Use the Reporter operators
 - () + ()
 - () - ()
 - () * ()

() / ()

to perform calculations.

- Contribute to blogs that are moderated by teachers.
- Give examples of the risks posed by online communications.
- Understand the term 'copyright'.
- Understand that comments made online that are hurtful or offensive are the same as bullying.
- Understand how online services work.
- Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.
- Devise and construct databases using applications designed for this purpose in areas across the curriculum.

Design and Technology Years 3 and 4 In Years 3 and 4

pupils:

- Prepare ingredients hygienically using appropriate utensils.
- Measure ingredients to the nearest gram accurately.
- Follow a recipe.
- Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).
- Cut materials accurately and safely by selecting appropriate tools.
- Measure and mark out to the nearest millimetre.
- Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).
- Select appropriate joining techniques.
- Understand the need for a seam allowance.
- Join textiles with appropriate stitching.
- Select the most appropriate techniques to decorate textiles.
- Create series and parallel circuits.
- Control and monitor models using software designed for this purpose.
- Choose suitable techniques to construct products or to repair items.
- Strengthen materials using suitable techniques.
- Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).
- Design with purpose by identifying opportunities to design.
- Make products by working efficiently (such as by carefully selecting materials).
- Refine work and techniques as work progresses, continually evaluating the product design.
- Use software to design and represent product designs.
- Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.
- Improve upon existing designs, giving reasons for choices.
- Disassemble products to understand how they work.

Geography Years 3 and 4 In Years 3 and 4

pupils:

- Ask and answer geographical questions about the physical and human characteristics of a location.
- Explain own views about locations, giving reasons.
- Use maps, atlases, globes and digital/computer mapping to locate countries and describe features.

- Use fieldwork to observe and record the human and physical features in the local area using a range of methods including sketch maps, plans and graphs and digital technologies.
- Use a range of resources to identify the key physical and human features of a location.
- Name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time.
- Name and locate the countries of Europe and identify their main physical and human characteristics.
- Name and locate the Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle and date time zones. Describe some of the characteristics of these geographical areas.
- Describe geographical similarities and differences between countries.
- Describe how the locality of the school has changed over time.
- Describe key aspects of:
 - physical geography, including: rivers, mountains, volcanoes and earthquakes and the water cycle.
 - human geography, including: settlements and land use.
- Use the eight points of a compass, four-figure grid references, symbols and key to communicate knowledge of the United Kingdom and the wider world.

History Years 3 and 4

In Years 3 and 4 pupils:

- Use evidence to ask questions and find answers to questions about the past.
- Suggest suitable sources of evidence for historical enquiries.
- Use more than one source of evidence for historical enquiry in order to gain a more accurate understanding of history.
- Describe different accounts of a historical event, explaining some of the reasons why the accounts may differ.
- Suggest causes and consequences of some of the main events and changes in history.
- Describe changes that have happened in the locality of the school throughout history.
- Give a broad overview of life in Britain from ancient until medieval times.
- Compare some of the times studied with those of other areas of interest around the world.
- Describe the social, ethnic, cultural or religious diversity of past society.
- Describe the characteristic features of the past, including ideas, beliefs, attitudes and experiences of men, women and children.
- Place events, artefacts and historical figures on a time line using dates.
- Understand the concept of change over time, representing this, along with evidence, on a time line.
- Use dates and terms to describe events.
- Use appropriate historical vocabulary to communicate, including:
 - dates
 - time period
 - era
 - change
 - chronology.
- Use literacy, numeracy and computing skills to a good standard in order to communicate information about the past.

Languages Years 3 and 4 In Years 3 and

4 pupils:

- Read and understand the main points in short written texts.
- Read short texts independently.
- Use a translation dictionary or glossary to look up new words.
- Write a few short sentences using familiar expressions.
- Express personal experiences and responses.
- Write short phrases from memory with spelling that is readily understandable.
- Understand the main points from spoken passages.
- Ask others to repeat words or phrases if necessary.
- Ask and answer simple questions and talk about interests.
- Take part in discussions and tasks.
- Demonstrate a growing vocabulary.
- Describe with some interesting details some aspects of countries or communities where the language is spoken.
- Make comparisons between life in countries or communities where the language is spoken and this country.

Music Years 3 and 4

In Years 3 and 4 pupils:

- Sing from memory with accurate pitch.
- Sing in tune.
- Maintain a simple part within a group.
- Pronounce words within a song clearly.
- Show control of voice.
- Play notes on an instrument with care so that they are clear.
- Perform with control and awareness of others.
- Compose and perform melodic songs.
- Use sound to create abstract effects.
- Create repeated patterns with a range of instruments.
- Create accompaniments for tunes.
- Use drones as accompaniments.
- Choose, order, combine and control sounds to create an effect.
- Use digital technologies to compose pieces of music.
- Devise non-standard symbols to indicate when to play and rest.
- Recognise the notes EGBDF and FACE on the musical staff.
- Recognise the symbols for a minim, crotchet and semibreve and say how many beats they represent.
- Use the terms: duration, timbre, pitch, beat, tempo, texture and use of silence to describe music.
- Evaluate music using musical vocabulary to identify areas of likes and dislikes.
- Understand layers of sounds and discuss their effect on mood and feelings.

but also how we bounced back.

Physical Education Years 3 and 4 In Years 3 and 4

pupils:

- Throw and catch with control and accuracy.

- Strike a ball and field with control.
- Choose appropriate tactics to cause problems for the opposition.
- Follow the rules of the game and play fairly.
- Maintain possession of a ball (with, e.g. feet, a hockey stick or hands).
- Pass to team mates at appropriate times.
- Lead others and act as a respectful team member.
- Throw and catch with control and accuracy.
- Strike a ball and field with control.
- Choose appropriate tactics to cause problems for the opposition.
- Follow the rules of the game and play fairly.
- Maintain possession of a ball (with, e.g. feet, a hockey stick or hands).
- Pass to team mates at appropriate times.
- Lead others and act as a respectful team member.
- Plan, perform and repeat sequences.
- Move in a clear, fluent and expressive manner.
- Refine movements into sequences.
- Show changes of direction, speed and level during a performance.
- Travel in a variety of ways, including flight, by transferring weight to generate power in movements.
- Show a kinesthetic sense in order to improve the placement and alignment of body parts (e.g. in balances experiment to find out how to get the centre of gravity successfully over base and organise body parts to create an interesting body shape).
- Swing and hang from equipment safely (using hands).
- Swim between 25 and 50 metres unaided.
- Use more than one stroke and coordinate breathing as appropriate for the stroke being used.
- Coordinate leg and arm movements.
- Swim at the surface and below the water.
- Sprint over a short distance up to 60 metres.
- Run over a longer distance, conserving energy in order to sustain performance.
- Use a range of throwing techniques (such as under arm, over arm).
- Throw with accuracy to hit a target or cover a distance.
- Jump in a number of ways, using a run up where appropriate.
- Compete with others and aim to improve personal best performances.
- Arrive properly equipped for outdoor and adventurous activity.
- Understand the need to show accomplishment in managing risks.
- Show an ability to both lead and form part of a team.
- Support others and seek support if required when the situation dictates.
- Show resilience when plans do not work and initiative to try new ways of working.
- Use maps, compasses and digital devices to orientate themselves.
- Remain aware of changing conditions and change plans if necessary.



Milestone 3

By the end of Year 5 pupils should have a basic grasp of all of this content.

By the end of Year 6 pupils should have an advancing understanding of this content, whilst some will have a deep understanding.

Science Years 5 and 6

In Years 5 and 6 pupils:

- Plan enquiries, including recognising and controlling variables where necessary.
- Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.
- Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.
- Present findings in written form, displays and other presentations.
- Use test results to make predictions to set up further comparative and fair tests.
- Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.
- Relate knowledge of plants to studies of evolution and inheritance.
- Relate knowledge of plants to studies of all living things.
- Describe the changes as humans develop to old age.
- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
- Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions.
- Describe the ways in which nutrients and water are transported within animals, including humans.
- 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.
- Describe how living things are classified into broad groups according to common observable characteristics.
- Give reasons for classifying plants and animals based on specific characteristics.
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
- Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets.
- Understand how 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, oxidation and the action of acid on bicarbonate of soda.

Magnets

- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

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 effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces.
- Describe, in terms of drag forces, why moving objects that are not driven tend to slow down.
- Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.
- Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.
- Understand that light appears to travel in straight lines.
- Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.
- 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.
- Find patterns between the pitch of a sound and features of the object that produced it.
- Find patterns between the volume of a sound and the strength of the vibrations that produced it.
- Recognise that sounds get fainter as the distance from the sound source increases.
- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- 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.
- Use recognised symbols when representing a simple circuit in a diagram.
- 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.

Art and Design Years 5 and 6 In Years 5 and 6

pupils:

- Develop and imaginatively extend ideas from starting points throughout the curriculum.
- Collect information, sketches and resources and present ideas imaginatively in a sketch book.
- Use the qualities of materials to enhance ideas.
- Spot the potential in unexpected results as work progresses.
- Comment on artworks with a fluent grasp of visual language.
- Sketch (lightly) before painting to combine line and colour.
- Create a colour palette based upon colours observed in the natural or built world.
- Use the qualities of watercolour and acrylic paints to create visually interesting pieces.
- Combine colours, tones and tints to enhance the mood of a piece.
- Use brush techniques and the qualities of paint to create texture.
- Develop a personal style of painting, drawing upon ideas from other artists.
- Mix textures (rough and smooth, plain and patterned).
- Combine visual and tactile qualities.
- Use ceramic mosaic materials and techniques.
- Show life-like qualities and real-life proportions or, if more abstract, provoke different interpretations.
- Use tools to carve and add shapes, texture and pattern.
- Combine visual and tactile qualities.
- Use frameworks (such as wire or moulds) to provide stability and form.
- Use a variety of techniques to add interesting effects (e.g. reflections, shadows, direction of sunlight).
- Use a choice of techniques to depict movement, perspective, shadows and reflection.
- Choose a style of drawing suitable for the work (e.g. realistic or impressionistic).
- Use lines to represent movement.
- Build up layers of colours.
- Create an accurate pattern, showing fine detail.
- Use a range of visual elements to reflect the purpose of the work.
- Show precision in techniques.
- Choose from a range of stitching techniques.
- Combine previously learned techniques to create pieces.
- Enhance digital media by editing (including sound, video, animation, still images and installations).
- Give details (including own sketches) about the style of some notable artists, artisans and designers.
- Show how the work of those studied was influential in both society and to other artists.
- Create original pieces that show a range of influences and styles.

Computing Years 5 and 6

In Years 5 and 6 pupils:

- Set IF conditions for movements. Specify types of rotation giving the number of degrees.
- Change the position of objects between screen layers (send to back, bring to front).
- Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation.
- Combine the use of pens with movement to create interesting effects.

- Set events to control other events by 'broadcasting' information as a trigger.
- Use IF THEN ELSE conditions to control events or objects.
- Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions.
- Use lists to create a set of variables.
- Use the Boolean operators
 $() < ()$
 $() = ()$
 $() > ()$
 $() \text{and} ()$
 $() \text{or} ()$ Not() to define conditions.
- Use the Reporter operators
 $() + ()$
 $() - ()$
 $() * ()$
 $() / ()$
to perform calculations.
Pick Random () to ()
Join () ()
Letter () of ()
Length of ()
() Mod () This reports the remainder after a division calculation
Round ()
() of ().
- Collaborate with others online on sites approved and moderated by teachers.
- Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems.
- Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.
- Understand the effect of online comments and show responsibility and sensitivity when online.
- Understand how simple networks are set up and used.
- Choose the most suitable applications and devices for the purposes of communication.
- Use many of the advanced features in order to create high quality, professional or efficient communications.
- Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.

Design and Technology Years 5 and 6 In Years 5 and 6 pupils:

- Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).
- Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.
- Demonstrate a range of baking and cooking techniques.
- Create and refine recipes, including ingredients, methods, cooking times and temperatures.
- Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).
- Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).
- Create objects (such as a cushion) that employ a seam allowance.
- Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).
- Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
- Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).
- Write code to control and monitor models or products.
- Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).

- Convert rotary motion to linear using cams.
- Use innovative combinations of electronics (or computing) and mechanics in product designs.
- Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- Make products through stages of prototypes, making continual refinements.
- Ensure products have a high quality finish, using art skills where appropriate.
- Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.
- Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.
- Create innovative designs that improve upon existing products.
- Evaluate the design of products so as to suggest improvements to the user experience.

Geography Years 5 and 6 In Years 5 and 6

pupils:

- Collect and analyse statistics and other information in order to draw clear conclusions about locations.
- Identify and describe how the physical features affect the human activity within a location.
- Use a range of geographical resources to give detailed descriptions and opinions of the characteristic features of a location.
- Use different types of fieldwork sampling (random and systematic) to observe, measure and record the human and physical features in the local area. Record the results in a range of ways.
- Analyse and give views on the effectiveness of different geographical representations of a location (such as aerial images compared with maps and topological maps - as in London's Tube map).
- Name and locate some of the countries and cities of the world and their identifying human and physical characteristics, including hills, mountains, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time.
- Name and locate the countries of North and South America and identify their main physical and human characteristics.
- Identify and describe the geographical significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, and time zones (including day and night).
- Understand some of the reasons for geographical similarities and differences between countries.
- Describe how locations around the world are changing and explain some of the reasons for change.
- Describe geographical diversity across the world.
- Describe how countries and geographical regions are interconnected and interdependent.
- Describe and understand key aspects of:
 - physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes and the water cycle.
 - human geography, including: settlements, land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals, and water supplies.
- Use the eight points of a compass, four-figure grid references, symbols and a key (that uses standard Ordnance Survey symbols) to communicate knowledge of the United Kingdom and the world.
- Create maps of locations identifying patterns (such as: land use, climate zones, population densities, height of land).

History Years 5 and 6

In Years 5 and 6 pupils:

- Use sources of evidence to deduce information about the past.
- Select suitable sources of evidence, giving reasons for choices.
- Use sources of information to form testable hypotheses about the past.
- Seek out and analyse a wide range of evidence in order to justify claims about the past.

- Show an awareness of the concept of propaganda and how historians must understand the social context of evidence studied.
- Understand that no single source of evidence gives the full answer to questions about the past.
- Refine lines of enquiry as appropriate.
- Identify continuity and change in the history of the locality of the school.
- Give a broad overview of life in Britain from medieval until the Tudor and Stuarts times.
- Compare some of the times studied with those of the other areas of interest around the world.
- Describe the social, ethnic, cultural or religious diversity of past society.
- Describe the characteristic features of the past, including ideas, beliefs, attitudes and experiences of men, women and children.
- Describe the main changes in a period of history (using terms such as: social, religious, political, technological and cultural).
- Identify periods of rapid change in history and contrast them with times of relatively little change.
- Understand the concepts of continuity and change over time, representing them, along with evidence, on a time line.
- Use dates and terms accurately in describing events.
- Use appropriate historical vocabulary to communicate, including:
 - dates
 - time period• era
 - chronology
 - continuity
 - change
 - century
 - decade• legacy.
- Use literacy, numeracy and computing skills to an exceptional standard in order to communicate information about the past.
- Use original ways to present information and ideas.

Languages Years 5 and 6 In Years 5 and

6 pupils:

- Read and understand the main points and some of the detail in short written texts.
- Use the context of a sentence or a translation dictionary to work out the meaning of unfamiliar words.
- Read and understand the main points and opinions in written texts from various contexts, including present, past or future events.
- Show confidence in reading aloud, and in using reference materials.
- Write short texts on familiar topics.
- Use knowledge of grammar (or pitch in Mandarin) to enhance or change the meaning of phrases.
- Use dictionaries or glossaries to check words.
- Refer to recent experiences or future plans, as well as to everyday activities.
- Include imaginative and adventurous word choices.
- Convey meaning (although there may be some mistakes, the meaning can be understood with little or no difficulty).
- Use dictionaries or glossaries to check words.
- Understand the main points and opinions in spoken passages.
- Give a short prepared talk that includes opinions.
- Take part in conversations to seek and give information.
- Refer to recent experiences or future plans, everyday activities and interests.
- Vary language and produce extended responses.
- Be understood with little or no difficulty.
- Give detailed accounts of the customs, history and culture of the countries and communities where the language is spoken.

- Describe, with interesting detail, some similarities and differences between countries and communities where the language is spoken and this country.

Music Years 5 and 6

In Years 5 and 6 pupils:

- Sing or play from memory with confidence.
- Perform solos or as part of an ensemble.
- Sing or play expressively and in tune.
- Hold a part within a round.
- Sing a harmony part confidently and accurately.
- Sustain a drone or a melodic ostinato to accompany singing.
- Perform with controlled breathing (voice) and skillful playing (instrument).
- Create songs with verses and a chorus.
- Create rhythmic patterns with an awareness of timbre and duration.
- Combine a variety of musical devices, including melody, rhythm and chords.
- Thoughtfully select elements for a piece in order to gain a defined effect.
- Use drones and melodic ostinati (based on the pentatonic scale).
- Convey the relationship between the lyrics and the melody.
- Use digital technologies to compose, edit and refine pieces of music.
- Create songs with verses and a chorus.
- Create rhythmic patterns with an awareness of timbre and duration.
- Combine a variety of musical devices, including melody, rhythm and chords.
- Thoughtfully select elements for a piece in order to gain a defined effect.
- Use drones and melodic ostinati (based on the pentatonic scale).
- Convey the relationship between the lyrics and the melody.
- Use digital technologies to compose, edit and refine pieces of music.
- Choose from a wide range of musical vocabulary to accurately describe and appraise music including:
 - pitch
 - dynamics
 - tempo
 - timbre
 - texture
 - lyrics and melody
 - sense of occasion
 - expressive
 - solo
 - rounds
 - harmonies
 - accompaniments
 - drones
 - cyclic patterns
 - combination of musical elements • cultural context.

- Describe how lyrics often reflect the cultural context of music and have social meaning.

Physical Education Years 5 and 6 In Years 5 and 6

pupils:

- Choose and combine techniques in game situations (running, throwing, catching, passing, jumping and kicking, etc.).
- Work alone, or with team mates in order to gain points or possession.
- Strike a bowled or volleyed ball with accuracy.
- Use forehand and backhand when playing racket games.
- Field, defend and attack tactically by anticipating the direction of play.
- Choose the most appropriate tactics for a game.
- Uphold the spirit of fair play and respect in all competitive situations.
- Lead others when called upon and act as a good role model within a team.
- Compose creative and imaginative dance sequences.
- Perform expressively and hold a precise and strong body posture.
- Perform and create complex sequences.
- Express an idea in original and imaginative ways.
- Plan to perform with high energy, slow grace or other themes and maintain this throughout a piece.
- Perform complex moves that combine strength and stamina gained through gymnastics activities (such as cartwheels or handstands).
- Create complex and well-executed sequences that include a full range of movements including:
 - travelling
 - balances
 - swinging
 - springing
 - flight
 - vaults
 - inversions
 - rotations
 - bending, stretching and twisting
 - gestures
 - linking skills.
- Hold shapes that are strong, fluent and expressive.
- Include in a sequence set pieces, choosing the most appropriate linking elements.
- Vary speed, direction, level and body rotation during floor performances.
- Practise and refine the gymnastic techniques used in performances (listed above).
- Demonstrate good kinesthetic awareness (placement and alignment of body parts is usually good in well-rehearsed actions).
- Use equipment to vault and to swing (remaining upright).
- Swim over 100 metres unaided.
- Use breast stroke, front crawl and back stroke, ensuring that breathing is correct so as not to interrupt the pattern of swimming.
- Swim fluently with controlled strokes.
- Turn efficiently at the end of a length.
- Combine sprinting with low hurdles over 60 metres.
- Choose the best place for running over a variety of distances.
- Throw accurately and refine performance by analysing technique and body shape.

- Show control in take off and landings when jumping.
- Compete with others and keep track of personal best performances, setting targets for improvement.
- Select appropriate equipment for outdoor and adventurous activity.
- Identify possible risks and ways to manage them, asking for and listening carefully to expert advice.
- Embrace both leadership and team roles and gain the commitment and respect of a team.
- Empathise with others and offer support without being asked. Seek support from the team and the experts if in any doubt.
- Remain positive even in the most challenging circumstances, rallying others if need be.
- Use a range of devices in order to orientate themselves.
- Quickly assess changing conditions and adapt plans to ensure safety comes first.

PSHE Personal Development

In all year groups pupils deepen their understanding of personal development in eight key areas:

Try new things

Success does not come knocking on the door. We all need to go out and find something in which we can experience success. Finding something that we are good at builds confidence. Some pupils may not be good at the things they spend most of their time doing at school, which can make it even more important that schools have a broad and rich curriculum with something for everyone. As adults, however, we learn that just because we may be good at something doesn't necessarily mean that we enjoy it. Successful people enjoy what they do. In fact, they love what they do. What they do gives them energy; work feels like play and time flies by. These are the lucky people who have found their energy zone. These people don't need any external or material reward to motivate them; they do what they do simply because they love it.

Work hard

This is something that most of us don't want to hear. If we want to get really good at something there are no short cuts. Accomplishment is all about practise and hard work. Pupils need to understand the benefits of working hard. They need to know that work is good and not something that should be avoided. Many pupils become frustrated if they don't accomplish something immediately. With a television culture of 'overnight' success, it is important to teach them that it may take hours and hours of hard work to become really good at something and that in real life success is not easy for anyone.

Concentrate

Children are living in the most intensely stimulating time in the history of the Earth. They are bombarded with images from television advertisements, websites, games consoles and mobile phones. It has never been so important to teach our children how to concentrate. Of course, every teacher will tell pupils of the need to concentrate, but few will teach them how.

Push themselves

To be really successful, pupils need to learn to push themselves. Most adults realise that if they want a healthier lifestyle, joining a gym doesn't change much. We have to push ourselves to go to the gym. In fact, going to the gym doesn't change much either if we don't push ourselves when there. There are lots of ways pupils need to push themselves. For example, when they don't feel like doing things, when they feel shy, when they think they might fail and when their friends are trying to stop them doing what they want to do. It can be really difficult to push oneself, but it is essential for success.

Imagine

In 1968, George Land gave 1,600 five-year-olds a test in divergent thinking. This involved finding multiple solutions to problems, asking questions and generating ideas. The test results were staggering: 98% scored at what he described as 'genius' level. He then re-tested the same children at age ten, by which time the level had declined to 30%. By fifteen years of age, only 12% of the children scored at the genius level. The same test given to 280,000 adults placed their genius level at only 2%. In his book *Breakpoint and Beyond*, co-authored by Beth Jarman, Land concluded that non-creative behaviour is learned.

The test shows what most of us know: children have a fantastic imagination, which mostly declines with age. This decline is the enemy of success. To help children to be successful we need to help them to keep having ideas as they get older.

Improve

Successful people are always trying to make things better. This doesn't mean there is anything wrong with what they have but they know that there is always room for improvement. They try to make good things great. Rather than making any radical transformations, however, they tend to make lots of small adjustments. This is what we can teach our children: great things do not happen suddenly. They are the result of lots of tweaking and refinement. We can all make things a little bit better. We can all take small steps to greatness.

Understand others

Aristotle made the distinction between what he called sophia and phronesis. Sophia was wisdom of the world - what came to be called science. He spoke of the importance of understanding how the world works. However, he also stressed that, in itself, this was not enough for civilisation to flourish. Society also needed phronesis. This was the application of this wisdom in the service of others. Thousands of years later, Aristotle's words are just as true. Successful people use what they know to try to be useful to others. Instead of asking 'What's in it for me?' they ask, 'What can I give?' If we look at a successful business, it gives people things they value, at the right price. If we look at a successful public service, it gives people what they value at the right time.

Not give up

Successful people have bad luck, setbacks, failures, criticism and rejection but they always find a way around these problems. Children need to understand that if they have bad luck, they are not alone. Most of us tend to focus on the accomplishments of successful people rather than their mishaps or setbacks. We need to tell children about the times we failed, were rejected and criticised but also how we bounced back.