

St James' Working Scientifically and Maths skills Overview

Staff should plan topics using:

- The [Primary National Curriculum for Science](#) (click to follow link),
- The SNAP Science Scheme of work on StaffShared (SNAP is a good scheme which bases lessons on Working Scientifically, which should be our focus for most science lessons, but may need supplementing with some additional resources.)
- [TAPS Lessons](#) (click for link). These are excellent lessons which are all based in enquiry skills. Some are **compulsory** – see below, but there are many more which you can choose to use in addition.

This Overview gives the following:

- The progression in **vocabulary** to introduce in each topic.
- The **Working Scientifically skills** that **must** be taught in each year group, e.g. using a force meter. These should be taught as lessons **before** the enquiry is carried out so the children have the skills needed.
- The **TAPS Working Scientifically Assessments** that **must be taught** in each topic. Unlike the rest of the lessons these are not optional. There is a least one in each topic, and they all match to a National Curriculum objective, but it is likely you will need to teach the substantive knowledge (curriculum) first before the children carry out the enquiry. Each one is a whole enquiry, but asks you to assesses a different area of disciplinary knowledge (Working Scientifically), so this should be the focus, and you can use it to help inform your assessment. The focus could be **asking questions, planning an enquiry, setting up an enquiry, observing, recording, interpreting results, recording results or evaluating**. If the focus is recording results, you would be assessing if the children can draw and complete a table or graph, and so although you would plan the enquiry together and interpret the results, this would not be in their books.
- Please note, this document does not yet contain all the National Curriculum objectives, just the ones that relate to the enquiry skills. You must use SNAP Science and the National Curriculum to ensure you have full coverage of substantive knowledge.
- The **maths skills** that are needed for the children to complete the TAPS assessments, and other maths skills that should be needed in other lessons in the topic. These come from the [Links and Discrepancies between Maths and Science Document](#) (click to follow link). These links are important because children should have already been taught a maths skill (e.g. drawing a line graph) **before** being expected to do it in science, and some maths skills requested in the science curriculum, and not actually taught until a later year in maths, therefore it is important to be aware of it, so you can scaffold and model.

Nursery Vocabulary									
Working Scientifically	Plants	Living Things and Their Habitats	Animals Including Humans	Materials	Rocks	Light	Forces	Electricity	Sound
look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group	plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil, names of plants they grow	natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern	egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf	mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric	natural, shells, pebbles, stones	light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror	object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow	battery, plug, socket, electricity, wire, sound, light, move	sound, noise, loud, quiet, high, low, music, bang, blow, pluck, soft, hard, fast, slow, names of instruments

Nursery		
Understanding of the World	Working Scientifically	Skills to be taught before the lesson can be completed.
Use all their senses in hands-on exploration of natural materials.	TAPS Focussed Assessment of Working Scientifically Observe closely Title – Mixing Materials https://pstt.org.uk/download/2490/?tmstv=1676973904	Working Scientifically skill – understand the 5 senses – see, hear, smell, taste, touch.
Explore collections of materials with similar and/or different properties.	TAPS Focussed Assessment of Working Scientifically Record Title – Scavenger Hunt https://pstt.org.uk/download/2577/?tmstv=1676976724	Non-Curriculum Maths Skill – Using a Venn diagram.
Talk about what they see, using a wide vocabulary.	TAPS Focussed Assessment of Working Scientifically I can explore the environment and make observations. Title – Senses walk https://pstt.org.uk/download/2494/?tmstv=1676973986	Working Scientifically skill – Looking closely and describing. Working Scientifically Skill – using a hand lens. Working Scientifically skill – How to take a photograph on a tablet
Explore how things work.		
Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal.		
Begin to understand the need to respect and care for the natural environment and all living things.		
Explore and talk about different forces they can feel.		
Talk about the differences between materials and changes they notice.	TAPS Focussed Assessment of Working Scientifically Recording and Communicating	Working Scientifically Skill – using a hand lens.

			Title – Making Butter https://pstt.org.uk/download/2572/?tmstv=1676976638					
Reception Vocabulary								
Working Scientifically	Seasonal Change	Living Things and Their Habitats	Animals Including Humans	Materials	Light	Forces	Earth and Space	Sound
look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group	spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers	plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment (e.g. beach, forest)	names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman	ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back	Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source	float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce	Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float	sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar

Reception		
ELGs	Working Scientifically	Skills to be taught before the lesson can be completed.
Listen attentively and respond to what they hear with relevant questions , comments and actions.		How to ask a question – question words.
Make comments about what they have heard and ask questions to clarify their understanding.		How to ask a question – question words.
Participate in small group, class and one-to-one discussions, offering their own ideas , using recently introduced vocabulary .	TAPS Focussed Assessment of Working Scientifically Explore and perform simple tests Title – Incy Shelter https://pstt.org.uk/download/2554/?tmstv=1676975584	Working Scientifically Skill – using a hand lens. Working Scientifically Skill – using a dropper.
Offer explanations for why things might happen , making use of recently introduced vocabulary .	TAPS Focussed Assessment of Working Scientifically Explores & observes through play. Makes simple predictions of what might happen. Title – Scooping sounds https://pstt.org.uk/download/2437/?tmstv=1676971751	
Explore the natural world around them, making observations and drawing pictures of animals and plants. Describe what they see, hear and feel whilst outside.	TAPS Focussed Assessment of Working Scientifically I can explore the environment and make observations. (Seasons) Title – Senses walk https://pstt.org.uk/download/2494/?tmstv=1676973986	Working Scientifically skill – Looking closely and describing. Working Scientifically Skill – using a hand lens. Working Scientifically skill – How to take a photograph on a tablet

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Recognise some environments that are different to the one in which they live.	TAPS Focussed Assessment of Working Scientifically Record Title – Scavenger Hunt https://pstt.org.uk/download/2577/?tmstv=1676976724	Advanced Maths Skill – Using a Venn diagram.
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Understand the effect of changing seasons on the natural world around them.	Melting, freezing and changes in materials. (Changing States of Matter) TAPS Focussed Assessment of Working Scientifically Observe closely Title – Frozen Balloons https://pstt.org.uk/download/2550/?tmstv=1676975488 I can explore the environment and make observations. (Seasons) TAPS Focussed Assessment of Working Scientifically Title – Senses walk https://pstt.org.uk/download/2494/?tmstv=1676973986	Working Scientifically skill – Looking closely and describing.

Year 1

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources

Year 1		
Plants Vocabulary: leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify and describe the basic structure of a plant and a tree.	TAPS Focussed Assessment of Working Scientifically Do: Observe closely using simple equipment <i>(Observation over time if seasonal)</i> Title – Plant Structure https://pstt.org.uk/download/1701/?tmstv=1676640839	Working Scientifically Skill – using a hand lens. Advanced Maths Skill – Using a ruler to measure in cm/mm.
Identify and describe the basic structure of a variety of common flowering plants, including trees.	TAPS Focussed Assessment of Working Scientifically Observing closely Title – Leaf Looking https://pstt.org.uk/download/2281/?tmstv=1676908811	

		Maths Skill - Compare lengths and heights, using the vocabulary, long/short, longer/shorter, tall/short, double/half, specified in the maths curriculum. In order to Compare the height of plants
		Maths Skill - Compare mass/weight, using the vocabulary heavy/light, heavier than, lighter than, specified in the maths curriculum. In order to compare the mass of bulbs
		Maths Skill - Measure lengths and heights, using non-standard discrete units, (for example, counting multilink cubes) and then manageable common standard unit. In order to Measure the length of leaves.
		Maths Skill - Sequence events in chronological order, using language before and after, next and first. In order to describe the changing plants in a flower bed through the year.

Year 1		
Animals including humans Vocabulary: head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify and name common animals including fish, amphibians, reptiles, birds and mammals. Identify and name common animals that are carnivores, herbivores and omnivores.	TAPS Focussed Assessment of Working Scientifically Review: Identify and classify (animal categories) Title – Animal Classification https://pstt.org.uk/download/1644/?tmstv=1676639924	Advanced Maths skill (y2)- complete simple tables and tally charts to record data gathered. Provide template with headings and model. Tally chart - an alternative is to give pupils a template table to which they add ticks to record their data and then count the ticks to calculate the total. Non Curriculum Maths skill – Using a Venn diagram. Working Scientifically skill – Researching using books or the internet.
Identify basic parts of the human body and say which part of the body is associated with each sense.	TAPS Focussed Assessment of Working Scientifically Review: Use observations and ideas to suggest answers to questions Title – Body Parts (senses) https://pstt.org.uk/download/5691/?tmstv=1680790919	Working Scientifically Skill – using a hand lens. Working Scientifically Skill – using a mirror.
		Maths Skill - Compare lengths and heights, using the vocabulary, long/short, longer/shorter, tall/short, double/half, specified in the maths curriculum. In order to compare parts of the human body (e.g. hand span).

		Non Curriculum Maths skill – Using a Venn diagram.
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Year 1		
Materials Vocabulary: object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe properties of materials	TAPS Focussed Assessment of Working Scientifically Recognise that sorting questions can be answered in different ways. Title - Ways to test transparency https://pstt.org.uk/download/2291/?tmstv=1676909190	Non Curriculum Maths skill – Using a Venn diagram. Working Scientifically skill – How to take a photograph on a tablet.
Compare and group together a variety of everyday materials on the basis of their simple physical properties	TAPS Focussed Assessment of Working Scientifically Do: Perform simple tests to compare and group Title – Floating and Sinking https://pstt.org.uk/download/1655/?tmstv=1676640192	Advanced Maths skill (y2)- complete simple tables and tally charts to record data gathered. Provide template with headings and model. Tally chart - an alternative is to give pupils a template table to which they add ticks to record their data and then count the ticks to calculate the total.

Year 1		
Seasonal Change Vocabulary: weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Observe changes across the four seasons	TAPS Focused Assessment of Working Scientifically Do: Observe over time and record data to help in answering questions Title – Seasonal Change https://pstt.org.uk/download/1709/?tmstv=1676641214	Working Scientifically skill – How to take a photograph on a tablet. Maths Skill - Recognise and use language relating to the months of the year. In order to draw on knowledge about the order of the months in the year to name the months in each season. Record weather measurements during a month. Advanced Maths Skill (y2) – Pictogram for weather data. Use class pictogram. Advanced Maths skill (y2)- complete simple tables and tally charts to record data gathered. Provide template with headings and model. Tally chart - an alternative is to give pupils a template table to which they add ticks to record their data and then count the ticks to calculate the total.
		Maths Skill - Compare time, using the vocabulary earlier and later, specified in the maths curriculum. In order to compare how early or late it gets dark during different seasons
		Maths Skill - Tell the time to the hour and half past the hour and draw the hands on a clock face to show these

		times. In order to tell the time it gets light or dark at different times during the year.
		Maths Skill - Measure capacity, using the vocabulary full/empty, more than, less than, half, half full, quarter, specified in the maths curriculum. In order to measure the rain caught in a rain gauge every day/week.

Year 2

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources

Year 2		
Plants Vocabulary: light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe how plants needs water, light and a suitable temperature to grow and stay healthy.	TAPS Focussed Assessment of Working Scientifically Do: Observe closely, using simple equipment Title - Comparing plant growth in different conditions https://pstt.org.uk/download/2060/?tmstv=1676899325	Working Scientifically Skill – Drawing a labelled diagram. Maths Skill - Compare and order lengths. In order to compare plant growth. Maths Skill - Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers. In order to measure the height of plants. Working Scientifically Skill – Using a ruler and tape measure accurately.

		Working Scientifically skill – How to take a photograph on a tablet. Working Scientifically Skill – using a hand lens. Maths Skill - Interpret and construct simple tables. In order to record the observations or measurements of a plant over time.
		Maths Skill - Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers. In order to measure the height of plants grown from bulbs and seeds over a period of time, and measure the space between seeds and bulbs required when planting. Working Scientifically Skill – Using a ruler and tape measure accurately.
		Maths Skill - Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit, using scales. In order to measure the weight of a range of bulbs when exploring if heavier bulbs grow into bigger plants. Measure the weight of a potato and the weight of the crop of potatoes it produces. Working Scientifically Skill – Using scales accurately.

		Maths Skill - Choose and use appropriate standard units to estimate and measure temperature (°C) to the nearest appropriate unit, using thermometers. In order to measure and comparing the temperature in the shade, full sun and in a greenhouse. Working Scientifically Skill – Using a thermometer accurately.
		Maths Skill - Choose and use appropriate standard units to estimate and measure (litres/ml) to the nearest appropriate unit, using measuring vessels. In order to talk about the amount of water given to plants to keep them healthy (e.g. one watering can, one and a half watering cans). Working Scientifically Skill – Using a measuring vessel accurately.

Year 2		
Animals Including Humans Vocabulary: offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Recognise growth in humans.	TAPS Focussed Assessment of Working Scientifically Review: Using their observations and ideas to suggest answers to questions Title: Comparing hand spans https://pstt.org.uk/download/1720/?tmstv=1676641443	Maths Skill - Compare and order lengths. In order to compare the width of a hand. Maths Skill - Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers. In order to measure hand span. Working Scientifically Skill – Using a ruler and tape measure accurately. Maths Skill - Interpret and construct simple pictograms, tally charts, block diagrams or simple tables. In order to record the amount of cubes different hand spans can hold as a block graph.
		Maths Skill - Compare and order lengths. In order to compare the average height of humans at different ages
		Maths Skill - Compare and order mass. In order to compare the weight of babies at different ages.
		Maths Skill - Interpret and construct simple pictograms, tally charts, block diagrams or simple tables. In order to record the different hand spans of

		children of different ages, and the amount of cubes different hand spans can hold.
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Year 2		
Materials Vocabulary: opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
explore and compare the differences between things that are living, dead, and things that have never been alive	TAPS Focussed Assessment of Working Scientifically Review: Use of appropriate scientific language to communicate their ideas Title – Sorting Living and Non-Living https://pstt.org.uk/download/2064/?tmstv=1676899681	Non Curriculum Maths skill – Using a Venn diagram. Working Scientifically skill – How to take a photograph on a tablet.
Identify and compare the suitability of a variety of everyday materials	TAPS Focussed Assessment of Working Scientifically Do: gather and record data to help in answering questions. Title – Materials Hunt https://pstt.org.uk/download/5726/?tmstv=1681378894	Maths Skill - Interpret and construct simple pictograms, tally charts, block diagrams or simple tables. In order to record objects by material type. Working Scientifically skill – How to take a photograph on a tablet.
Use knowledge and understanding of properties of materials to compare suitability for different uses.	TAPS Focussed Assessment of Working Scientifically Plan: Ask simple questions and recognise that they can be answered in different ways Title – Waterproof	Maths Skill - Choose and use appropriate standard units to estimate and measure (litres/ml) to the nearest appropriate unit, using measuring vessels. In order to measure

	https://pstt.org.uk/download/2044/?tmstv=1676899157	out a specific volume of water when testing materials for absorbency Working Scientifically Skill – Using a measuring vessel accurately. Maths Skill - Interpret and construct simple tables. In order to record data from classification and comparative tests, such as waterproofness, absorbency, flexibility, transparency.
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Year 2		
Living Things and their Habitats Vocabulary: living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify and name a variety of plants and animals in their habitats, including micro-habitats	TAPS Focussed Assessment of Working Scientifically Review: Identifying and classifying Title – Nature Spotters https://pstt.org.uk/download/1726/?tmstv=1676641611	Working Scientifically Skill – Collecting and returning wildlife safely, e.g. using a bug catcher. Working Scientifically Skill – using a hand lens. Working Scientifically skills – observing in the environment and not removing, e.g. not picking flowers.

		Maths Skill - Interpret and construct simple pictograms, tally charts, block diagrams or simple tables. In order to record nature found.
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.	TAPS Focussed Assessment of Working Scientifically Do: Gather and record data to help in answering questions. Title – Woodlice habitats. https://pstt.org.uk/download/1730/?tmstv=1676641771	Maths Skill - Interpret and construct simple pictograms, tally charts, block diagrams or simple tables. In order to record the number of different minibeasts found in a micro-habitat (repeated over the year).
		Non Curriculum Maths skill – Using a Venn diagram

Year 3

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
Year 3 & 4	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve

Year 3		
Animals Including Humans		
Vocabulary: nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify that humans have skeletons and muscles for support, protection and movement	TAPS Focussed Assessment of Working Scientifically Plan: Ask relevant questions and use different types of scientific enquiries to answer them Title – Investigating the Human Skeleton https://pstt.org.uk/download/5729/?tmstv=1681379147	Maths Skill - measure, compare, add and subtract: lengths (m/cm/mm). In order to measure body parts and link this to the length of bones and take measurements to gather data to answer questions such as 'Can people with longer legs jump higher?'
		Maths Skill - Interpret and present data using bar charts. In order to present the amount of nutrients in different foods.

Year 3		
Rocks Vocabulary: rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	TAPS Focussed Assessment of Working Scientifically Review: Reporting on findings from enquiries Title – Reporting on Rocks https://pstt.org.uk/download/2134/?tmstv=1676904453	
recognise that soils are made from rocks and organic matter.		Maths Skill - Compare durations of events [for example to calculate the time taken by particular events or tasks] in order to measure how long it takes for water to flow through different types of soil Maths Skill - Measure, compare, add and subtract: mass (kg/g) in order to measure and comparing the mass of rocks before and after soaking in water. Maths Skill - Measure, compare, add and subtract: volume/capacity (l/ml) in order to measure and comparing the amount of water different types of soil can hold. Maths Skill - Interpret and present data using bar charts in order to present data gathered when exploring the amount of water different types of soil can hold and present data gathered when

		exploring how long it takes for water to flow through different types of soil.
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Year 3		
Light Vocabulary: light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
recognise that shadows are formed when the light from a light source is blocked by an opaque object	TAPS Focussed Assessment of Working Scientifically Do: Gather and record data to answer questions. Title – Can everything make a shadow? https://pstt.org.uk/download/2102/?tmstv=1676903994	Maths Skill - measure, compare, add and subtract: lengths (m/cm/mm). In order to measure the size of shadows. Working Scientifically Skill – Drawing and labelling a table.
notice that light is reflected from surfaces		Maths Skill - Interpret and present data using bar charts. In order to present data gathered using a light meter about the amount of light reflected from different materials and using this to make predictions for new values. Working Scientifically Skill – using a light meter correctly and interpreting the results.

Year 3		
Plants Vocabulary:		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Investigate the way in which water is transported within plants.	TAPS Focussed Assessment of Working Scientifically Review: Use straightforward scientific evidence to answer questions or to support their findings Title: Function of a plant stem https://pstt.org.uk/download/2112/?tmstv=1676904277	

Year 3		
Forces Vocabulary: force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Compare how things move on different surfaces.	TAPS Focussed Assessment of Working Scientifically Do: Gather, record and present data (in a table or bar chart) to help in answering questions Title: Cars down ramps https://pstt.org.uk/download/2088/?tmstv=1676903159	Working Scientifically – draw and present data in a table. Maths Skill - Interpret and present data using bar charts in order to present data gathered. Maths Skill - Measure, compare, add and subtract: lengths (m/cm/mm) to measure distance car travels.

		Advanced Maths Skill (for high ability) – finding an average.
Notice that some forces need contact between two objects, but magnetic objects can act at a distance.	TAPS Focussed Assessment of Working Scientifically Plan: Set up simple practical enquiries, comparative and fair tests Title: Testing the strength of magnets https://pstt.org.uk/download/2096/?tmstv=1676903803 Possible extra: TAPS Focussed Assessment of Working Scientifically Plan: Set up simple practical enquiries Title: Shoe Grip https://pstt.org.uk/download/2092/?tmstv=1676903487	Maths Skill - Measure, compare, add and subtract: lengths (m/cm/mm) in order to measure the distance a magnet can attract an object. Working Scientifically Skill – Using a Newton metre.
Observe how magnets attract or repel each other and attract some materials and not others.		Advanced Maths Skill – Using Venn diagrams and/or Carroll diagrams in order to sort magnetic, non-magnetic, metal and non-metal.

Year 4

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
Year 3 & 4	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve

Year 4		
Living Things and their Habitats		
Vocabulary:		
classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Recognise that living things can be grouped in a variety of ways	TAPS Focussed Assessment of Working Scientifically Do: Gather, record and classify data Title – Local Environment Survey https://pstt.org.uk/download/2152/?tmstv=1676905154	Maths Skill – Drawing and recording in a table.

Year 4		
Animals Including Humans Vocabulary: digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe the simple functions of the basic parts of the digestive system in humans. Pupils should be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions.	TAPS Focussed Assessment of Working Scientifically Presents findings: Reports collaboratively and individually using a range of methods. Title – Digestion Modelling Link Broken. See File	
Identify the different types of teeth in humans and their simple functions. Finding out what damages teeth and how to look after them.	TAPS Focussed Assessment of Working Scientifically Review: Use results to draw simple conclusions, suggest improvements and raise further questions Title – Teeth (eggs) in liquid https://pstt.org.uk/download/2144/?tmstv=1676904626	

Year 4		
States of Matter Vocabulary: solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
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 (°C).	TAPS Focussed Assessment of Working Scientifically Do: Take accurate measurements using standard units, using a range of equipment including thermometers and data loggers Title – Measuring Temperature https://pstt.org.uk/download/2163/?tmstv=1676905480	Working Scientifically Skill – Reading a Thermometer Working Scientifically Skill – Using a data logger Maths Skill – Drawing and recording in a table.
Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting	TAPS Focussed Assessment of Working Scientifically Plan: Set up a fair test Title – Drying Materials https://pstt.org.uk/download/2157/?tmstv=1676905296	Working Scientifically Skill – Reading a Thermometer Maths Skill – Reading the scale on a measuring jug.
		Maths Skill - Find the area of rectilinear shapes by counting squares. In order to find the surface area of containers when exploring the rate of evaporation and using this to make predictions for new values.

		Maths Skill - Interpret and present discrete and continuous data using bar charts. In order to present data gathered when exploring the melting point of different solids.
		Maths Skill - Interpret and present continuous data using time graphs. In order to present data gathered when exploring the circumference of an ice block over a period of time and using this to make predictions for new values. Maths Skill – Interpreting negative numbers.
		Maths Skill - Count backwards through zero to include negative numbers. In order to Research the temperatures that different materials change state (e.g. freezing points of materials that are solid at room temperatures).

Year 4		
Sound Vocabulary: sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Recognise that vibrations from sounds travel through a medium to the ear.	TAPS Focussed Assessment of Working Scientifically Review: Identify differences, similarities or changes related to simple scientific ideas and processes Title – String Telephones https://pstt.org.uk/download/2172/?tmstv=1676905718	
Find patterns between the pitch of a sound and features of the object that produced it.		
		Maths Skill - Interpret and present discrete and continuous data using bar charts. In order to present data gathered when exploring the maximum volume of musical instruments and using this to make predictions for new values.
		Maths Skill - Interpret and present continuous data using time graphs. In order to interpret data gathered using a datalogger of the volume of sound in a classroom over 24 hours.

Year 4		
Electricity Vocabulary: electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Recognise some common conductors and insulators, and associate metals with being good conductors. Construct a simple series electrical circuit.	TAPS Focussed Assessment of Working Scientifically Review: Report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions. Title – Does it conduct electricity? https://pstt.org.uk/download/2148/?tmstv=1676904757	Maths Skill – Drawing and recording in a table. Non Curriculum Maths skill – Using a Venn diagram with intersecting section, and using a Carroll diagram.

Year 5

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
Year 3 & 4	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve
Year 5 & 6	variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter

Year 5		
Living Things and Their Habitats		
Vocabulary: life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, cuttings		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe the life process of reproduction in some plants and animals	TAPS Focussed Assessment of Working Scientifically Describe the life process of reproduction in some plants and animals Title – Seed Dispersal Survey https://pstt.org.uk/download/2223/?tmstv=1676907349 NB. Activity type season dependent	
		Maths Skill - Complete, read and interpret information in tables, including timetables. In order to construct tables to record a range of data about

		the life cycles of animals from the same vertebrate group
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Year 5		
Animals Including Humans		
Vocabulary: puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe the changes as humans develop to old age.	TAPS Focussed Assessment of Working Scientifically Do: Take measurements using a range of equipment Title – Growth Survey https://pstt.org.uk/download/2177/?tmstv=1676905995	Maths Skill – Measure accurately in mm and use decimal place. Advanced Maths Skill – draw a scatter graph and place a line of best fit – do as a class or use ICT (see Links and discrepancies in Maths and Science document).
		Maths Skill - Solve comparison, sum and difference problems using information presented in a line graph. In order to interpret data showing weight or length of babies at different ages (time graph but involves the same skills)

Year 5		
Properties and Changes of Materials Vocabulary: thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Know that some materials will dissolve in a liquid to form a solution.	TAPS Focussed Assessment of Working Scientifically Plan: Plan a scientific enquiry to answer a question recognising & controlling variables. Title – Dissolving https://pstt.org.uk/download/2197/?tmstv=1676906535 OR TAPS Focussed Assessment of Working Scientifically Do: Gather and record data of increasing complexity using tables Title – Sugar Cube Stack https://pstt.org.uk/download/2210/?tmstv=1676906900	Working Scientifically Skill – Reading a Thermometer Working Scientifically Skill – Using a timer accurately. Maths Skill – Round decimals with two decimal places to the nearest whole number and to one decimal place. In order to round the numbers on a stopwatch that measures in tenths and hundredths of a second to the nearest second when dissolving. Working Scientifically Skill – Using a timer accurately. Maths Skill – Round decimals with two decimal places to the nearest whole number and to one decimal place. In order to round the numbers on a stopwatch that measures in tenths and hundredths of a second to the nearest second when dissolving. Working Scientifically Skill – Designing a recording table.

Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials	TAPS Focussed Assessment of Working Scientifically Plan: Plan a scientific enquiry to answer a question recognising & controlling variables Title – Testing Nappy Absorbency https://pstt.org.uk/download/2205/?tmstv=1676906770 OR TAPS Focussed Assessment of Working Scientifically Review: Report and present findings from enquiries, including conclusions and explanations of degree of trust in results Title – Testing Champion Tape https://pstt.org.uk/download/2193/?tmstv=1676906431	Working Scientifically Skill – Reading a scale on a syringe/measuring jug Working Scientifically Skill – Using a timer accurately Advanced Maths Skill – finding an average (y6) Working Scientifically Skill – Using a force meter. Advanced Maths Skill – Interpreting the scale of a force meter. Maths Skill - Read, write, order and compare numbers with up to three decimal places. In order to compare the measurements taken using Newton meters.
Compare everyday materials on basis of their thermal conductivity. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials.	TAPS Focussed Assessment of Working Scientifically Do: Use test results to make predictions to set up further comparative and fair tests Title – Insulation Layers https://pstt.org.uk/download/2201/?tmstv=1676906659	Working Scientifically Skill – Reading a Thermometer Maths Skill - Solve comparison, sum and difference problems using information presented in a line graph. In order to interpret data showing how the temperature of water cools when in containers wrapped in different materials. Maths Skill - Complete, read and interpret information in tables, including timetables, In order to extend a

		table to compare the temperature of water cooling when in containers wrapped in different materials.
Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	TAPS Focussed Assessment of Working Scientifically Presents findings: Collates, organises and summarises findings Title – Dirty Water https://pstt.org.uk/download/2470/?tmstv=1676972845	

Year 5		
Forces Vocabulary: force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify the effect of air resistance that acts between moving surfaces.	TAPS Focussed Assessment of Working Scientifically Do: Measure, taking repeat readings Title – Spinners https://pstt.org.uk/download/2185/?tmstv=1676906214	Working Scientifically Skill – Using a timer accurately. Maths Skill – Round decimals with two decimal places to the nearest whole number and to one decimal place. In order to round the numbers on a stopwatch that measures in tenths and hundredths of a second to the nearest second when exploring water resistance and air resistance. Advanced Maths Skill – finding an average (y6). Advanced Maths Skill – Drawing a line graph (y6). Give template line graph to use with the axes labelled.

		Maths Skill - Complete, read and interpret information in tables, including timetables. In order to extend a table to record repeat readings when exploring air resistance and water resistance.
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	TAPS Focussed Assessment of Working Scientifically Doing: using equipment/techniques to measure accurately Title – Titanic Pulleys https://pstt.org.uk/download/2635/?tmstv=1676978322	Working Scientifically Skill – Using a force meter. Maths Skill - Read, write, order and compare numbers with up to three decimal places. In order to compare the measurements taken using Newton meters. Advanced Maths Skill – Interpreting the scale of a force meter.
Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	TAPS Focussed Assessment of Working Scientifically Do: Gather and record data using tables and graphs. Title – Craters https://pstt.org.uk/download/2215/?tmstv=1676907019	Working Scientifically Skill – Using a timer accurately. Maths Skill – Round decimals with two decimal places to the nearest whole number and to one decimal place. In order to round the numbers on a stopwatch that measures in tenths and hundredths of a second to the nearest second when exploring water resistance and air resistance. Advanced Maths Skill – finding an average (y6). Maths Skill – Measure accurately in mm and use decimal place.

		Advanced Maths Skill – Drawing a line graph (y6). Give template line graph to use with the axes labelled.
Identify the effect of water resistance	TAPS Focussed Assessment of Working Scientifically Review: Explain the degree of trust in the results Title – Aquadynamics https://pstt.org.uk/download/2181/?tmstv=1676906113	Working Scientifically Skill – Using a timer accurately. Maths Skill – Round decimals with two decimal places to the nearest whole number and to one decimal place. In order to round the numbers on a stopwatch that measures in tenths and hundredths of a second to the nearest second when exploring water resistance and air resistance. Advance Maths Skill – finding an average (y6). Maths Skill - Complete, read and interpret information in tables, including timetables. In order to extend a table to record repeat readings when exploring air resistance and water resistance.
		Maths Skill - Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm ²). In order to find the area of rectangular canopies when exploring the time it takes parachutes to fall to the ground. Maths Skill - Solve comparison, sum and difference problems using information presented in a line graph. In order to Interpreting data showing how the area of a parachute canopy affects the time it takes to fall.

Year 5		
Earth and Space Vocabulary: Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe the Sun, Earth and Moon as approximately spherical bodies Describe the movement of the Moon relative to the Earth	TAPS Focussed Assessment of Working Scientifically Plan: Plan different types of scientific enquiries to answer their own questions – research Title – Space Travel Questions https://pstt.org.uk/download/2522/?tmstv=1676974662	
Describe the movement of the Earth, and other planets, relative to the Sun in the solar system	TAPS Focussed Assessment of Working Scientifically Review: Report and present findings from enquiries using appropriate scientific language Title – Solar System Research https://pstt.org.uk/download/2219/?tmstv=1676907146	Advance Maths Skill - Interpreting data about the distance planets are from the Sun if the distances are presented using mixed units (e.g. million km, billion km). Maths Skill - Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. In order to compare the diameter of the Earth, Sun and Moon.

Year 6

Working Scientifically vocabulary	
Nursery & Reception:	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group
Year 1 & 2	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
Year 3 & 4	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve
Year 5 & 6	variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter

Year 6		
Living Things and Their Habitats Vocabulary: vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences.	TAPS Focused Assessment of Working Scientifically Plan: Plan different types of scientific enquiries to answer their own questions (pattern seeking) Title – Flower Sampling https://pstt.org.uk/download/2542/?tmstv=1676975261 Enquiry Type Silver Thread – Pattern Seeking	

Give reasons for classifying plants and animals based on specific characteristics	TAPS Focussed Assessment of Working Scientifically Do: Record the results of a survey using a classification key Title – Outdoor Keys https://pstt.org.uk/download/2257/?tmstv=1676908416	
Give reasons for classifying plants and animals based on specific characteristics.	TAPS Focussed Assessment of Working Scientifically Review: Report and present findings using appropriate scientific language Title – Invertebrate Research https://pstt.org.uk/download/2253/?tmstv=1676908282	

Year 6		
Animals Including Humans Vocabulary: heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Describe the functions of the heart, blood vessels and blood Recognise the impact of exercise on the way their bodies function	TAPS Focussed Assessment of Working Scientifically Do: Use test result to make predictions to set up further comparative and fair tests Title – Heart Rate Poses https://pstt.org.uk/download/5738/?tmstv=1681379541	Maths Skill - Calculate and interpret the mean as an average. In order to measure average resting pulse rate. Maths Skill - Interpret and construct pie charts and line graphs. In order to present data gathered when exploring how pulse rate changes during and after exercise. In order to

Year 6		
Evolution and Inheritance		
Vocabulary: offspring, sexual reproduction, vary, characteristics, adapted, inherited, species, evolve, evolution		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	TAPS Focussed Assessment of Working Scientifically Do: Record observations in a results table Title – Camouflaged Moths https://pstt.org.uk/download/2546/?tmstv=1676975361	
Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	TAPS Focussed Assessment of Working Scientifically Review: Identifying scientific evidence that has been used to support or refute ideas or arguments. Title – Fossil Habitats https://pstt.org.uk/download/2240/?tmstv=1676907956	

Year 6
Light
Vocabulary:

straight lines, light rays		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye..	TAPS Focussed Assessment of Working Scientifically Plan: Identify different types of scientific enquiries to answer their own questions. Title – Light https://pstt.org.uk/download/5735/?tmstv=1681379450	
Use the idea that light appears to travel in straight lines to explain why shadows have the same shape as their objects.	TAPS Focussed Assessment of Working Scientifically Do: Take accurate measurements and records data on a graph Title – Investigating Shadows https://pstt.org.uk/download/2249/?tmstv=1676908148	Maths Skill – Use a protractor accurately. Maths Skill – Interpret and construct pie charts and line graphs. In order to present data gathered when exploring how the size of a shadow can be varied to make predictions.

Year 6		
Electricity Vocabulary: circuit diagram, circuit symbol, voltage		
Substantiative Knowledge to be taught (NC Objective)	Working Scientifically	Skills to be taught before the lesson can be completed.
Compare variations in how electrical components function.	TAPS Focussed Assessment of Working Scientifically Plan: Plan a scientific enquiry to answer a question, recognising and controlling variables. Title – Bulb brightness https://pstt.org.uk/download/2231/?tmstv=1676907673	