**Newquay Junior Academy – Spring Sequence - Year 4**

**‘‘Inventions and Innovations’**

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| **SCIENCE FIRST HALF TERM****Prior knowledge...**  ElectricityMay have some understanding that objects need electricity to work. May understand that a switch will turn something on or off. |  | **SCIENCE SECOND HALF TERM**SoundMay have some understanding that objects make different sounds. Some understanding that they use their ears to hear sounds. Know about their different senses. |  | **DESIGN TECHNOLOGY****Prior knowledge…****Electricity is the flow of electrical power or charge.****An electrical circuit comprises of electrical components.****A battery is an electrical power source****A circuit must form a loop for electrical current to flow.** |  |
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| **INTENT**ElectricityPupils will be able to construct a simple circuit and explain how it works. They will also be able to explain that a switch will open and close a circuit.Pupils will be able to explain the difference between a conductor and an insulator. |  | **INTENT**SoundPupils will be able to explain what happens when a sound leaves a source and how it travels to our ear.Pupils will be able to explain the correlation between pitch and the object producing the sound. |  | **INTENT****Electrical systems: Torches** **Pupils design and build an electrical circuit of a torch made from easily available materials and objects.**  |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Electricity - electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, component.A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don’t allow electricity to flow easily are called insulators. |  | **VOCABULARY/STICKY KNOWLEDGE**Sound - amplitude, volume, quiet, loud, ear, pitch, high, low, particles, instruments, wave.Sound is produced when an object vibrates. Sound moves through all materials by making them vibrate.Sound travels from its source in all directions and we hear it when it travels to our ears. |  | **VOCABULARY/STICKY KNOWLEDGE****Battery, bulb, buzzer, cell conductor, copper, design criteria, electrical item, electricity, electrical item, insulator, series circuit, switch, test, torch, wire**   |  |
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| **SEQUENCE OF LESSONS:****Electricity****Power stick – using human electricity to create a class circuit. How many children will fit in the circuit?**1.To construct a simple circuit.2. To 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.3.To explain the difference between an insulator and a conductor.4. To recognize that a switch opens and closes a circuit.  |  | **SEQUENCE OF LESSONS:****Sound**Hidden depths zoom in/out - [Hidden depths - Explorify](https://explorify.uk/en/activities/zoom-in-zoom-out/hidden-depths)1. To explain that sounds are made when an object vibrates and to begin to understand that we hear sounds when the vibrations travel from a source through a medium to our ears.2. To notice patterns between the pitch and volume of a sound and the features of the object that produced it.3. To investigate what factors affect the pitch and the volume of sound.4. To explain how we hear sounds. |  | **SEQUENCE OF LESSONS:****Lesson 1: Electrical products** Pupils explore the difference between 'electrical' and 'electronic' and revisit how to create a simple circuit. **Lesson 2: Evaluating torches.** Pupils evaluate a range of different torches and identify the features of a torch: housing, reflector, circuit and switch. **Lesson 3: Torch design** Pupils create a torch design, building on their understanding from and incorporating features they have identified in previous lessons. **Lesson 4: Torch assembly** The children build the circuit and housing for their torches, closely following their designs from the previous lesson.  |  |
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| **OUTCOME/COMPOSITE**ElectricityPupils will design and make their own working torch (linked to English & DT) |  | **OUTCOME/COMPOSITE**SoundPupils will make a musical instrument which changes pitch. |  | **OUTCOME/COMPOSITE** **Children make a torch using an electrical circuit and a housing made from recycled materials.**  |  |

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| **HISTORY – First half term****Prior knowledge…** Pupils will have learnt about Cradles of Civilisation.  Indus Valley Civilisation    |  | **History – Second half term****Prior knowledge…** Pupils will have learnt about the Indus Valley civilisation  **Persia and Greece**  |  |  |  |
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| **INTENT**Pupils will be able to understand key ideas about the Indus Civilisation including their architecture, trade and travel. Pupils will learn about rulers and religion during this period.    |  | **INTENT****Pupils will learn about the empires of Greece and Persia, compare their similarities and differences and understand the different wars that took place between the two empires.** |  |  |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Sites and artefacts in the Indus Valley (including the dancing girl, priest king, seals, threshing platforms, pots and potsherds, beads, weights, toys) Bricks, buildings, baths, bathrooms, drainage Mohenjo Daro, Harappa, Lothal Similarities and differences between Indus Valley and Sumer and Egypt (e.g. writing, monuments) Craftsmanship, trade, barter Puzzles for historians, including rulers and religion.  Disciplinary focus: evidential thinking How do we know about the Indus Valley civilisation?  |  | **VOCABULARY/STICKY KNOWLEDGE**Start with ancient Persia and its empire to set geographical & political context. Ancient Greek city states, inc. Sparta and Athens. Why/how did they form? Homer’s Iliad Greco-Persian wars, inc. battle of Marathon, Thermopylae, Salamis Ancient Greek language Peloponnese War, Greek religion – gods and goddesses.  Disciplinary focus: similarity and difference What did Greek city-states have in common?  |  |  |  |
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| **SEQUENCE OF LESSONS:**1. The dancing girl
2. So many puzzles!
3. Bricks, buildings and baths
4. Making beautiful things
5. Boats and barter, trade and travel.

Two more puzzles: rulers and religion.      |  | **SEQUENCE OF LESSONS:**1. The king of kings
2. The Persian Empire
3. The Greek city states
4. Greek gods and goddesses
5. The Greek language and The Iliad.

The Greek and Persian wars          |  |  |  |
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| **OUTCOME/COMPOSITE** Children create a quiz about the Indus Valley for a different year group. |  | **OUTCOME/COMPOSITE****Children create a leaflet explaining their favourite pieces of knowledge from the unit – must include a comparison.** |  |  |  |

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| **GEOGRAPHY FIRST HALF****Settlement and cities** **Prior knowledge – Pupils will have learnt about rivers and how settlements were built up around them.**  |  | **Geography – Second half term****Agriculture****Prior knowledge – Pupils will have learnt about settlements and rivers.** |  | **ART****Prior knowledge…** Collage is a skill when materials are layered to create the effect and design of the artwork. Sketching and drawing can be achieved using a variety of media. Shading makes drawings look more 3d.  |  |
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| **INTENT**Disciplinary focus: diversityHow are settlements similar and different? |  | **INTENT****Disciplinary focus: interaction****How are we connected to farmers?** |  | **INTENT**Pupils will revise the proportions used in a human portrait, and investigate the styles of a range of artists: Henry Moore, Rembrandt, Quentin Blake and Julian Opie. They will create and compare different style of portraits, including collage. They will investigate the use of line and tone.  |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Settlements & cities Settlement types, hamlet, village, town, city etc; land use, settlements by rivers. Major cities in the UK – locational overview  London as a conurbation and London boroughs Two cities: Cardiff and London, including economy & transport. How do people move about in Cardiff? How do  people move about in London?  Patterns of settlement in Cardiff and London.  |  | **VOCABULARY/STICKY KNOWLEDGE**Agriculture Arable farming, pastoral farming, mixed farming, how farming changes the landscape. How the food we eat affects farming (seasonal food, local food, pesticides, organic food, vegetarian and plant-based diets that do not use animals; link to fish farming, builds on fish farming in Indus River Y3 Autumn 1). Sheep farming in Wales - Snowdonia. Locational knowledge revisited: Wales, Snowdonia, Gloucestershire. New locational knowledge: Sussex   Geographical theme: links between food consumption patterns and farming; issues arising e.g. local sourcing. Geographical skills: Optional local fieldwork on local shops -their sourcing, economic and ethical considerations.  |  | **VOCABULARY/STICKY KNOWLEDGE**Tone in art simply refers to how light or dark a colour is. In terms of art, line is considered "a moving dot". It does not vary it’s tone, It stays constant. Artists: Henry Moore and Rembrandt use tonal drawings, Quentin Blake and Julian Opie rely on line drawings in their style.  Vocab: illustration, caricature, abstract, depth, proportions, portrait, realism.   |  |
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| **SEQUENCE OF LESSONS:**1. What is a settlement? 2. What is a village? 3. What is a town? 4. What is a city? 5. London: the largest city in the UK. 6. Cardiff is a city  |  | **SEQUENCE OF LESSONS:**1. What is agriculture? 2. Arable farming. 3. Pastoral farming. 4. How does farming change the landscape? 5. How does our food affect farming? 6. Sheep farming in Wales.      |  | **SEQUENCE OF LESSONS:**1. To develop portrait skills drawing the teacher, introducing proportions of a human face after free drawing. 2. To develop mark-making by experimenting with charcoal. Also considering the artists Henry Moore and Rembrandt and their use of tone in their sketching. 3. To create a tonal collage of a self-portrait, inspired by the mark-making of Moore and Rembrandt. 4. To use a contrasting style to previous lessons.  To create single lined portraits inspired by Quentin Blake and Julian Opie.  5.To develop single line drawing with EXT: Add abstract colour blocks to line drawings.  |  |
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| **OUTCOME/COMPOSITE**Create a quiz about settlements |  | **OUTCOME/COMPOSITE** Create a film to show how we are connected to farmers. |  | **OUTCOME/COMPOSITE****Pupils will know about artists Henry Moore, Rembrandt, Quentin Blake and Julian Opie and they will produce 4 different styles of portrait to compare; a pencil proportioned portrait of teacher, a tonal collage self-portrait, a linear back-painted self-portrait and a continual line portrait.** |  |

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| **RELIGIOUS EDUCATION – FIRST HALF TERM****Hinduism 3 – Living Hindu traditions****Prior knowledge… This half term of RE will draw on the children’s understanding of Hinduism from autumn 1.** |  | **RELIGIOUS EDUCATION – SECOND HALF TERM****Prior knowledge… This half term of RE will draw on the children’s understanding other religions from KS1 and previous terms.****Judaism 1 Abraham, Isaac, Jacob** |  | **SPANISH****Prior knowledge…** remember and use simple nouns, adjectives and verbs with simple conversations from last term.  |  |
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| **INTENT****Key Question: How do Hindus show their devotion?**   |  | **INTENT****Key Question: Why is the Promised Land so important in Judaism?**  |  | **INTENT**Pupils will remember and say members of family nouns. Can remember and understand parts of face nouns. Can use a simple sentence with part of face noun and a colour adjective. They will say and write a simple description using adjectives and nouns to describe. |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Ganesha stories and their meanings  Parvati and Shiva - family in Mount Kailash  The festival of Teej - women in Hinduism  Puja ceremony  Puja in Hindu stories  Listening to Hindu people talk about their beliefs and practices.  Optional visit to Hindu temple and/or people   |  | **VOCABULARY/STICKY KNOWLEDGE**How have stories from the Hebrew Bible shaped Judaism?  How did the Jews explain what they saw and experienced?  Including stories from the Hebrew Bible. Abraham and Sarah and the concept of the Promised Land,  Isaac and Rebecca, Jacob and Rachel Contexts relating to land, kinship, war.   Links with history: ancient civilisations of the Middle East provide place and cultural context that makes these stories make sense (e.g. Egypt, Mesopotamia). These stories in turn reinforce knowledge of geography and history of early civilisations.  |  | **VOCABULARY/STICKY KNOWLEDGE****¿Quién eres tú? – Who are you? Soy ….. – I am ….. El papá -the dad El hermano – the brother El bebé – the baby El abuelo – the grandad La mamá - the mum La hermana – the sister La abuela- the grandma La nariz – the nose El pelo- the hair Los ojos- the eyes La cabeza- the head La boca- the mouth Las orejas – the ears El pie – the foot Los pies- the feet La pierna- the leg Las piernas- the legs El brazo – the arm Los brazos- the arms La mano – the hand Las manos – the hands La cabeza – the head La rodilla- the knee Las rodillas- the knees** |  |
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| **SEQUENCE OF LESSONS:****1. Worshipping together -family puja****2 . Worshipping anywhere, any time?****3. Ganesha, the god of good fortune.****4 . The story of Ganesha’s birth.****5. Shiva’s endings and beginnings.****6. A festival for Parvati.** |  | **SEQUENCE OF LESSONS:**1. The Hebrew Bible 2. The story of Abram and Sarai 3. Abram becomes Abraham 4. Abram and his son, Isaac 5. The story of Isaac and Rebekah 6. The story of Jacob and Rachel     |  | **SEQUENCE OF LESSONS:**1. To know some important facts about Epiphany in Spain 2. To say 4 family nouns in Spanish 3. To write personal information about a family member in Spanish 4. To read and say 4 face part nouns in Spanish 5. To understand the nouns for some parts of the face \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. To understand and say aloud animal nouns 2. To say nouns for parts of the body 3. To understand and respond to body part nouns and commands 4. To understand and say nouns for body and face parts 5. To describe using nouns, numbers and colours I have learnt |  |
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| **OUTCOME/COMPOSITE**Create a film to explain Hindu traditions. |  | **OUTCOME/COMPOSITE**Create a leaflet to explain why the Promised Land is important to Judaism. |  | **OUTCOME/COMPOSITE**Pupils will use their knowledge to write in Spanish.  |  |
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| **COMPUTING – FIRST HALF TERM****Prior knowledge…****Programming A—This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment. They are introduced to a selection of motion, sound, and event blocks which they use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Pupils also apply stages of program design through this unit.** |  | **COMPUTING – SECOND HALF TERM****Prior knowledge…****Pupils should have knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. Following this unit, pupils will further develop their video editing skills in Year 5** |  | **PSHE – FIRST HALF TERM** **Prior knowledge…** Know that gender stereotypes can be unfair e.g. Mum is always the carer, Dad always goes to work etc. ; Know some strategies for keeping themselves safe online  |  |
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| **INTENT**Pupils will look at **repetition and loops** within programming. They use **Logo**, a text-based programming language.    |  | **INTENT**Learners will explore the concept of repetition in programming using the Scratch environment. The unit begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.  |  | **INTENT****Pupils will…**identify the emotions associated with these relationship changes, the possible reasons for the change and strategies for coping with the change; learn that change is a natural in relationships and they will experience (or may have already experienced) some of these changes  |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Logo (programming environment), program,  turtle, commands, code  snippet, algorithm, design, debug, pattern, repeat,  repetition, count-controlled loop, value, trace,  decompose, procedure.       |  | **VOCABULARY/STICKY KNOWLEDGE**Scratch, programming, sprite, blocks, code, loop,  repeat, value, infinite loop, count-controlled loop,  costume, repetition, forever, animate, event block,  duplicate, modify, design, algorithm, debug, refine, evaluate.   |  | **VOCABULARY/STICKY KNOWLEDGE****Jealousy, Problem-solve, Emotions, Positive, Negative, Loss, Shock, Disbelief, Numb, Denial, Anger, Guilt, Sadness, Pain, Despair, Hope, Souvenir, Memento, Memorial, Acceptance, Relief, Remember, Negotiate, Compromise, Trust,****· Know that loss is a normal part of relationships****· Know that negative feelings are a normal part of loss****· Know that sometimes it is better for a friendship/relationship to end if it is causing negative feelings or is unsafe** |  |
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| **SEQUENCE OF LESSONS:****1.To describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.****2. To identify that accuracy in programming is important****3. To create a program in a text-based language****4. To explain what ‘repeat’ means****5. To modify a count-controlled loop to produce a given outcome****6. To decompose a task into small steps****7. To create a program that uses count-controlled loops to produce a given outcome** |  | **SEQUENCE OF LESSONS:**1.To recognise when someone is upset, hurt or angry online. 2. To develop the use of count-controlled loops in a different programming environment 3. To explain that in programming there are infinite loops and count-controlled loops 4. To develop a design that includes two or more loops which run at the same time 5. To modify an infinite loop in a given program 6. To design a project that includes repetition 7. To create a project that includes repetition    |  | **SEQUENCE OF LESSONS:****1.To understand the emotion of jealousy****2.To consider the impact of love and loss****3.To consider the importance of memories****4.To develop strategies to help us when we fall out with friends****5. To discuss the concept of boyfriends and girlfriends** |  |
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| **OUTCOME/COMPOSITE**Pupils will create programs by **planning, modifying, and testing commands to create shapes and patterns**.   |  | **OUTCOME/COMPOSITE**This unit assumes that learners will have some prior experience of programming. The KS1 NCCE units cover floor robots and ScratchJr, and Scratch is introduced in the Year 3 programming units. However, experience of other languages or environments may also be useful.  |  | **OUTCOME/COMPOSITE**Pupils will… Know that change is a natural part of relationships/ friendship Know that sometimes it is better for a friendship/ relationship to end if it is causing negative feelings or is unsafe  |  |

**COMPUTING – SECOND HALF TERM**

**Prior knowledge… Programming A—This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment. They are introduced to a selection of motion, sound, and event blocks which they use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of seque also apply stages of program design through this unit.**

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| **PSHE – SECOND HALF TERM****Prior knowledge… the male and female body needs to change at puberty so their bodies can make babies when they are adults • some of the outside and inside changes that happen during puberty** |  | **PHYSICAL EDUCATION – FIRST HALF TERM****Prior knowledge… Pupils will have developed and refined their fundamental movement skills. Pupils participated in the INSPIRE – CREATE – PERFORM topic in Year 3, this will have given them an understanding of exploring movement, creating a sequence, being able to perform to their peers. They will have developed the skills to give and receive feedback.**  |  | **PHYSICAL EDUCATION – SECOND HALF TERM** **Prior knowledge...** Pupils will understand what NET / WALL games are and give examples of these sports. Pupils will know that how they move their hand paddle will impact the direction of travel of the ball. Pupils should be able to have controlled rallies and be able to use a developing technique within these rallies.  |  |
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| **INTENT****Pupils will…** revisit bodily changes at puberty with some additional vocabulary, particularly around menstruation; learn about sanitary health, including introducing pupils to different sanitary and personal hygiene products; be introduced to conception and sexual intercourse in simple terms so the children understand that a baby is formed by the joining of an ovum and sperm   |  | **INTENT**In BALANCE – TRAVEL - FLAIR, pupils will explore the three key shapes in gymnastics, be able to balance in a variety of positions, explore different types of rolls, and create and perform a gymnastics sequence to their peers.    |  | **INTENT**In STRIKE – REACT - RALLY, pupils will refine their previously leant skills, they will be able to perform a groundstroke and a volley. Pupils will learn to play variations of tennis-based games and be able to score independently. .   .    |  |
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| **VOCABULARY/STICKY KNOWLEDGE**Sperm, Egg / ovum, Penis, Testicles, Vagina / vulva, Womb / uterus, Ovaries, Making love, Having sex, Sexual intercourse, Fertilise, Conception, Puberty, Menstruation, Periods, Circle, Seasons, Change, Control, Emotions. · Know that babies are made by a sperm joining with an ovum  · Know the names of the different internal and external body parts that are needed to make a baby  · Know how the female and male body change at puberty  · Know that change can bring about a range of different emotions  |  | **VOCABULARY/STICKY KNOWLEDGE****Tuck, Pike, Straddle, Balance, Tension, Extension, Travel, Sequence** |  | **VOCABULARY/STICKY KNOWLEDGE****NET and WALL games, forehand, back hand, rally, volley, groundstroke, direction, chopper grip, officiate.** |  |
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| **SEQUENCE OF LESSONS:****1.To discuss the concept of ‘Unique Me’****2.To label the internal and external parts of male and female bodies that are necessary for making a baby****3.To discuss how girls change during puberty****4.To consider the ‘Circles of Change’ and how it applies to their life****5.To discuss changes that have been and may continue to be outside of their control that they learn to accept** |  | **SEQUENCE OF LESSONS:**A. To know and perform the three key shapes. B. To explore balances on 1-4 points of contact.C. To learn several types of rolls.D. To explore apparatus and understand the safety aspects involved. E. To create an individual sequence on apparatus.F. To refine sequence and perform to peers |  | **SEQUENCE OF LESSONS:**A. To recap what ‘net and wall’ games are and to recap rallies using the hand paddles. B. To acquire skills to use the ‘chopper grip’ and the forehand groundstroke using a tennis racket. C. To be able to use the ready position and perform a backhand ground stroke.D. To introduce the concept of a volley. E. To apply skills in small tennis-based challenge games. F. To apply all skills in small, sided games whilst independently scoring and officiating. |  |
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| **OUTCOME/COMPOSITE****Pupils will…** Know the names of the different internal and external body parts that are needed to make a baby  Know how the female and male body change at puberty  |  | **OUTCOME/COMPOSITE**Pupils will be able to perform an individual sequence to their peers, they will be able to give and receive feedback in a constructive manner.  |  | **OUTCOME/COMPOSITE**Pupils will be able to rally using a tennis racket, they will know the difference between a groundstroke and a volley. Pupils will apply these skills in tennis-based games, they will also be able to officiate and score independently.  |  |