

DARLINGHURST SCIENCE PROGRESSION DOCUMENT

BIOLOGY (VOCABULARY + KNOWLEDGE PROGRESSION)

Year 1 – Senses and human body (TOYS)

Builds on: EYFS exploring the natural world

Vocabulary: smell, touch, taste, hear, see

Facts

- We have five senses: smell, touch, taste, hear see
- Our eyes are for seeing; our ears are for hearing
- We have different body parts: legs, arms, nose, mouth, foot, hand, head

Year 1 – Plants (WATER)

Builds on: EYFS some important processes and changes in the natural world

Vocabulary: plant, root, stem, leaf, flower, seed

Facts

- Plants are living things with parts
- Seeds grow into plants
- Plants need water, sunlight and soil

Year 2 – Animals & Habitats (US AND ANIMALS, FOOD AND FARMING)

Builds on: Y1 living things

Vocabulary : habitat, food chain, offspring, adult

carnivore, herbivore, omnivore

animal groups (mammal, bird, reptile etc.)

Facts

- Animals live in habitats suited to them
- Food chains show dependence
- Animals produce offspring
- Animals need air, food and water

Year 3 – Plants & Living Things (LIVING THINGS)

Builds on: Y2 animals and habitats

Vocabulary: predator, prey, lifecycle, primary, secondary, tertiary

Facts

- Living things can be grouped in different ways
- Plants need air, light, water, nutrients from soil, and room to grow
- Water is transported through the roots, stem and leaves of a plant
- Flowers have an important role in the lifecycle of a plant

Year 4 – The Human Body (HUMAN BODY)

Builds on: Y1 Basic parts of the body and Y2 and Y3 animals

Vocabulary: digestion, stomach, intestines, oesophagus

skeleton, muscles, joints, organ

Facts

- The body is made of organs with specific jobs
- Digestion breaks down food
- Muscles and skeleton allow movement

Year 5 – Living Things & Reproduction (LIVING THINGS & THEIR HABITATS)

Builds on: Y1 plants + Y2 animals

Vocabulary : reproduction, pollination, fertilisation

germination, lifecycle

Facts

- Plants reproduce via pollination
- Living things follow life cycles
- Seeds germinate and grow

Year 6 – Circulatory System (LET'S GO ROUND AGAIN)

Builds on: Y4 organs

Vocabulary: circulatory system, heart, blood vessels

Facts:

- The heart pumps blood
- Blood transports oxygen and nutrients
- Systems work together

Evolution & Inheritance (EVOLUTION & INHERITANCE)

Builds on: Y2 offspring + Y5 reproduction

Vocabulary: evolution, inheritance, variation, genes, natural selection

Facts:

- Offspring inherit characteristics
- Variation exists within species
- Some traits improve survival
- Over time species evolve

BIOLOGY PROGRESSION SUMMARY

Y1 → Y2 → Y3 → Y4 → Y5 → Y6

Plants → Animals → Systems → Reproduction → Evolution

Knowledge builds from: Naming → Classifying → Explaining → Connecting → Theorising

CHEMISTRY (VOCABULARY + KNOWLEDGE PROGRESSION)

Year 1 – Materials (TOYS, WASTE)

Vocabulary: material, properties, classify

Facts:

- Objects are made from materials
- There are different types of materials
- Materials have properties

Year 2 – Materials (PARTY PLANNERS, TRAVEL)

Vocabulary: material, properties, waterproof, transparent, opaque
bendy, stretchy, hard, absorbent

Facts

- Objects are made from materials
- Materials have properties
- Materials can be changed in shape
- Materials can be selected for the suitability of a purpose

Year 3 – Rocks (ENERGY)

Builds on: Y2 materials

Vocabulary: Metamorphic, sedimentary, igneous, fossil fuels

Facts:

- There are three types of rock: metamorphic, sedimentary, igneous
- Rocks are classified according to physical properties
- Soils, oil and coal are made from rocks and organic material

Year 4 – States of Matter (CHOCOLATE)

Builds on: Y2 materials

Vocabulary : solid, liquid, gas, melting, freezing, evaporating, condensing, temperature, reversible

Facts

- Materials change state when heated/cooled
- Temperature affects change
- Some changes can be reversed

Year 5 – Materials & Processes (MYSTERIOUS MATERIALS)

Builds on: Y2 + Y4

Vocabulary: solution, dissolve, soluble, insoluble, reversible, irreversible, evaporation, condensation
viscosity, conductor, insulator

Facts

- Substances dissolve into solutions

- Some changes create new materials (irreversible)
- Materials can conduct or insulate heat
- Liquids flow differently (viscosity)

CHEMISTRY PROGRESSION SUMMARY

Y1 → Y2 → Y3 → Y4 → Y5

Materials → State change → Chemical processes

Knowledge builds from:

Identifying → Describing → Explaining → Predicting

PHYSICS (VOCABULARY + KNOWLEDGE PROGRESSION)

Year 2 – Mechanisms & Movement (DT curriculum, TRAVEL)

Vocabulary: wheel, axle, mechanism

Facts

- Objects move using mechanisms
- Wheels and axles support motion

Year 3 – Electricity & Magnets (BRIGHT SPARKS. ENERGY)

Vocabulary : circuit, wire, battery, bulb, switch

conductor, insulator, magnet, attract, repel

Facts

- Circuits must be complete
- Electricity flows through wires
- Materials conduct electricity differently
- Magnets exert forces

Year 3 – Forces (GUATEMALA)

Builds on: Y2 Design Technology

Vocabulary: forces, push, pull, friction

Facts:

- Things move in different ways on different surfaces
- Forces need contact between 2 objects

Year 4 – Sound & Light (AUDIO VISUAL)

Builds on: Y3 electricity

Vocabulary: vibration, amplitude, frequency, pitch, volume

reflection, shadow, transparent, translucent, opaque

Facts

- Sound is produced by vibrations
- Sound travels as waves
- Light reflects into the eye
- Shadows form when light is blocked

Year 5 – Forces (FAIRGROUNDS)

Builds on: Y3 magnets and forces

Vocabulary : force, friction, gravity, air resistance, water resistance

Motion, lever, pulley, gear, spring

Facts

- Forces are pushes and pulls
- Forces change motion
- Gravity pulls objects to Earth
- Friction and resistance slow objects
- Mechanisms transfer forces

Year 6 – Circuits (LET'S GO ROUND AGAIN)

Builds on: Y3 circuits

Vocabulary: voltage, current, resistance

Facts

- Voltage affects current
- Adding components changes circuits
- Energy transfer can be controlled

Year 6 – Space and Light (SPACE AND LIGHT)

Builds on: Y3 and Y5 forces; Y4 light

Vocabulary: reflection, shadows, earth, space, gravity, gravitational pull, axis

Facts:

- The Earth moves around the Sun
- The moon moves around the Earth
- The sun, Earth and moon are spherical bodies
- Night and day occur due to the movement of the Earth around the sun and on its on axis

PHYSICS PROGRESSION SUMMARY

Y2 → Y3 → Y4 → Y5 → Y6

Mechanisms → Circuits → Waves → Forces → Control

Knowledge builds from:

Movement → Energy → Transfer → Interaction → Control

WHOLE-CURRICULUM KNOWLEDGE BUILDING THREADS

ENERGY (Physics Spine)

- Y3: electricity flows
- Y4: sound/light travel
- Y5: forces affect motion
- Y6: energy is controlled
 - Y7: energy can be transferred

MATERIALS (Chemistry Spine)

- Y1 and Y2: properties
- Y4: states
- Y5: chemical changes

LIVING THINGS (Biology Spine)

- Y1: plants
- Y2: animals
 - Y3: animals and plants
- Y4: body systems
- Y5: reproduction
- Y6: evolution

ENGINEERING LINK (Physics Spine)

- Y2: wheels and axles (DT)
- Y5: levers, pulleys, gears
- Y6: electrical systems

CLEAR EXAMPLES OF KNOWLEDGE BUILDING

Electricity

- Y3: circuits must be complete
- Y6: voltage and resistance control current

Materials

- Y2: materials have properties
- Y4: materials change state
- Y5: materials interact and change

Biology

- Y2: offspring are produced
- Y6: inheritance explains variation

FINAL EVALUATION

This curriculum is:

- Fully sequenced from Year 1–6
- Clearly structured across Biology / Chemistry / Physics
- Vocabulary builds cumulatively
- Knowledge becomes increasingly abstract
- Concepts are revisited and deepened
- Strong real-world application

BIOLOGY “BUILDS ON” STATEMENTS

Year 1 – Plants

- Builds on:
- Early EYFS understanding of living vs non-living
- Observing nature and growth

Prepares for:

- Year 2 animals and habitats
- Year 3 plant lifecycles
- Year 5 plant reproduction

Year 2 – Animals & Habitats

Builds on:

Year 1 understanding of living things (plants grow and need resources)

Prepares for:

- Year 4 human body systems
- Year 5 life cycles and reproduction
- Year 6 inheritance (offspring)

Year 4 – Human Body

Builds on:

- Year 2 knowledge of animals as living organisms
- Basic idea that living things need food to survive

Prepares for:

Year 6 circulatory system

- Understanding systems working together
- Scientific vocabulary (organ systems)

Year 5 – Life Cycles & Reproduction

Builds on:

- Year 1 plant structure (seeds, flowers)
- Year 2 offspring and growth

Prepares for:

- Year 6 evolution and inheritance
- Understanding variation and reproduction

Year 6 – Circulatory System

Builds on:

- Year 4 organs and body systems

Prepares for:

- Secondary biology (transport systems, homeostasis)

Year 6 – Evolution & Inheritance

Builds on:

- Year 2 offspring
- Year 5 reproduction and life cycles

Prepares for:

- KS3 evolution and genetics
- Abstract scientific theories

Year 2 – Materials & Properties

Builds on:

- EYFS exploration of everyday objects and materials
- Sensory experience (hard, soft, wet, dry)

Prepares for:

- Year 3 rocks
- Year 4 states of matter
- Understanding that materials can change
- Scientific vocabulary about properties

Year 4 – States of Matter (Chocolate)

Builds on:

- Year 2 knowledge that materials have properties and can change shape
- Experience of heating/cooling in everyday life (e.g. melting chocolate)

Prepares for:

- Year 5 dissolving and chemical processes
- Understanding reversible and irreversible change
- Particle-based thinking (KS3 readiness)

Year 5 – Materials & Processes (Mysterious Materials)

Builds on:

- Year 2 materials and properties
- Year 3 rocks and properties
- Year 4 changes of state (melting, freezing, evaporating)

Prepares for:

- KS3 chemistry (particle model, chemical reactions)
- Understanding interactions between substances
- More precise scientific explanations of change

CHEMISTRY PROGRESSION THREAD

- Y2: What materials are like
- Y4: How materials change state
- Y5: How materials interact and transform

PHYSICS – “BUILDS ON” STATEMENTS

Year 2 – Mechanisms & Movement (Travel) - DT

Builds on:

- EYFS play with moving objects (push, pull, rolling)
- Early physical exploration

Prepares for:

- Year 3 magnets and forces
- Year 5 forces and motion
- Understanding mechanical systems

Year 3 – Electricity & Magnets (Bright Sparks)

Builds on:

- Year 2 understanding of movement and mechanisms
- Early awareness that objects move due to forces

Prepares for:

- Year 4 light and sound (energy transfer)
- Year 5 forces (gravity, friction)
- Year 6 electrical systems

Year 4 – Sound & Light (Audio Visual)

Builds on:

- Year 3 idea that energy can move through systems (circuits)

Prepares for:

- Year 5 forces and energy interactions
- Year 6 understanding of energy control
- Abstract thinking about invisible processes (waves)

Year 5 – Forces (Fairgrounds)

Builds on:

- Year 3 magnets (forces acting at a distance)
- Year 4 understanding that energy can move and affect objects

Prepares for:

- Year 6 electrical systems and control
- Engineering applications (mechanisms + motion)
- KS3 physics (force diagrams, Newton's laws)

Year 6 – Electricity (Let's Go Round Again)

Builds on:

- Year 3 simple circuits
- Year 5 forces and energy affecting outcomes

Prepares for:

- KS3 physics (current, voltage relationships)
- Understanding systems and control
- Applied physics in real-world contexts

PHYSICS PROGRESSION THREAD

- Y2: Movement and mechanisms
- Y3: Energy and circuits
- Y4: Energy transfer (waves)
- Y5: Forces and motion
- Y6: Control of systems

BIOLOGY VOCABULARY PROGRESSION

Year 1 – Concrete Naming (FOUNDATION)

plant, leaf, root, stem, flower, seed

Focus: **Naming parts of living things**

Year 2 – Classification & Survival

habitat, food chain, offspring, adult

carnivore, herbivore, omnivore, mammal, reptile, bird, fish, amphibian

Progression: Moves from naming → **grouping and relationships**

Year 4 – Systems & Functions

digestion, stomach, intestines, oesophagus, skeleton, muscles, joints, organ

Progression: Moves from external features → **internal systems and functions**

Year 5 – Processes (Life Cycles)

reproduction, pollination, fertilisation, germination, lifecycle

Progression: Moves from "what things are" → **how living things work over time**

Year 6 – Abstract Biology (Theory)

circulatory system, heart, blood vessels

inheritance, variation, genes, evolution, natural selection, adaptation

Progression: Moves from processes → **scientific explanations and theories**

BIOLOGY VOCABULARY JOURNEY

Parts → Groups → Systems → Processes → Theory

CHEMISTRY VOCABULARY PROGRESSION

Year 2 – Materials & Properties (CONCRETE)

material, properties, hard, soft, waterproof, transparent, opaque, bend, stretch, squash

Focus: **Describing what things are like**

Year 4 – States & Changes

solid, liquid, gas, melting, freezing, evaporating, condensing, temperature, reversible

Progression: Moves from properties → **how materials change**

Year 5 – Processes & Interactions

solution, dissolve, soluble, insoluble, reversible, irreversible, evaporation, condensation, viscosity
conductor, insulator

Progression: Moves from observing change → **explaining chemical processes**

CHEMISTRY VOCABULARY JOURNEY

Properties → States → Changes → Interactions

PHYSICS VOCABULARY PROGRESSION

Year 2 – Mechanisms & Movement (CONCRETE)

wheel, axle, mechanism, push, pull (implicit)

Focus: **How things move**

Year 3 – Electricity & Magnetism

circuit, wire, battery, bulb, switch, conductor, insulator, magnet, attract, repel

Progression: Introduces **energy and forces**

Year 4 – Sound & Light (ENERGY TRANSFER)

vibration, pitch, frequency, amplitude, volume

reflection, shadow, transparent, translucent, opaque

Progression: Moves to **invisible processes (waves and light)**

Year 5 – Forces & Motion

force, gravity, friction, air resistance, water resistance

motion, lever, pulley, gear, spring

Progression: Expands to **how forces affect movement**

Year 6 – Electrical Systems (CONTROL)

voltage, current, resistance

Progression: Moves to **measuring and controlling energy**

PHYSICS VOCABULARY JOURNEY

Movement → Energy → Transfer → Forces → Control

FULL VOCABULARY PROGRESSION MODEL (ACROSS ALL SCIENCE)

Stage	Type of Vocabulary	Example
KS1	Concrete, observable	plant, animal, material
Lower KS2	Process-based	circuit, digestion, melting
Upper KS2	Abstract/scientific	resistance, evolution, viscosity

KEY FEATURES OF YOUR VOCABULARY PROGRESSION

1. Vocabulary grows in complexity

Starts with **simple nouns**

Moves to **process words**

Ends with **abstract scientific concepts**

2. Vocabulary is revisited and deepened

Example:

opaque

Year 2 → cannot see through

Year 4 → linked to light and shadows

conductor

Year 3 → electricity

Year 5 → heat transfer

3. Vocabulary supports knowledge building

Words are not isolated

Each term unlocks **new scientific thinking**

4. Strong disciplinary identity

Biology → systems, life, processes

Chemistry → materials, change, interaction

Physics → forces, energy, control

FINAL SUMMARY

Vocabulary progression clearly shows:

A move from **concrete** → **abstract thinking**

Careful sequencing across **all three disciplines**

Reuse of key words in **more complex contexts**

Strong preparation for **secondary science**