Year 4

In Year 4 we focus on building on all of the personal attributes learnt in Year 3 through a varied curriculum and extra-curricular opportunities. This year, expectations of the children increase and they are expected to build on their presentation and stamina during independent work. This develops more effective learning habits in which the children thrive, producing a higher standard and quantity of work. When presentation reaches an exceptional standard, in all of their work, students are rewarded with a highly sought after pen licence. Therefore, rewarding them for taking pride in all of their work. Learning is linked and this allows for children to transfer knowledge and skills from one subject to another, e.g. Our science learning was 'Exciting Electricity', within this unit the children learnt how to make circuits with a switch; the children then applied this knowledge to their Design Technology work in which they had to make a working torch.

In Year 4, we have the opportunity to go swimming for 2 terms - this builds on the children's knowledge of how to be safe, be responsible for themselves and their belongings and their determination to succeed, this leads on to a gala in Year 5.

We are lucky enough to go on a range of trips throughout the year, these have supported and enriched our knowledge and skills in a variety of curriculum areas. In 2018-19 the trips were: Kent Life - to learn about Vikings, Greenwich - to learn about the architecture of Sir Christopher Wren, Horton Kirby Environmental Centre - to complete a river study, Northwood Primary School - to watch a production on E-safety and finally, Old Library in Erith - to watch a production about 'place, difference and encountering the new!' These experiences have supported the children's independence, confidence and creativity throughout the year.

This is the first year that the children will have had the opportunity to use the climbing wall during outdoor week, this challenges the children at their own level and encourages teamwork and collaboration, as well as their determination to succeed at a new challenge.Many children develop a new found sense of pride when they persevere to take on such a challenge. Year 4 also provides the first chance for many of the children to take part in a sleepover away from home, this helps to prepare them for the outward bound trip that they will experience in Year 5. The sleepover contributes towards their developing sense of responsibility and independence.

Year 4 is a year in which the children flourish into more confident, independent and creative learners. They build strong personal and academic foundations for the new experiences awaiting them in Upper Key Stage 2.

Year 4 Autumn Knowledge organiser

Vikings Vs Anglo Saxons

History Focus	The Viking and Anglo-Saxon struggle for the Kingdom of England (to the time of Edward the Confessor)
National Curriculum objective	Britain's settlement by Anglo-Saxons and Scots. Examples (non-statutory) This could include: Roman withdrawal from Britain in c. AD 410 and the fall of the western Roman Empire Scots invasions from Ireland to north Britain (now Scotland) Anglo-Saxon invasions, settlements and kingdoms: place names and village life Anglo-Saxon art and culture Christian conversion – Canterbury, Iona and Lindisfarne. The Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor. Examples (non-statutory) This could include: Viking raids and invasion resistance by Alfred the Great and Athelstan, first king of England further Viking invasions and Danegeld Anglo-Saxon laws and justice Edward the Confessor and his death in 1066

Historical Background
The Viking Age in Britain began about 1,200 years ago in the 9th Century AD and lasted for just over 200 years. The Vikings came across the North Sea, just as the Anglo-Saxons had done 400 years earlier. In time, like the Anglo-Saxons, the Vikings made their home here. The end of this topic focuses on the complex struggle for power between the Anglo-Saxons and the Vikings, which was ultimately ended, in 1066, by the Norman invasion (who were, themselves, descended from Vikings).

Key Knowledge: When? Timeline of events	
350 AD	Anglo-Saxons begin raids on England but are beaten back by the Romans
410 AD	Roman rule in Britain ends
425 AD	British government name Vortigern the king of Britain
432 AD	St. Patrick (now the patron saint of Ireland) arrives in Ireland and begins his missionary work
459 AD	Angles and Saxons invade
597 AD	Augustine, sent by Pope Gregory I, comes to spread Christianity
616 AD	Ethelberht, the first Christian English king, dies in Kent
633 AD	Lindisfarne monastery built
731 AD	Bede, widely regarded as the greatest Anglo-Saxon scholar, finishes his 'History of England'
758 AD	Offa becomes king of Mercia
789 AD	First recorded Viking attack happens in Dorset
793 AD	Viking raid on Lindisfarne
796 AD	Offa, of Mercia, dies
867-878 AD	Series of big Viking victories

886 AD	Vikings and Alfred, the King of Wessex, divide England
899 AD	King Alfred 'the Great' dies
939 AD	Athelstan, described as the first king of all England, dies
1066 AD	Edward (the Confessor) dies. Harold Godwinson becomes the last Anglo-Saxon king of England. He is defeated by William of Normandy at the Battle of Hastings

Key Skills

Place events from period studied on a timeline. Use terms related to the period and begin to date events. Use evidence to reconstruct life in time studied. Identify key features and events. Look for links and effects in time studied. Offer a reasonable explanation for some events. Look at the evidence available. Begin to evaluate the usefulness of different sources. Use of textbooks and historical knowledge. Use evidence to build up a picture of a past event. Choose relevant material to present a picture of one aspect of life in time past. Ask a variety of questions. Use the library, e-learning for research.

Key Knowledge: People

Anglo Saxons	Vikings
Ethelberht – the first English king to be converted to Christianity. His laws were also the first to be written in English (there were 90 laws in total). Offa – King of Mercia and was the first ruler to be called 'king of the English'. By the end of his reign, Offa was master of all England south of the Humber. The English penny (silver currency) was introduced during Offa's reign. Alfred was born in AD849 and died in AD899. His father was king of Wessex. He fought the Vikings before making peace so that English and Vikings settled down to live together. He ruled well and made some important changes to the country. Athelstan – described as the first king of all England. Edward III (the Confessor) – responsible for building Westminster Abbey (in the Norman style) and he was buried there after his death in 1066. Harold II – with no royal blood, his short reign was contested by rivals in France and Norway. Soon after defeating the Norwegians at Stamford Bridge near York, his army was defeated in the Battle of Hastings by the Normans. Harold was hit in the eye by an arrow and cut down by Norman swords.	Eric Bloodaxe – the last Viking in England. An exiled son of Harald Finehair, king of Norway, he was invited to take over the kingdom of Yorvik (York) around 946 AD. He was welcomed by Athelstan, king of Wessex, who wanted Eric to protect his kingdom from Scots and Irish invaders. He was forced out by Viking rivals in 954 AD. Eric the Red - In 983 Eric was exiled by the people of Iceland and he sailed west to create a new settlement. He found a land that was a much bigger place than Iceland, and much colder too. It was not much good for farming though. Eric hoped the name 'Greenland' would attract farmers, but not many Vikings went there to live. Leif Ericsson – son of Eric the Red. Leif and his men were the first Europeans in America. They spent the winter in a place they named 'Vinland' (Wine-land) which today is in Newfoundland, Canada. But they didn't settle permanently. Cnut (Canute) of Denmark - in 1016, Æthelred, king of England, died. His son, Edmund Ironside, made a truce with Cnut in which they agreed to divide the kingdom between them. Edmund died shortly afterwards and Cnut became king of the whole country. Three years later he became king of Denmark as well.

Key Questions

Explain the changes in Athelstan relationship with the Vikings over a period of time.
What do place names tell us about Viking settlements?
Why did the Anglo Saxons invade England?
Why did Vortigern invite Saxons to live on his land?
When did Christianity come to Anglo Saxon England?
Who was King Offa?

Do you agree the Vikings were vicious? Prove or disprove it with evidence from different sources.

Assessment

In groups, research and present about one aspect of Anglo Sakon or Viking life - trade, food, clothing, weapons etc.

UPLAND
Primary School

Design and technology focus	Sewing - embroidery
National Curriculum objective	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
Challenge	To embroider a scene from history in the style of the Bayeux Tapestry

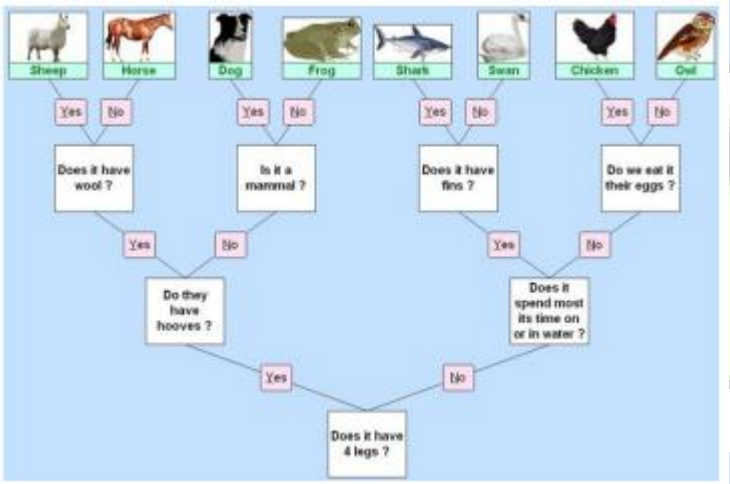
The Journey

Possible Sketch Book Study Focuses	Practical Skill Development	Make	Evaluate
https://www.youtube.com/watch?v=cukVU0Audn8 Picking out key features of the Bayeux Tapestry to use in own work Pencil sketching scene from time in history (see video)	Use embroidery to outline areas of their scene i.e. characters/words etc.	Develop scene with included elements of embroidery	Response to own and others' end product in relation to the brief.

Key Skills

Start to generate ideas, considering the purposes for which they are designing. Confidently make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products. When planning consider the views of others, including intended users, to improve their work. When planning explain their choice of materials and components according to function and aesthetic (Make) Select a wider range of tools and techniques for making their product safely. Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Start to join and combine materials and components accurately in temporary and permanent ways. Now sew using a range of different stitches, to weave and knit. Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including Computing technology. (Evaluate) Evaluate their products carrying out appropriate tests. Start to their work both during and at the end of the assignment. Be able to disassemble and evaluate familiar products and consider the views of others to improve them.

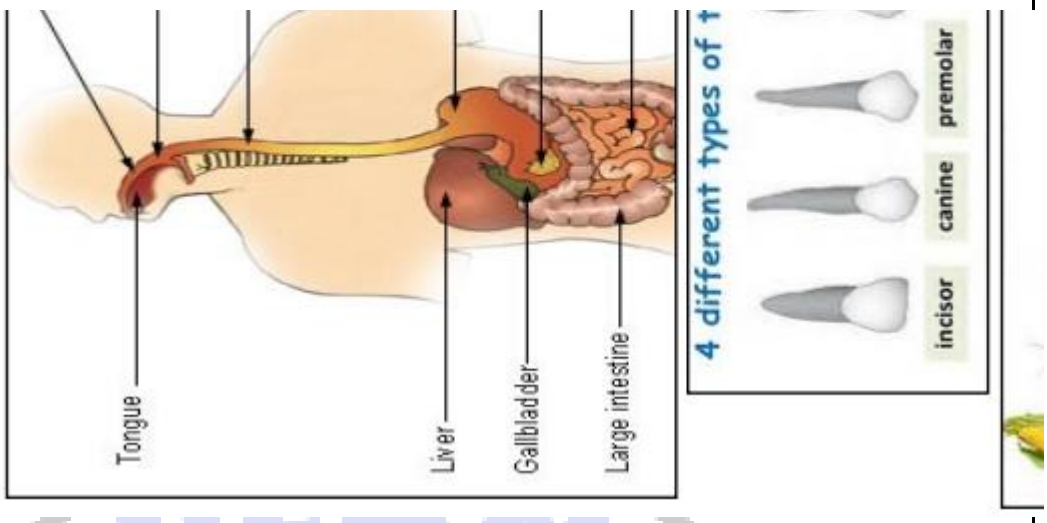
Science focus	Living things and their habitats
National Curriculum objective	Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things
Key Knowledge - Grouping living things	
Animals can be put into one of two groups	Vertebrates or Invertebrates
Key Knowledge - Vertebrates	
Vertebrates	Are animals with a backbone
There are 5 ways Vertebrates can be grouped	Fish Amphibians Reptiles Birds Mammals
How to spot a Fish	Breathes with gills/lays eggs in water/ has fins and scales/its body temperature changes
How to spot an Amphibian	Born with gills then develops lungs/ lays eggs in water/damp skin/body temperature changes
How to spot a Reptile	Breathes with lungs/lays eggs on land/ dry scaly skin/body temperature changes
How to spot a Bird	Breathes with lungs/lays eggs with hard shells/has feathers/steady body temperature
How to spot a Mammal	Breathes with lungs/babies are born live/body hair or fur/steady body temperature/feeds babies milk
Key Knowledge - Invertebrates	
Invertebrates	Invertebrates are animals with no backbones.
There are 3 ways	Invertebrates can be grouped Insects Arachnids Molluscs
How to spot an Insect	3 body sections/6 legs
How to spot an Arachnid	2 body sections/8 legs
How to spot a Mollusc	Slimy foot/Often have a shell
Key Knowledge -Plant Groups	
Plants can be put into one of two groups	Flowering plants or Non-Flowering plants
Key Knowledge -Flowering Plants	
Flowering plants are made of four groups	Grasses/Cereals/Garden Shrubs/ Deciduous Trees (Lose their leaves)

Key Knowledge -Non-Flowering Plants	
Non-Flowering plants are made of three groups	Algae/Coniferous (Evergreen) Trees/ Ferns
Key Knowledge -Changing Habitats	
What is a habitat?	Where a plant or animals lives.
How can habitats change?	The seasons can change habitats with the weather and plant life in the habitat changing. Humans can change habitats, for example by dropping litter or chopping down trees.
Key Knowledge -Classifying Animals and Plants	
What is classifying?	Grouping things that are similar.
How can we group?	We can create branched diagrams to help us. Have a look at the diagram.
Key Skills	
Identify differences, similarities or changes related to simple scientific ideas and processes. Talk about criteria for grouping, sorting and classifying and use simple keys. Compare and group according to behaviour or properties, based on testing.	
Diagrams and Symbols	
	
Key vocabulary	
Gills	Slits on the side of a fish to help it breathe. .
Fins	Part of a fish that helps it move and balance
Scales	Thin plates protecting the skin of fish or reptiles.
Lungs	Spongy bags in the chest used when breathing.
Body	Temperature How hot or cold the inside of an animal's body is.

Section	A part of something
Deciduous	A tree that loses its leaves in Autumn and grows new ones in Spring
Coniferous (Evergreen)	A plant or tree that keeps its leaves all year.
Algae	A small plant that is found in water. It has no stems, roots or leaves.

Key Questions
What animals would you expect to find in this habitat? What would happen if all the trees were to disappear? Why do we need to classify animals? Locate a range of habitats on the school site. Classify the animals and plants on the school site. (Locate one type of each animal and plant) Design own keys and branch diagrams to identify animals and plants. Create an online database of animals and plants on the school site (Invite other users of the school grounds to update with sightings)

Science focus	Animals, including Humans
National Curriculum objective	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 Construct & interpret a variety of food chains, identifying producers, predators and prey
Key Knowledge - The Human Digestive System	
What is digestion?	Digestion is the way the body breaks down the food we eat into smaller parts that can be used to give the body energy
The Main Parts of the digestive system	Mouth, tongue, pharynx, oesophagus, liver, stomach, gallbladder, pancreas, large intestine, small intestine
The digestive journey of food.	Humans put food into their mouth Food is chewed by the teeth Food is swallowed and passed through the pharynx and oesophagus to the stomach In the stomach, it is mashed into a mixture like soup and mixed with acid The mixture passes into the small intestine, where tiny bits of food pass into the bloodstream The food that is still left goes into the large intestine Finally, waste products leave the body
Key Knowledge -Human Teeth	
Teeth Facts	Teeth grow in babies when they are about 6 months old 20 teeth grow by the time you are about 2.5 years old From about age 6 you start to lose teeth till about the age 12 These teeth are replaced by 32 permanent teeth
Types of teeth	Incisors, Canines, Pre-Molars, Molars
What are Molars and Pre-Molars?	Back teeth for crushing and grinding food
What are Canines?	Long pointed teeth for grabbing food
What are Incisors?	Front teeth for snipping and cutting food
Key Knowledge -Food chains	
What is a food chain?	A food chain is a diagram that shows a producer and consumers A consumer can be a predator, prey or both The arrow means - 'is food for'
What is a producer?	Food chains start with a producer (usually a green plant or algae)
What is a consumer?	Consumers get their food by eating plants or other animals
What is a predator?	Animals which eat other animals are called predators
What is prey?	Animals that are eaten by other animals
Key Skills	
Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.	

Diagrams and Symbols


Key vocabulary	
Energy	The property that gives humans strength
Waste	Unwanted substances in the body

Key Questions
Compare the teeth of animals and predict if they are carnivores or herbivores. Give reasons to support your answer What would happen if we take this animal out of a food chain? How could we prove fizzy drinks are bad for your teeth? Experiments with what can go wrong with the digestive system such as: hiccups and vomiting. Making the longest food chain possible

PE focus	Invasion Games - Netball and Handball
National Curriculum Objective	Use running, jumping, throwing and catching in isolation and in combination. Play competitive games and apply basic principles suitable for attacking and defending

Key Knowledge	
The focus of the learning is to further our prior knowledge of passing and receiving in order to keep possession of the ball.	The focus of the learning is to ensure pupils understand not just how we shoot but also where we shoot in terms of court position and why?
The focus of the learning is to develop passing and creating space building up into mini games, where pupils explore the transition between attack and defence, working out simple tactics for creating space and keeping possession.	

Key Skills
To develop our passing and receiving skills when using a chest, bounce or shoulder pass. To understand how and why we need to create space to receive the ball in an invasion game. To develop our technique when shooting at a different target. To show an understanding of the transition between attack and defence, working out simple tactics for creating space and keeping possession.

To understanding the footwork rule and how they can be more effective with their feet to increase the speed and fluidity of their movements.	
Key Vocabulary	
Passing	Selecting the correct passing technique for the situation i.e chest, bounce or shoulder pass.
Foot Work	We can't travel with the ball in our hands but we can pivot on the spot.
Attacking and Defending	Attacking - keeping possession of the ball to create an opportunity to shoot. Defending - Stopping the attacking team getting into positions where they could score.
Possession	The ability to work as a team and keep the ball away from the opposite team.
Key Questions	
How do we pass in netball/handball? Where can we pass? Why? What is the consequence in a game of an inaccurate pass? Why don't we stand behind the defender when finding a position to receive the ball? Where should we stand when we are attacking? Why do we need to pass and move? How are we going to pass and move to get the ball into a suitable place to score? Where is a suitable place to shoot from? When we have possession of the ball what is our role? How can we win the ball back if you lose possession? What do we need to do to win the ball back?	

Year Spring Knowledge organiser

Where on Earth are we?

Geography focus	World geography (locational knowledge)
National Curriculum objective	Locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
Key Knowledge	
10 largest countries in the world (By population)	China, India, United States, Indonesia, Brazil, Pakistan, Nigeria, Bangladesh, Russia and Mexico
10 largest Capital cities in the world (By population)	1. Beijing (China) 2. New Delhi (India) 3. Tokyo (Japan) 4. Manilla (Philippines) 5. Moscow (Russia) 6. Cairo (Egypt) 7. Jakarta (Indonesia) 8. Kinshasa (Democratic Republic of the Congo) 9. Seoul (South Korea) 10.Dhaka (Bangladesh)
Facts about Africa (building on from KS1)	The longest river in the world, the Nile (4,132 miles), is located in Africa Africa has the world's largest desert, the Sahara, which is almost the size of the United States Victoria Falls is the largest waterfall in Africa; it is 355 feet high and one mile wide
Facts about Antarctica (building on from KS1)	98% of the continent is covered in ice It is the coldest, driest and windiest continent There are no permanent residents
Facts about Asia (building on from KS1)	The largest continent Population: more than 4 billion World's highest mountain, Everest, has a peak 8,848 metres above sea level
Facts about Australia (building on from KS1)	The continent of Australia is also called Oceania It consists of Australia, New Zealand, and Papua New Guinea Australia is home to the Great Barrier Reef - which can be seen from space
Facts about Europe (building on from KS1)	Russia is so large that it takes up forty percent of Europe's land area Vatnajökull (or Vatna Glacier) is Europe's largest glacier with an area of more than 8,000 square kilometres The Mediterranean Sea has dried up several times in the past
Facts about North America (building on from KS1)	North America consists of twenty four countries The Panama Canal is a man-made 77km canal that links the Atlantic and Pacific Oceans The line between North and South America lies somewhere in the isthmus of Panama
Facts about South America (building on from KS1)	The highest waterfall in the world, Angel Falls, lies in Venezuela South America has the highest volume river, the Amazon South America has the longest mountain range, the Andes
Key Skills	
Consolidate vocabulary taught in previous years, to describe route and direction linking N/S/E/W with degrees on the compass ·link words to topic/theme e.g. contour/height/ valley, ask questions –what is this landscape like? what will it be like in the future?, analyse evidence and draw conclusions e.g. make comparisons between locations using photos/pictures/ maps, identify and explain different views of people including themselves, collect and record evidence: show questionnaire results in simple chart, colour coded maps which demonstrate patterns, communicate in ways appropriate to task and audience, use more detailed field sketches and diagrams, draw accurate map – develop more complex key, use contents/index to locate position of location including page/coordinates	
Key Vocabulary	

The Prime/Greenwich Meridian	The prime meridian divides Earth into the Western Hemisphere and the Eastern Hemisphere.
Timezones	As Earth rotates, the Sun shines in a part of the world. That's why we have time zones.
Latitude and Longitude	Lines of latitude and longitude are used to locate places accurately on the Earth's surface.
Equator	An imaginary line drawn on the Earth and spaced equally between the North and South Pole
Northern Hemisphere and Southern Hemisphere	Area of the Earth's surface either North or South of the Equator
Western and Eastern Hemisphere	Area of the Earth's surface either West or East of the Prime/Greenwich Meridian
Tropics	The region of Earth's surface that is closest to the Equator
Arctic Circle	An imaginary circle around the Earth about three-quarters of the way from the equator to the North Pole
Antarctic Circle	An imaginary circle around the Earth about three-quarters of the way from the equator to the South Pole
Country	An area of land that is controlled by its own government
Continent	A large area of the land on Earth that is joined together
Meridians	Another name for lines of longitude
Tropic of Cancer	The imaginary line that is about 23° North of the equator
Tropic of Capricorn	The imaginary line that is about 23° South of the equator
Trade links	The goods and services that are bought and sold between two or more places
Biomes	A specific environment that's home to living things suited for that place and climate
Natural resources	Something, such as a forest, a mineral deposit, or fresh water, that is found in nature and is necessary or useful to humans

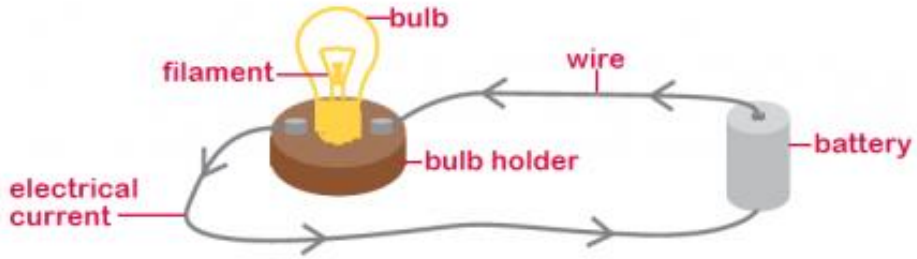
Key Questions
What might countries in temperate climates need to trade for? What would happen if countries did not trade? How are Arctic and Antarctic similar and different? What would expect the climate to be like in this country(pick a country)?

Assessment
Design a dream island - justify placement within the world based on geographical knowledge taught over the topic i.e. near the equator for warmer weather etc.

Art focus	Architects through time
National Curriculum objective	To create sketch books to record their observations and use them to review and revisit ideas. To improve their mastery of art and design techniques. About great artists, architects and designers in history.
Key Knowledge	
What is an Architect?	Architects design buildings and make important decisions about how the building will look and how it will be constructed.
Key Knowledge: Sir Christopher Wren	
Born	1632
Education	Oxford University
Buildings	St Paul's Cathedral, London
Key Knowledge: Antonio Gaudi	
Born	1852
Education	New School of Architecture
Buildings	Sagrada Família Church in Barcelona
Key Knowledge: Zaha Hadid	
Born	1950
Interesting fact	The first woman to win the Royal Institute of British Architects' (RIBA) Gold Medal
Buildings	The London Aquatics Centre
Key Knowledge: Frank Gehry	
Born	1929
Interesting facts	He enjoyed distorting shapes and light and designing buildings which reveal their structures
Buildings	Dancing House, Prague
Key Vocabulary	
Renaissance Architecture	Renaissance architecture is built in the style of the Ancient Greeks and Romans but altered to fit the lifestyle of the people of the time
Art Deco Architecture	This style is seen to represent glamour and modernity. Art Deco was a reaction to the austerity of World War I.
3d	3D art is perceived to have height, width and depth

Perspective	Perspective is an art technique for creating an illusion of three-dimensions (depth and space) on a two-dimensional (flat) surface
Sketch Books	Outcomes
Use sketchbooks to collect and record visual information from different sources as well as planning and collecting source material for future works	Design a new building based on the style of the architects studied. It cannot be a copy of building seen.
Key Skills	
Develop intricate patterns using different grades of pencil and other implements to create lines and marks. Draw for a sustained period of time at an appropriate level. Experiment with different grades of pencil and other implements to achieve variations in tone and make marks on a range of media. Use sketchbooks to collect and record visual information from different sources as well as planning and collecting source material for future works. Have opportunities to develop further drawings featuring the third dimension and perspective. Experiment with different grades of pencil and other implements to achieve variations in tone. Further develop drawing a range of tones, lines using a pencil. Include in their drawing a range of technique and begin to understand why they best suit. Discuss and review own and others work, expressing thoughts and feelings, and identify modifications/ changes and see how they can be developed further. Begin to explore a range of great artists, architects and designers in history.	

Science focus	Electricity
National Curriculum objective	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 associate the brightness of a lamp or volume of a buzzer with the number and voltage of a cell Compare and give reasons for variations on a bulb including brightness of a bulb, loudness of a buzzer and the on/off position of switches Use recognised symbols when representing a circuit in a diagram
Key Knowledge	
What is electricity?	Electricity is an energy. This energy can be used to power electrical items such as toasters, kettles, cookers, televisions and computer tablets.
What is electrical energy?	Electrical energy is caused by electrons (the particles in atoms) moving about to make a current.
Electricity can be created in a variety of ways such as:	burning fossil fuels (oil, gas, coal) at power stations, using wind power generated by wind turbines, using solar power generated by the sun, using water power (sometimes called hydropower) generated by running or falling water.
How is electricity transported?	Electricity is transported to our homes, schools and places of work through wires and cables
How is electricity stored?	Electricity can also be stored in batteries (sometimes called cells).
What is a circuit?	A simple series electrical circuit is a circuit for electricity to flow around as shown in the diagram. It's simple because the circuit is a single wire running from a battery to a bulb and back again.
Electrical safety	Never poke your fingers or anything else into electric sockets, toasters or any other electrical appliance. Never touch electric appliances with wet hands. Never use electric appliances near water. Never pull a plug out of a socket by pulling on the electricity flex. Hold the plug instead. Never carry an electrical appliance by its electricity flex. Never use an electrical appliance if it has a broken electricity flex.
Key Skills	
Set up simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up. Can think of more than one variable factor. 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, keys, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use notes, simple tables and standard units and help to decide	

how to record and analyse their data. Can record results in tables and bar charts.	
Key Vocabulary	
Conductors	Some objects conduct electricity; this means they allow electricity to flow through them easily. These are called conductors. Metal items such as spoons, paperclips, coins are good conductors.
Insulators	Other objects do not allow electricity to flow through them easily these are called insulators. Rubber, paper and some plastics are examples of insulators.
Semiconductors	Semiconductors like silicon conduct or block electricity at different times and are used in electronics
Diagrams and Symbols	
	
Key Questions	
Why are switches important? Who discovered electricity? Why are wires covered in plastic? Is electricity in the human body?	

Design and technology focus	Structure with an electrical circuit
National Curriculum objective	**(Design)** use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design (**Make)** select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **(Evaluate)** investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world. **(Technical knowledge)** Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
Challenge	To build a working torch which can be used to explore the world.

The Journey			
Possible Sketch Book Study Focuses	Practical Skill Development	Make	Evaluate
• Explore designs of different torches	Electrical circuit with a working switch	A torch that is designed for a person to explore the world with	Own and each other's work against agreed criteria based on challenge.

Key Skills
(Design) Start to generate ideas, considering the purposes for which they are designing. Confidently make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products. When planning consider the views of others, including intended users, to improve their work. When planning explain their choice of materials and components according to function and aesthetic. (Make) Select a wider range of tools and techniques for making their product safely. Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Start to join and combine materials and components accurately in temporary and permanent ways. Understand how more complex electrical circuits and components can be used to create functional products. (Evaluate) Evaluate their products carrying out appropriate tests. Start to their work both during and at the end of the assignment. Be able to disassemble and evaluate familiar products and consider the views of others to improve them.

PE focus	Basketball and Football
National Curriculum Objective	Use running, jumping, throwing and catching in isolation and in combination. Play competitive games and apply basic principles suitable for attacking and defending.

Key Knowledge	
Pupils will develop an understanding of how to dribble the ball keeping possession to beat an opponent. The focus of the learning is to develop passing and dribbling to create space, building up into mini games where pupils explore the transition between attack and defence.	The focus of the learning is to refine dribbling in order to keep control and possession of the ball. Pupils will apply prior learning of how to dribble the ball keeping possession to beat an opponent.
The focus of the learning is to introduce passing and receiving in order to keep possession of the ball as a team.	The focus of the learning is to see how effectively pupils can apply their passing and moving skills to keep possession, developing this concept into mini game situations.
The focus of the learning is to introduce pupils to shooting. Pupils will understand not just how they shoot but where they shoot from on the court in order to increase their chances of scoring.	The focus of the learning is to introduce pupils to shooting. Pupils will understand not just how they shoot but where they shoot from on the pitch, in order to increase their chances of scoring.

Key Skills
Basketball/Football To develop our passing and receiving skills in order to keep possession of the ball as a team. To increase our control of the ball when dribbling and turning in various different games i.e 1v1, 2v1, 3v3. To understand how and why we need to create space to receive the ball in an invasion game. To develop our technique when shooting at a target. To show an understanding of attacking and defending principles.

Key Vocabulary	
Traveling/double dribble	A violation of the rules.
Possession	The ability to work as a team and keep the ball away from the opposite team.
Shooting - Rebounds	If a shot is missed can you collect the rebound and shoot again.

Key Questions
Basketball/Football What do we do when we receive the ball? When and where do we dribble? Why do we dribble? What happens if we lose possession of the ball? If we stop dribbling what must we do? Can we dribble with alternate hands? Can we change direction at speed? How do we pass in basketball/football? When should we bounce/chest pass? Why should we pass? What is the consequence in a game of an inaccurate pass? How can we create space? Why do we need to pass and move? What techniques do we use when shooting? Where should we shoot from?

Year 4 Summer Knowledge organiser

A River Study

Science focus	States of matter
National Curriculum objective	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 or research the temperature at which this happens in degrees Celsius Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
Key Knowledge - Grouping materials	
Materials fall into four main categories	Solids Liquids Gases Plasma (Not part of our curriculum)
Key Knowledge - How to spot each type of material	
Solids	Solids stay in one place and can be held. Most solids keep their shape. They do not flow like liquids. (Some solids like sand or salt can be poured) Solids always take up the same amount of space. They do not spread out like gases. .
Liquids	Liquids can flow or be poured easily. They are not easy to hold. Liquids change their shape depending on the container they are in
Gases	Gases are often invisible. Gases do not keep their shape. They spread out and change their shape and volume to fill up whatever container they are in.
Key Knowledge - Changes of state	
What does changes of state mean?	What a material changes from one material type to another, we say 'it has changed state.'
Key Knowledge - What are the changes of state?	

What	Explanation	Name of process	Example
Solid to Liquid	When a solid **melts** it changes to a liquid.	Melting	When an ice cube melts.
Liquid to Gas	A liquid **evaporates** into a gas when it is heated.	Evaporation	When water on a roof is warmed up and turns to steam.
Gas to Liquid	When a gas it cooled it **condenses** into a liquid.	Condensation	When steam from the shower cools on the mirror it turns to water.
Liquid to Solid	When a liquid **freezes** it turns into a solid.	Freezing	When the water in a pond freezes, it turns to ice.

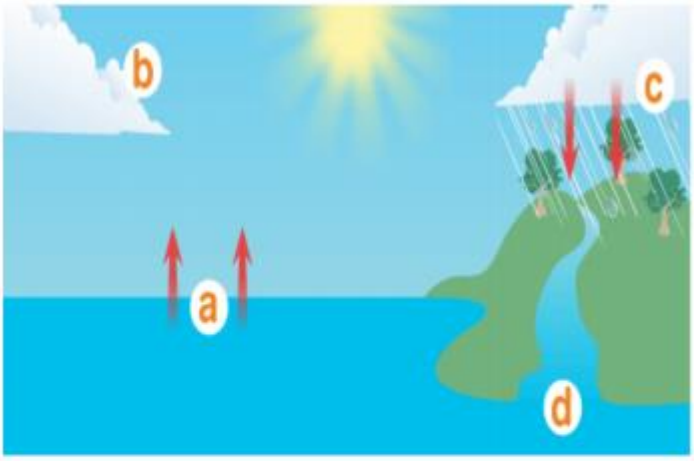
Key Knowledge - At what temperature does each happen?

Boiling	Water boils at exactly 100°C (A hot bath is about 40°C)
Melting	Different solids melt at different temperatures: Ice melts at 0 degrees Celcius (0°C). (Chocolate melts at about 35°C)
Freezing	Water freezes at 0 degrees Celcius (0°C)
Evaporation and Condensation	Water can evaporate and condense at any temperature. But, the warmer it is the faster the evaporation takes place.

Diagrams and Symbols

The Water Cycle

Water on the earth is constantly moving. It is recycled over and over again. This recycling process is called the **water cycle**.



a. Water evaporates into the air
The sun heats up water on land, and in rivers, lakes and seas and turns it into water vapour. The water vapour rises into the air.

b. Water vapour condenses into clouds
Water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds.

c. Water falls as rain
The clouds get heavy and water falls back to the earth in the form of rain or snow.

d. Water returns to the sea
Rain water runs over the land and collects in lakes or rivers, which take it back to the sea. The cycle starts all over again.

Key Skills

Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. Learn to use new equipment appropriately (eg data loggers). Can see a pattern in my results. Can choose from a selection of equipment. Can observe and measure accurately using standard units including time in minutes and seconds.

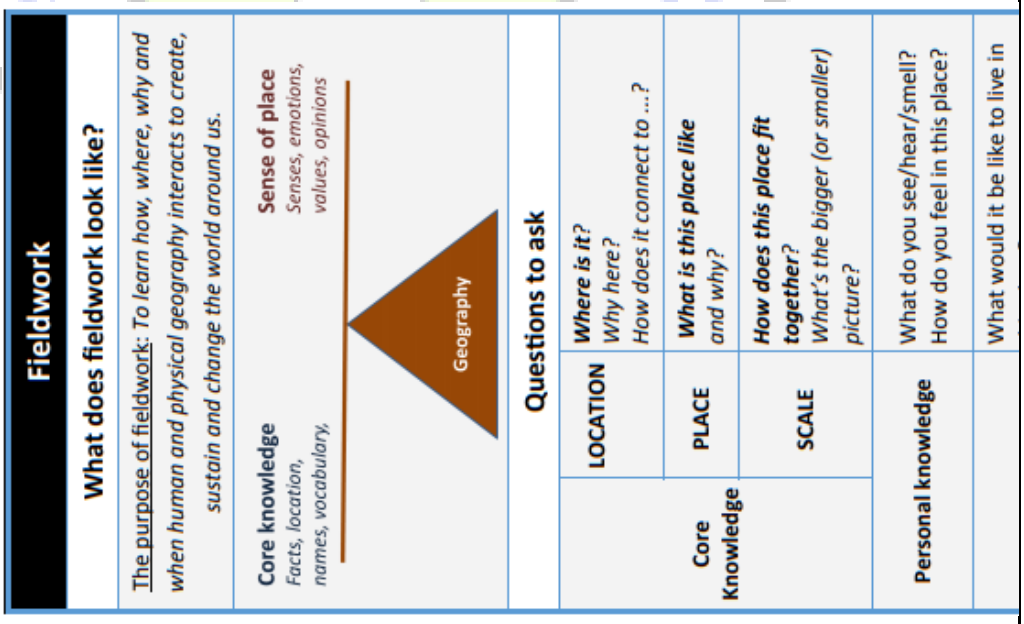
Key vocabulary

Temperature	The measure of warmth or coldness of an object.

Celsius	The common scale in the UK for measuring temperature.
Boils	To become so hot (100°C) that water bubbles and then turns into a gas.
Container	Something which holds things inside, like a box, jar or tub.

Key Questions
Does the amount of water in the water cycle change? Give examples of the three states of water in the weather? Why is the water cycle needed for life on Earth to continue? If the polar ice caps melt, how will that affect the water cycle?

Geography focus	River study- fieldwork
National Curriculum objective	Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.
Key knowledge: The River Darent	
What?	The Darent is a Kentish tributary of the River Thames and takes the waters of the River Cray as a tributary in the tidal portion of the Darent near Crayford
Size?	25 miles
Where?	It rises in several springs around the village of Westerham in Kent. It flows firstly to the east, then cuts northwards through the chalk hills to the Thames estuary for its final journey to the sea.
What makes it special?	The river Darent flows through the North Downs a ridge of chalk hills in south east England that stretch from Farnham in Surrey to the White Cliffs of Dover in Kent It supplies local population and parts of London with drinking water.In 1985 it was one of ten UK rivers likely to disappear.After considerable effort by the Environment Agency and water companies it still suffers from low flows and has been augmented by artificial springsThe Darent is a *chalk stream* which creates an unusually diverse habitat for wildlife and vegetation.It provides fishing lakes which are potentially ideal for coarse fishing for leisure.It meanders through beautiful countryside and villages and delights residents and visitors.
Features?	Lullingstone Roman Villa was built along the river Darent
Fieldwork Diagram	



Key Skills
Ask questions - What is this landscape like? what will it be like in the future?, analyse evidence and draw conclusions. Identify and explain different views of people including themselves, collect and record evidence: show questionnaire results in simple chart, colour coded maps which demonstrate patterns, collect and record evidence record measurement of river width/ depth/ velocity, communicate in ways appropriate to task and audience, use more detailed field sketches and diagrams, draw accurate map – develop more complex key, use contents/index to locate position of location including page/coordinates.
Key Questions
How will the river change in the future? Justify your reasons How are features of the river formed? Can you identify the effects of a drought on a river? What can we do to preserve our rivers?

Assessment
Model of river using all information collected throughout the topic. Have prompt questions e.g. What will the river be like in hot and cold seasons? What is the deepest section of the river? Why might people live near this river? Why were villages built here? Why are there water mills?

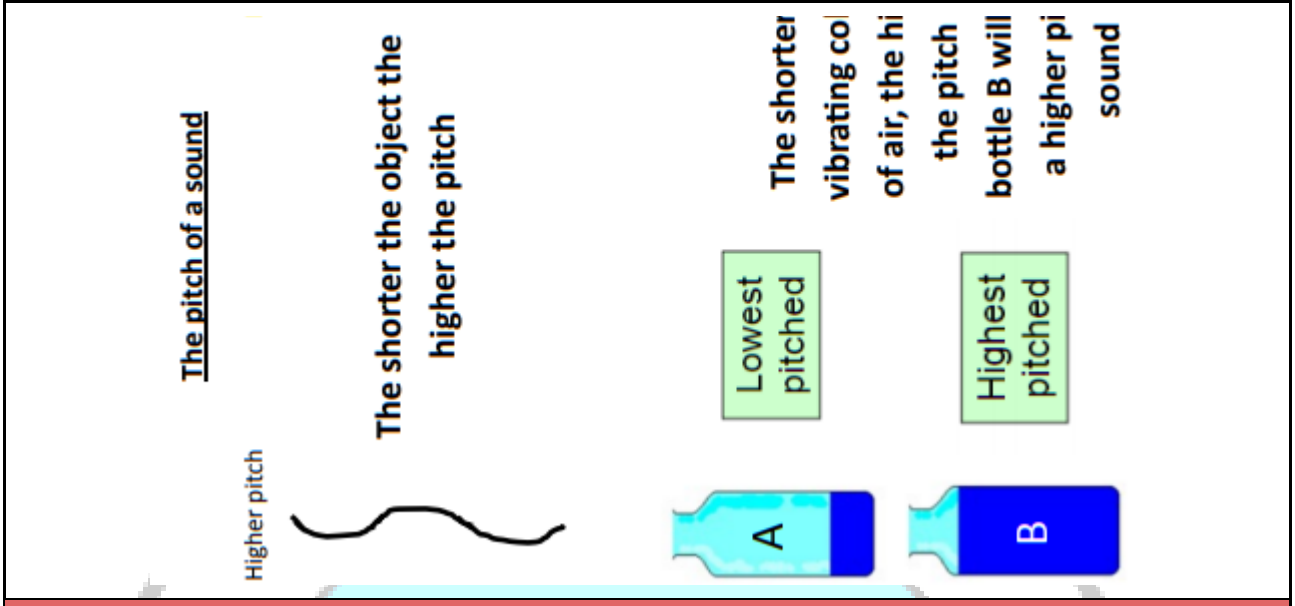
Art focus	Create a piece of art that uses techniques learned from real artists
National Curriculum objective	To create sketch books to record their observations and use them to review and revisit ideas. To improve their mastery of art and design techniques,
Wheat Field with Cypresses, by Vincent Van Gogh	
	

Sketch Books	Outcomes
Fragment study (a small part of the example art work) Colour mixing for a 'colour palette'(e.g. a range of blues for the sea; a range of reds, golds and browns for autumnal leaves) Creating different textures (swirls, parallel lines, corkscrews, waves) Sketching of a scene from real life possible link to rivers.	An oil painting of a landscape (or other thick paint) Must not be a copy of the example Must show distinct 'colour palettes' Must not have blocked colour Must show different textures through use of brush strokes.
Key Skills	
Confidently control the types of marks made and experiment with different effects and textures inc. blocking in colour, washes, thickened paint creating textural effects. Start to develop a painting from a drawing. Begin to choose appropriate media to work with. Use light and dark within painting and show understanding of complementary colours. Mix colour, shades and tones with increasing confidence. Use sketchbooks to collect and record visual information from different sources as well as planning, trying out ideas, plan colours and collect source material for future works. Start to look at working in the style of a selected artist (not copying). Discuss and review own and others work, expressing thoughts and feelings, and identify modifications/ changes and see how they can be developed further.	

Science focus	Sound
National Curriculum objective	Identify how sounds are made, associating some of them with vibrating Recognise that vibrations from sounds travel through a medium to the ear 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
Key Knowledge - Grouping materials	
What is a sound?	A noise that can be heard by someone.
How is a sound made?	A sound happens when something vibrates. This can be obvious: Like when a drill is hitting the ground repeatedly which causes a loud noise   This can be less obvious: Here the air in the bottle vibrates to produce the noise So how do we hear
Key Knowledge - How do we hear sounds?	
How do sounds travel?	Sounds can travel in two ways: Through the air - like from a TV speaker across the room to your ears Through an object/material - like stone, brick, water and glass. If someone moves furniture upstairs, the sound can travel through the floor to you.
How do we hear these vibrations?	The vibrating air hits our ear drums and makes them vibrate.  The vibration is picked up by our brains and converted to sounds we recognise.
Key Knowledge - Changing sounds	
Volume	The closer we are to the sound source, the louder the sound will appear to us. The further away we are from the sound source, the quieter the sound will appear.
	The more energy in the initial vibration the louder the sound will be. For example, if you tap a hammer on a desk the sound will be quiet, but if you smash a hammer on a desk it would be much louder.
Pitch	The pitch is how high or low a sound is. The shorter the vibrating object, the higher the pitch of the sound. The

	longer the vibrating object, the lower the pitch of the sound. With string instruments, the tighter the string, the higher the pitch of the sound.

Diagrams and Symbols



Key Skills

Using results to draw simple conclusions , make predictions for new values, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings. With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.

Key vocabulary

Vibrates	Move continuously very quickly
Obvious	Clear and easily seen or understood
Material	What something is made from
Recognise	To see or spot something
Initial	Happening at the beginning

Key Questions

How can we reduce or insulate sounds?
Which is faster, light or sound?
Does sound travel through solids, liquids and gases?
When does noise become music? Discuss.

PE focus	Cricket and Athletics
National Curriculum Objective	Use running, jumping, throwing and catching in isolation and in combination Play competitive games. Develop strength, technique, control and balance (for example, through athletics)

Key Knowledge	
Pupils will develop an understanding of how, when and why to throw a ball overarm with power and distance.	To learn and understand the difference between running a distance and a sprint race.
The focus of the learning is to introduce striking the ball with intent away from fielders to score runs (points).	To consolidate & improve the quality, range & consistency of the techniques they use for particular activities.
Pupils will understand the objective of each team; batting and fielding.	To describe & evaluate the effectiveness of performances, & recognise aspects of performance that need improving.
The focus of the learning is to develop ways of stopping and returning the ball. Developing an understanding of why they need to do this quickly and accurately to prevent the batters from scoring runs.	

Key Skills

Cricket
To increase our accuracy when bowling overam.
To develop our fielding techniques and show an understanding why we need to field the ball quickly.
To learn and understand where we need to hit the ball to gain runs.
To understand the objective of both batting and fielding teams.

Athletics
To develop running styles when sprinting and running a distance.
To describe how the body reacts to different types of activity
To develop and understand different throwing styles.
To understand how technique can improve my distance when jumping.

Key Vocabulary	
Batting and fielding	Batting team -Through batting try to gain runs to win the match. Fielding team - Try to stop the batting team from gaining runs.
Bowling	To bowl the ball over arm with one bounce towards the stumps.
Fielding - Outs	Different ways to get the batting team out i.e caught, bowled, stumped.
Wide and no ball	Wide - The ball is bowled wide of the wicket. No ball - the ball bounces more than once or does bounce at all.
Throwing for distance vs accuracy	Distance - How far can I throw an object Accuracy - How accurate can I be when throwing an object
Pace	To avoid doing something too quickly or doing too much at one time, so that you have enough energy left to complete an activity.

Key Questions

Cricket

What is the difference between batting and fielding? What is the role of the wicket keepers? How can we win a game if we are batting? How can we win a game if we are fielding? How do we hold the bat safely? What different ways of fielding are there? Can we name them? i.e. catching, throwing, etc. Where can we strike the ball? Why are we striking the ball there? Can we strike the ball with intent? How can we get the batter out? Why is it important to aim where we throw? What is the consequence of an inaccurate throw?

Athletics

Why do we need to be able to run fast in sport? Which athletic events are sprinting events? What is the consequence of a sprinter running out of their lane in a race? What should we do with our head when we are sprinting? Why? Do we feel quicker when we apply the correct head technique? What should we do with our arms when we are sprinting? Why? What does pace mean? What race would you pace yourself in? Why? What is the consequence of a thrower releasing the object too late or too early? What should we do with our body position/stance when we throw? Why? Can we throw further when we apply the correct technique? What is the difference between throwing for accuracy and throwing for distance? How do we jump? What should we do with our arms? Why? What should we do with our legs? Why? Can we jump further when we apply the correct technique?