Week	Science Topic	Learning objective	Scientific enquiry	Scientific Language	Activities	Looking for evidence of learning - Children can…
1	Micro-organisms (Biology)	Recall the term micro-organisms and that these can be bacteria, viruses or microscopic fungi, e.g. yeasts.	Asking relevant questions and using different types of scientific enquiries to answer them.	micro-organism, bacteria, virus, microscopic, microscope, disease, infect, illness, fungi, yeast	Year 6, Classifying Living Things 2, Tooth decay	Explain that bacteria, viruses and some kinds of fungi are known as micro-organisms. Describe what a micro-organism is, in particular that a microscope is needed to see them. Explain what viruses and bacteria are in terms of their effects on humans.
2		Describe ways in which some micro-organisms can be useful and others can be harmful.	Identifying differences, similarities or changes related to simple scientific ideas -using straightforward scientific evidence to answer questions or to support their findings.	micro-organism, bacteria, virus, spread, illness, germs, disease, infect, yeast, yoghurt, sugar, acid	Year 6, Classifying Living Things 2, Yeast	Understand that viruses and some bacteria can be harmful to humans and animals. Understand that most bacteria and yeasts are helpful to humans. Understand that yeasts are needed in decomposition.
3		Explain that micro-organisms grow and reproduce on food.	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	micro-organism, grow, spread, reproduce, survive, cooked, uncooked, contact, illness, mould	Year 6, Classifying Living Things 2, Mouldy Food Year 6, Classifying Living Things 2, Evaluate it!	Explain the relationship between micro-organisms and visible mould. Describe how micro-organisms reproduce on food and this appears as mould. Describe conditions in which mould is more likely to grow.
4		Explain some simple food hygiene precautions.	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	micro-organism, hygiene, hygienic, health, disease, spread, infect, contact, separate clean, dirty, germs, bacteria	Year 2, Feeding and Exercise 6, Yuck! Year 2, Feeding and Exercise 6, Food decay	Understand that food hygiene can affect human health. Name some examples of poor food hygiene practices. Identify some ways to improve food hygiene.
5		Understand the role of decomposers in food chains and the recycling of materials.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	micro-organism, food chains, decomposer, decay, rotting, bacteria, fungi, recycle	Year 6, Classifying Living Things 3, Make a composter	Explain the factors that lead to decomposition, i.e. time, temperature, moisture. Define the role that decomposers play in the food chain. Name some examples of decomposers; fungi, bacteria and earthworms.

6	**Reversible and irreversible change (Chemistry)**	Understand the terms dissolving, solution, solvent and solute. Understand that dissolving, mixing and changes of state are reversible changes.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	dissolving, solution, solvent, solute, substance, reversible, change, liquid, temperature, Celsius, degrees	Year 5, Types of Change 1, Types of change Year 5, Types of Change 2, Mixtures and solutions	Describe what the term 'reversible' means. Define the terms 'dissolving', 'solution', 'solvent' and 'solute' in their own words. Name some examples of reversible changes in everyday life.
7		Explain, with examples, that mixtures can be separated using a sieve or a filter. Explain how a solute can be recovered from a solution by evaporating the solvent.	Setting up simple practical enquiries, comparative and fair tests	mixture, separate, sieve, filter, solute, solvent, solution, evaporation	Year 5, Separating Mixtures 5, Filtering water Year 5, Types of Change 2, Separating mixtures	Describe the method for separating a mixture with a sieve or filter. Describe the method for separating a mixture by evaporation. Choose an appropriate method for separating an insoluble or soluble mixture.
8		Understand that melting, freezing, evaporating and condensing are changes of state. Explain that changes of state require changes of temperature.	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	state, temperature, degrees, Celsius, heating, cooling, melting, freezing, evaporating, condensing	Year 5, Separating Mixtures 4, Evaporation Year 5, Types of Change 6, Menu	Describe what a change of state means in their own words. Understand the relationship between melting and freezing, and name some examples where this happens. Understand the relationship between evaporating and condensing, and name some examples where this happens.
9		Describe the role of evaporation and condensation in the water cycle.	Asking relevant questions and using different types of scientific enquiries to answer them.	evaporate, condense, water vapour, atmosphere, rain, cloud, heating, cooling	Year 4, Changes of State 5, Evaporation and condensation Year 4/P5, Changes of State 6, The water cycle	Recall the stages of the water cycle in their own words. Explain the role of condensation in the water cycle. Explain the role of evaporation in the water cycle.
10		Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. Describe simple irreversible changes, e.g. iron nails rusting, wax burning, wood burning, bread cooking.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	irreversible change, cooking, baking, burning, rusting, heating, mixing	Year 5, Types of Change 4, Chemical changes Year 5, Types of Change 3, Physical changes	Explain what it means for a change to be irreversible. Name some common examples of irreversible changes. Explain that irreversible changes are due to chemical change and not a change of state.

End of term progress test						

Week	Science Topic	Learning objective	Scientific enquiry	Scientific Language	Activities	Looking for evidence of learning- Children can…
1	Earth and Space (Physics)	Understand that the Sun is a star and that it is at the centre of our Solar System. Describe the movement of Earth and other planets, relative to the Sun in our Solar System.	Asking relevant questions and using different types of scientific enquiries to answer them.	Sun, star, planet, Solar System, Earth, relative movement, orbit, rotate, Mars, Venus, Mercury, Jupiter, Saturn, Uranus, Neptune, Pluto, dwarf planet	Year 5, Earth and Space 1, An introduction to space Year 5, Earth and Space 2, The Solar system	Describe the Sun as a star rather than as a planet. Explain that the Sun as being the center of our Solar System. Describe the movement of the planets around the Sun.
2		Understand that Earth, the Sun and the Moon are part of the Solar System and that Earth is a planet with one moon. Understand that some planets have more than one moon.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	planet, moon, orbit, gravitational pull, satellite, Solar System, Earth, rotate, reflect	Year 5/P6, Earth and Space 1, The scale of the solar system	Understand the orbit of the Moon around the Earth. Name the planets of the Solar System, including the Earth. Name Jupiter as the planet with the most moons.
3		Describe the movement of the Moon relative to Earth, and Earth and other planets relative to the Sun, correctly using the term orbit. Understand that ideas about the Solar System have changed and developed over time.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	the Moon, Earth, relative motion, orbit, gravitational pull, spherical, telescope, astronomer	Year 5, Earth and Space 2, Our astounding cosmos Year 5, Earth and Space 1, Day and night	Show the orbit of the Earth and other planets as being a roughly circular path around the Sun. Understand that the Moon orbits the Earth, therefore also orbits the Sun during the Earth's rotation. Contrast historical beliefs about the Solar System with what scientists now know.
4		Explain that Earth spins on its axis causing some parts of Earth to be in daylight when other parts are in darkness. Use the idea of Earth's rotation to explain the apparent movement of the Sun across the sky.	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Earth, axis, spin, rotation, daylight, night time, sunrise, sunset, rises, sets	Year 5, Earth and Space 3, How we get day and night Year 5, Earth and Space 5, The Moon and its orbit	Explain how the Earth spins on its axis and how this relates to the North and South poles. Show an understanding of how different parts of the Earth experience night and day at the same time. Understand the position of the Sun in the sky in relation to the Earth's orbit.
5		Investigate how shadow length changes during the course of a day.	Setting up simple practical enquiries, comparative and fair tests.	shadow, length, light source, angle, measure, fair test, behind, in front of, above	Year 5, Earth and Space 4, Shadows and the Sun	Explain that shadows we see outside are due to the Sun as a light source. Understand that the position and size of a shadow is due to the position of the Sun. Explain how this changes throughout the day.

6	Heart, lungs and circulation (Biology)	Describe the heart as an organ that pumps blood as part of the circulatory system.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	heart, organ, blood, circulatory system, circulation, travel, pump, muscle, chamber, artery, carry, body, heartbeat	Year 6, Our Bodies 1, Our beating heart Year 6, Our Bodies 2, How the heart works	Understand that the heart is one of the vital organs of the human body. Explain the role of the heart in moving blood around the body. Identify their own pulse on the wrist or neck and explain how it relates to their heartbeat.
7		Describe the circulatory system as comprising the heart and blood vessels containing blood.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	circulatory system, circulation, heart, vein, artery, blood vessel, muscle, pump, body, heartbeat, organ	Year 6, Our Bodies 2, Circulation map Year 6, Our Bodies 2, Circulating blood	Describe the heart as part of the wider circulatory system. Explain what blood vessels are. Understand that blood vessels and veins exist throughout the human body.
8		Understand that water and nutrients are transported around our bodies in blood. Investigate how pulse rate changes with exercise and explain the reason for the change in terms of transporting oxygen and nutrients to muscles.	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	blood, blood cell, water, nutrient, transport, body, pump, beat, pulse, faster, slower, exercise, harder, muscle, microscopic	Year 6, Our Bodies 2, Blood Year 6, Our Bodies 2, Blood's journey	Describe the blood as carrying water and nutrients to different parts of the body. Identify how pulse changes with physical activity and suggest reasons for this. Consider how the body's need for nutrients changes with exercise.
9		Describe the lungs as being located in the thorax and as the organs used for breathing. Distinguish between and correctly use the terms breathing (ventilation of the lungs) and respiration (how oxygen is used by the body once it reaches organs).	Identifying differences, similarities or changes related to simple scientific ideas -using straightforward scientific evidence to answer questions or to support their findings.	organ, lungs, breathing, thorax, muscle, rib, protect, oxygen, air, mouth, nose, respiration		Identify the lungs and where they are located in the human body. Understand breathing as the process of our lungs filling and emptying with air. Understand respiration as the process of our bodies using oxygen.
10		Understand that air is a mixture of gases, including oxygen. Understand that blood picks up oxygen from the lungs and transports it through blood vessels to organs of the body.	Asking relevant questions and using different types of scientific enquiries to answer them.	air, gas, mixture, oxygen, transport, body, blood vessels, lungs, heart, organs, breathing		Describe air as not only comprising of oxygen. Understand that blood takes oxygen from the lungs. Describe the journey of oxygen throughout the human body.
End of term						

progress test						

Week	Science Topic	Learning objective	Scientific enquiry	Scientific Language	Activities	Looking for evidence of learning - Children can…
1	Plant life cycles (Biology)	Understand that some plants have flowers which produce seeds, and that these seeds grow into new plants. Sequence the life cycle of a typical flowering plant using the terms germination, flowering, pollination, fertilisation and seed dispersal.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	pollination, movement, pollen, fertilisation, scatter, dispersal, germination, growth, flowering, seeds, plant, water, sunlight	Year 3, Parts of Plants 5, Flowering plant cycle Year 3, Parts of Plants 5, Plant life cycle	Idenitfy the terms pollination and fertilisation and the role that these play in growing plants. Describe the flowering process and the functions of a plant's flowers. Consider what effect failure of one part of the plant life cycle may have on the plant.
2		Investigate conditions required for the germination of seeds.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	germination, growth, seed, water, swell, oxygen, energy, warmth, temperature	Year 2, Growing Plants 4, Seed growth Year 3, What Plants Need 4, No soil	Describe germination in their own words. Explain some of the conditions needed for plant germination. Describe why plants prefer to germinate in certain conditions.
3		Explain why seeds need to be dispersed and the ways in which this can occur. Describe different mechanisms by which seeds are dispersed.	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	dispersed, wind, insects, birds, animals, fur, carry, eat, waste, water, float, glide, explode, adapt	Year 3, Parts of Plants 5, Seed dispersal (video) Year 3, Parts of Plants 5, Seed dispersal (worksheet)	Explain the process of wind dispersal. Explain the process of animal dispersal. Describe some of the ways that seeds have adapted to be dispersed by wind or animals.
4		Define pollination as the transfer of pollen from the anther to the stigma on the same or a different flower. Distinguish between the processes of insect pollination and wind pollination.	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	anther, filament, stigma, flower, same, different, wind, carry, insect, nectar, insect pollination, wind pollination	Year 3, Parts of Plants 5, How pollen and seeds can move Year 3, Parts of Plants 4, Perfect pollination	Identify the anther and stigma on a flowering plant and explain their roles in pollination. Explain the process of wind pollination and why this happens, showing an understanding that it is not a 'deliberate' process. Explain the process of insect pollination and why this happens, showing an understanding of why flowers contain nectar.

5		Identify parts of an insect pollinated flower and explain the function of each part. Distinguish between pollination and fertilisation.	Setting up simple practical enquiries, comparative and fair tests.	petal, attract, anther, filament, stigma, catch, pollen, style, ovary, eggs, sepal, pollination, fertilisation	Year 3, Parts of Plants 1, What we know about plants Year 3, Parts of Plants 4, Flowers	Label the parts of a flower. Explain in their own words the functions of parts of a flower. Understand the key differences between pollination and fertilisation.
6	**Forces in air and water (Physics)**	Explain that unsupported objects fall towards Earth because the force of gravity acts between Earth and the falling object.	Asking relevant questions and using different types of scientific enquiries to answer them.	gravity, pull, force, towards, Earth, ground	Year 5, Forces 1, Gravitational pull Year 5, Forces 1, Gravity model	Identify what happens when different objects are dropped or fall. Explain in their own words what the force of gravity is. Explain what effect the Earth's gravitational pull has.
7		Understand that weight is a force that is measured in newtons. Understand that more than one force can act on an object at the same time.	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	force, measure, newtons, newton meter, direction, gravity, wind, push, pull	Year 5, Forces 2, Newton meters Year 5, Forces 4, Sailboats	Understand what a newton is a measurement of. Make observations about how a newton meter works. Name some situations where more than one force is acting on an object, e.g. gravity and wind.
8		Recall how friction acts on moving objects to slow them down. Understand how friction can be used to improve how well an object grips a surface.	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	friction, movement, between, force, grip, slide, slope, flat, slow, speed, push, pull, weight, surface, smooth, rough	Year 5, Forces 2, Grippy or slippy? Year 5, Forces 2, Swing	Recall their understanding of friction and how this impacts objects' motion. Make predictions about friction between different objects and surfaces. Name some situations where friction can be useful, such as between our shoes and the floor.
9		Understand that friction can act between solid surfaces and air or water. Understand that air resistance and water resistance are forces that reduce the speed at which an object moves.	Identifying differences, similarities or changes related to simple scientific ideas - using straightforward scientific evidence to answer questions or to support their findings.	friction, force, air, water, solid, resistance, reduce, increase, speed, movement	Year 5, Forces 5, Water activities Year 5, Forces 1, Toy car movement	Idenitfy similarities and differences between how friction acts in air and water. Name some situations where air resistance is experienced, e.g. parachutes. Name some situations where water resistance is experienced, e.g. boat hulls.

10		Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. Describe how the shapes of objects can be used to reduce the effects of water resistance, including the term streamlined.	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	air resistance, water resistance, friction, force, moving surfaces, reduce, increase, speed, shape, streamlined	Year 5, Forces 5, Boat hulls Year 5, Forces 4, Super sails	Understand that friction, air resistance and water resistance affect how quickly an object can move. Compare types of objects and how this affects air resistance, such as lorries and sports cars. Compare types of object and how this affects water resistance, such as ferries and canoes.