Rudyard Primary School

Science Curriculum Sequencing

Progression, new knowledge, assessment checkpoints and inclusion from Year 1 to Year 6

Year group	Science units taught
EYFS	Animals, Plants and Living Things (Biology); Materials and Their Properties (Chemistry); Seasons, Weather and Forces (Physics)
Year 1	Animals including humans (Biology); Plants (Biology); Everyday materials (Chemistry); Seasonal changes (Physics)
Year 2	Living things & habitats (Biology); Plants (Biology); Animals including humans (Biology); Uses of materials (Chemistry)
Year 3	Rocks (Chemistry); Light (Physics); Plants (Biology); Forces & magnets (Physics)
Year 4	States of matter (Chemistry); Sound (Physics); Electricity (Physics); Living things (Biology)
Year 5	Forces (Physics); Earth & space (Physics); Properties of materials (Chemistry); Life cycles (Biology)
Year 6	Animals including humans (circulatory) (Biology); Electricity (Physics); Evolution (Biology); Light (Physics); Classification (Biology)

Biology | Chemistry | Physics | School curriculum sequencing document

EYFS (Reception)

Year	Strand	Unit	Prior learning	New learning Current learning focus	Next learning focus	Key vocabulary	Assessment checkpoints	Inclusion & SEND Considerations	Common misconceptions
Reception	Biology	Animals, Plants and Living Things	Children arrive with a range of experiences and knowledge from home, nursery and their environment.	Explore the natural world through first-hand experiences. Observe animals, plants and minibeasts. Notice growth and change over time. Identify similarities and differences between living things and their environments. Begin to ask questions and make observations.	Year 1: Animals Including Humans; Plants	animal, plant, flower, tree, seed, root, leaf, minibeast, living, grow, change, habitat	Talk about features of familiar plants and animals. Describe observations. Identify similarities and differences. Record observations through drawings, photographs or discussion.	Outdoor learning, real-life experiences, visual prompts, sensory exploration, adult modelling, communication supports and sentence stems.	Plants are not living; all animals live in the same place; all living things behave the same way.
Reception	Chemistry	Materials and Their Properties	Children have explored a range of objects and materials through play and everyday	Explore and investigate materials using the senses. Compare and describe materials using simple vocabulary. Sort objects by properties. Observe simple changes such as melting, freezing, mixing and cooking.	Year 1: Everyday Materials	material, object, wood, plastic, metal, glass, fabric, hard, soft, rough, smooth, waterproof, melt, freeze	Sort materials by simple properties. Describe materials using appropriate vocabulary. Talk about changes observed during practical experiences.	Hands-on exploration, visual supports, tactile resources, pre-teaching vocabulary and adult-led modelling.	Objects and materials are the same thing; all materials behave in the same way; changes can always be reversed.
Reception	Physics	Seasons, Weather and Forces	Children have everyday experiences of weather, movement and changes in the environment.	Observe weather and seasonal changes throughout the year. Explore light and dark, sound, pushes and pulls through play and investigation. Notice patterns and changes over time.	Year 1: Seasonal Changes	season, weather, spring, summer, autumn, winter, rain, wind, sun, hot, cold, light, dark, push, pull, force	Describe daily weather. Recognise seasonal changes. Talk about how objects move. Use simple scientific language to explain observations.	Outdoor observations, visual timetables, practical experiences, simplified recording formats and adult support.	Seasons happen randomly; weather is the same everywhere; objects only move when touched.

KS1 (Years 1–2)

Year	Strand	Unit	Prior learning	New learning Current learning focus	Next learning focus	Key vocabulary	Assessment checkpoints	Inclusion & SEND Considerations	Common misconceptions
1	Biology	Animals including humans	Children can name familiar body parts, describe the five senses and talk about familiar animals from EYFS experiences.	Animals have body parts linked to senses. Identify/name animal groups: fish, amphibians, reptiles, birds and mammals; sort carnivores, herbivores and omnivores; compare structures.	Year 2: growth, survival & basic needs	animal, body part, sense, sight, hearing, smell, taste, touch, fish, reptile, bird, mammal,	Label body parts/senses; sort animals by group and diet; compare simple animal features.	visual words + sentence stems. Targeted: labelled diagrams; adult modelling. Measurable: can label 4/5 parts or explain one sense orally.	Confusing senses; assuming all animals are mammals or eat the same food.
1	Biology	Plants	Children have explored plants in EYFS and can recognise that plants grow and change in the outdoor environment.	Plants have identifiable structures with specific roles. Identify common wild/garden plants and deciduous/evergreen trees; label roots, stem, leaves, flowers and tree parts.	Year 2: plant growth	plant, tree, garden plant, root, stem, leaf, flower, trunk, branch,	Label plant/tree diagrams; identify wild/garden plants and evergreen/deciduous examples.	real plants and visuals. Targeted: prompts, step by step pictures. Measurable: label 3 parts correctly or describe a plant need orally.	Plants are not living; all trees keep their leaves all year.
1	Chemistry	Everyday materials	Children have handled, sorted and described everyday objects during play, using simple words such as hard, soft and smooth.	Objects are made from materials with different properties Identify and compare materials	Year 2: uses of materials	object, material, wood, plastic, glass, metal, water, rock, fabric, hard, soft, rough, smooth, bendy	Sorting activity (3 groups); teacher checklist; simple written labels	Hands on exploration. Targeted: pre-sorted sets. Pre-teaching vocabulary.	Objects = materials
1	Physics	Seasonal changes	Children can talk about daily weather, clothing choices and visible changes in the outdoor environment.	Seasons follow a predictable pattern. Observe weather, seasonal change and how day length varies across the year.	Year 5: earth & space links	season, spring, summer, autumn, winter, weather, temperature, rain, wind, snow, daylight, day length	Weekly observation log; oral recount of seasonal features and changes in daylight.	visual timelines. Targeted: simplified weather chart; adult scribing.	Seasons occur randomly; days are always the same length.
2	Biology	Living things & habitats	Children can name common animals and plants, identify simple animal groups and describe seasonal changes.	Living things depend on habitats for survival. Compare living, dead and never alive; explore habitats, micro-habitats and simple food chains.	Year 4: classification	living, dead, never alive, habitat, food chain, producer, prey, predator, source of food carnivore, herbivore, omnivore	Sort living/dead/never alive; match animals to habitats; make a simple food chain.	concrete examples, pictures. Targeted: simplified classification cards, sentence frames. Measurable: create 1 simple food chain and explain one link.	Food chains are always simple; dead things were never alive.
2	Biology	Plants	Children can name common plants and trees and label roots, stem/trunk, leaves and flowers.	Plants require water, light, warmth to grow Grow seeds/bulbs and observe needs	Year 3: plant function	seed, bulb, germination, shoot, seedling, growth, water, light, warmth, healthy, observe	Grow monitoring sheet; verbal explanation of needs	practical growing. Targeted: labelled picture prompts, adult support. Measurable: explain at least two needs for plant growth.	Plants don't need light

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2	Biology	Animals including humans	Children can identify body parts and senses, name common animal groups and describe simple animal needs.	Animals need food, water, air and exercise to survive; offspring grow into adults. Explore health, growth and basic needs.	Year 6: human body systems	offspring, adult, baby, child, survival, air, water, food, exercise, hygiene, healthy, growth	Simple growth chart; identify basic needs; explain one healthy habit and how offspring change.	Visuals. Targeted: reduced writing tasks. prompt cards. Measurable: complete a growth/food chart and explain one healthy habit.	Exercise is not important; only food and water are needed to survive.
2	Chemistry	Uses of materials	Children can identify common materials and describe simple properties such as hard, soft, rough, smooth, waterproof and flexible.	Materials have specific uses based on properties. Compare suitability and investigate how some solid objects can be squashed, bent, twisted or stretched.	Year 5: material changes	material, property, suitable, unsuitable, waterproof, absorbent, transparent, opaque, rigid, flexible, squash, bend, twist, stretch	Match materials to uses; test and describe bending, twisting, squashing or stretching.	sorting activities. Targeted: visual task cards group discussion.	All materials can be used anywhere; solids cannot change shape.

KS2 (Years 3–6)

Year	Strand	Unit	Prior learning	New learning Current learning focus	Next learning focus	Key vocabulary	Assessment checkpoints	Inclusion & SEND Considerations	Common misconceptions
3	Chemistry	Rocks	Children can identify everyday materials, compare simple properties and know that objects are made from different materials.	Rocks differ - fossils provide evidence of past life; soils are made from rocks and organic matter. Compare rocks/fossils; identify types; observe and describe soil components.	Year 4: states of matter	rock, stone, fossil, soil, organic matter, grains, crystals, igneous, sedimentary, metamorphic, permeable, durable	Identify rock types; explain fossil origin; describe that soil contains rock particles and organic matter.	tactile resources & vocabulary pre-teach. Targeted teaching group work: trays, simplified writing frame.	Fossils are just bones; soil is just dirt.
3	Physics	Light	Children have observed shadows, day/night and seasonal changes, and know that eyes are used for sight.	Light reflects and creates shadows Investigate light and shadows	Year 6: light behaviour	light, dark, darkness, source, reflect, reflective, shadow, transparent, translucent, opaque	Shadow measurement task; explanation of shadow formation	demonstrations & visuals. Targeted teaching group, labelled diagrams, sentence stems.	Light bends around objects

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3	Biology	Plants	Children can label plant parts and know that plants need water, light and warmth to grow from seeds or bulbs.	Plants transport water and reproduce Explore plant function (transport, reproduction)	Year 5: life cycles	root, stem, leaf, flower, nutrients, water transport, pollination, pollen, seed formation, seed dispersal	Practical: show water transport using dye; explain pollination simply	models & visuals. Targeted teaching, step by step cards. Measurable: describe one plant transport process.	Plants get food from soil
3	Biology	Animals including humans	Children know animals need air, water, food and exercise, and that offspring grow into adults.	Animals, including humans, need the right types and amount of nutrition; humans and some animals have skeletons and muscles. Identify food groups/nutrients; compare skeletons; explain muscles for support, protection and movement.	Year 6: circulatory system	nutrition, nutrients, balanced diet, skeleton, bone, joint, muscle, support, protection, movement	Food group sort; label skeleton; explain how skeletons and muscles help movement.	food models, skeleton diagrams and vocabulary prompts. Targeted teaching group, reduced recording and oral explanations. Measurable: label key bones and explain one muscle/skeleton function.	Food alone makes people healthy; bones are not living.
3	Physics	Forces & magnets	Children have explored how objects move and can describe simple pushes, pulls and changes in speed or direction.	Forces = pushes/pulls; magnets attract/repel Investigate pushes/pulls and magnets	Year 5: forces deeper	force, push, pull, contact force, magnet, magnetic, non-magnetic, attract, repel, pole	Practical sorting; simple fair-test write-up	hands-on experiments. Targeted: adapted recording, adult support. Measurable: sort materials and explain push/pull examples.	Magnets attract everything
4	Chemistry	States of matter	Children can identify materials, describe properties and compare simple changes such as bending, stretching and heating in everyday contexts.	Matter exists as solids, liquids and gases; materials change state when heated/cooled. Explore changes of state, evaporation, condensation and the water cycle, including temperature effects.	Year 5: materials	solid, liquid, gas, state, particle, heating, cooling, melting, freezing, evaporation, condensation, water cycle, temperature	Practical demos; label states and changes; explain evaporation/condensation in the water cycle.	practical demonstrations. visual timelines, labelled cards.	Gases are not real; water disappears when it evaporates.

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4	Physics	Sound	Children understand that ears are used for hearing and have explored making sounds with voices and everyday objects.	Sound produced by vibrations; pitch & volume vary Explore pitch and volume; make instruments	KS3 preparation	sound, vibration, source, volume, loud, quiet, pitch, high, low, insulation, travel	Practical to vary pitch/volume; explain vibration source	Hands on sound experiments. noise-reduced environment, (quieter focus group) visuals. Measurable: explain how pitch changes with length/tension.	Pitch equals loudness
4	Physics	Electricity	Children can identify electrical devices and know some need batteries or mains electricity to work.	Electricity requires a complete circuit Build simple circuits and identify components	Year 6: electricity deeper	electricity, appliance, circuit, complete circuit, cell, battery, wire, bulb, switch, buzzer, conductor, insulator	Construct a working circuit; label symbols	circuit kits & visuals. Targeted: pre drawn/ half drawn circuits, adult support. Measurable: construct circuit and explain break effect.	Electricity flows like water
4	Biology	Living things	Children can name habitats, describe simple food chains and group animals and plants using visible features.	Living things can be classified by characteristics Use classification keys; group organisms	Year 6: classification & evolution	living thing, organism, classification, classify, characteristic, feature, vertebrate, invertebrate, key, environment	Use a simplified key; sort organisms using features	simplified keys and visuals. Targeted: matching cards, adult modelling. Measurable: correctly classify sample organisms using key.	Classification is random
4	Biology	Animals including humans	Children understand that animals need nutrition and that skeletons and muscles support, protect and help movement.	Digestive system parts have simple functions; teeth have different functions; food chains include producers, predators and prey. Model digestion; identify tooth types; construct and interpret food chains.	Year 6: human body systems	digestive system, mouth, teeth, oesophagus, stomach, small intestine, large intestine, producer, consumer, predator, prey	Label digestive system; match tooth types/functions; construct and interpret food chains.	models, tooth diagrams and food-chain cards. Targeted: labelled diagrams, sequencing cards and sentence stems. Measurable: label key digestive parts and identify producer/predator/prey.	Food disappears in the stomach; all teeth do the same job.
5	Physics	Forces	Children can describe pushes and pulls, investigate magnets and compare how objects move on different surfaces.	Gravity and resistance affect motion; forces interact Investigate gravity, friction, resistance; measure effects	KS3 physics	gravity, air resistance, water resistance, friction, force, weight, mass, mechanism, lever, pulley, gear	Measurement task (e.g., distance/time) and explanation of friction effect	practical testing and scaffolds. Targeted: measurement support, step by step method.	Friction is always bad

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5	Physics	Earth & space	Children have observed seasonal changes and know that day length and shadows change over time.	Earth orbits the sun; rotation causes day/night Explore solar system and orbital concepts	KS3 astronomy	Earth, Sun, Moon, planet, solar system, orbit, rotation, axis, spherical body, day, night, time zone	Model day/night; explain orbit/rotation differences	models & visuals. Targeted: simplified diagrams, adult/computer scribing.	Sun orbits Earth
5	Chemistry	Properties of materials	Children can identify solids, liquids and gases and describe melting, freezing, evaporation and condensation.	Materials undergo reversible/irreversible changes and have measurable properties. Investigate dissolving, solubility, conductivity, magnetism and separation by filtering, sieving and evaporating.	KS3 chemistry	material, property, soluble, insoluble, solution, mixture, dissolve, separate, filter, sieve, evaporate, conductor, insulator, magnetic	Classify material properties; separate mixtures; classify changes as reversible or irreversible.	experiments with clear purpose. Targeted group work visual steps and pre-teach vocabulary.	Dissolving is chemical; all mixtures can be separated the same way.
5	Biology	Life cycles	Children know plants reproduce with seeds and that animals grow, survive and can be grouped by characteristics.	Life cycles vary across species; stages repeat Study life cycles and compare species	Year 6: evolution links	life cycle, reproduction, fertilisation, pollination, seed dispersal, embryo	Draw life cycle and explain stage functions	timelines & visuals. Targeted: sequencing cards, simplified writing frames. Measurable: create accurate lifecycle for one species.	All life cycles are the same
5	Biology	Animals including humans	Children know animals have offspring, grow into adults and need healthy habits for survival.	Humans develop from birth to old age; puberty is a stage of human development. Create timelines of human development and discuss physical/emotional changes sensitively.	Year 6: circulatory system and healthy lifestyle	human development, baby, toddler, child, adolescent, puberty, adult, old age, life span,	Human development timeline; explain key changes from birth to old age including puberty.	Visuals, vocabulary cards Measurable: sequence stages and explain two changes.	Adults stop changing; puberty happens at the same time for everyone.
6	Biology	Animals including humans (circulatory)	Children understand human growth, nutrition, skeletons, muscles, digestion, teeth and healthy lifestyle choices from KS2.	Circulatory system transports nutrients and water; heart pumps blood; diet, exercise, drugs and lifestyle affect body function. Study heart, blood, vessels, circulation and healthy lifestyle impacts.	KS3 biology	circulatory system, heart, blood, blood vessels, artery, vein, capillary, oxygen, nutrients, water, drugs, lifestyle	Model/diagram heart; explain circulation and transport of nutrients/water; discuss lifestyle impacts.	models/diagrams. Targeted: sentence stems, one-to-one support.	Blood is blue; circulation is separate from diet and lifestyle.

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6	Physics	Electricity	Children can build simple series circuits, name components and know a complete circuit is needed for a device to work.	Voltage affects circuit output; complete circuits needed Explore voltage qualitatively; draw circuit diagrams; plan tests	KS3 physics	voltage, cell, battery, circuit symbol, current, component, switch, bulb, buzzer, brightness, series circuit	Draw circuits; explain effect of removing/replacing cell on brightness	scaffolding diagrams, checklists. Targeted teaching: adapted tasks, oral discussion. Measurable: construct circuit and explain effect of change.	Batteries last forever
6	Biology	Evolution	Children know life cycles, habitats, variation between living things and how animals/plants can be suited to environments.	Evolution occurs over generations via adaptation Study adaptation and evidence for evolution	KS3 biology	evolution, inheritance, adaptation, variation, offspring, fossil record, , survival, environment, natural selection	Explain adaptation with examples; timeline of change	stories & timelines. Targeted teaching: simplified texts, visuals. Measurable: give 2 examples of adaptation and explain survival advantage.	Individuals evolve
6	Physics	Light	Children know light is needed to see, shadows form when light is blocked and some surfaces reflect light.	Light travels in straight lines; reflection explains behaviour Investigate reflection and angles; explain reflection with diagrams	KS3 physics	light, light source, reflection, reflected ray, angle, mirror, shadow, opaque, straight line	Practical: reflection angles; explain how mirror changes direction of light	models and diagrams. Targeted: step by step diagrams, adult modelling. Measurable: demonstrate/reflection angle explanation.	Light bends
6	Biology	Classification	Children can use simple keys, group living things by observable characteristics and understand that habitats contain different organisms.	Organisms grouped by shared characteristics; keys assist grouping Use keys to group diverse organisms; link to evolution	KS3 biology	organism, classification, characteristic, vertebrate, invertebrate, microorganism, bacteria, fungi, species, key	Use a detailed key; classify unfamiliar specimens	scaffolds and simplified keys. Targeted teaching: guided keys, matching cards. Measurable: correctly classify a small set using a key	