



Primary 5 Science

Complete Knowledge Point List V3 | Master Matrix V7 Derived | MOE 2023

PDF reference edition with repeated headings, complete row coverage and audit-friendly split views.

Source workbook: Primary_5_Science_Complete_KP_List_V3_Master_Derived_MOE_2023.xlsx

1. Overview

Level	Weeks	Atomic KPs	KP IDs	MOE audit blocks	Spiral records	Source control	Version
P5	40	160	P5-W01-KP1 to P5-W40-KP4	10	40	V7 Master Matrix	V3 Master-Derived
Workbook structure and audit use							
Weekly KP Plan	40-week sequence; topics, focus, stage, retrieval and scope boundary						
Atomic KP Register	160 assessable outcomes with stable master KP IDs						
Progression Map	Prior prerequisite -> current-year depth -> next-year bridge						
Spiral Retrieval Map	Named retrieval, scientific practice and checkpoint form for every week						
MOE Coverage Audit	Outcome-level coverage and boundary safeguards inherited from V7						
Assessment Blueprint	Rules for current/recent/spaced knowledge, visuals, data and inquiry						
Sources & Governance	Official sources and V7 governance controls						
Academic rule: "advanced" means deeper reasoning, unfamiliar but age-appropriate contexts, model/data interpretation and evidence-based explanation. It does not mean importing later-level terminology or content. Every future assessment item should cite its source KP ID(s).							

2. Weekly KP Plan - Curriculum and Weekly Focus

Week	Term	Term Week	Theme	Topic	Weekly Focus	Practice	Values / Attitudes	Stage
1	1	1	Cycles	Reproduction	Cells, continuity and inherited characteristics	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Introduce
2	1	2	Cycles	Reproduction	Flower parts and their roles	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
3	1	3	Cycles	Reproduction	Pollination	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
4	1	4	Cycles	Reproduction	Fertilisation and seed production	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
5	1	5	Cycles	Reproduction	Seed dispersal	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Apply / Consolidate
6	1	6	Cycles	Reproduction	Germination and reproduction by spores or seeds	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Apply / Consolidate
7	1	7	Cycles	Reproduction	Reproduction mastery	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Master / Transfer
8	1	8	Cycles	Water	Three states of water	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Introduce
9	1	9	Cycles	Water	Melting and freezing at 0°C	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Develop
10	1	10	Cycles	Water	Boiling and condensation	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
11	2	1	Cycles	Water	Evaporation	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Develop
12	2	2	Cycles	Water	Rate of evaporation	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Apply / Consolidate
13	2	3	Cycles	Water	Water cycle	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Apply / Consolidate
14	2	4	Cycles	Water	Water, life and resource responsibility	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Master / Transfer
15	2	5	Systems	Plant transport system	Water uptake and transport	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Introduce
16	2	6	Systems	Plant transport system	Food production and transport	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
17	2	7	Systems	Plant transport system	Plant gas exchange	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Develop
18	2	8	Systems	Plant transport system	Transport investigations	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Develop
19	2	9	Systems	Plant transport system	Effects of blocked transport	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Apply / Consolidate
20	2	10	Systems	Plant transport system	Plant transport model	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Apply / Consolidate
21	3	1	Systems	Plant transport system	Plant-system mastery	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Master / Transfer
22	3	2	Systems	Human respiratory and circulatory systems	Composition of air	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Introduce
23	3	3	Systems	Human respiratory and circulatory systems	Respiratory-system parts	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
24	3	4	Systems	Human respiratory and circulatory systems	Circulatory-system parts	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
25	3	5	Systems	Human respiratory and circulatory systems	Transported substances	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
26	3	6	Systems	Human respiratory and circulatory systems	Integrated human systems	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Apply / Consolidate
27	3	7	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Apply / Consolidate
28	3	8	Systems	Human respiratory and circulatory systems	Human-system mastery	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Master / Transfer
29	3	9	Systems	Electrical system	Circuit components and system	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Introduce
30	3	10	Systems	Electrical system	Closed and open circuits	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
31	4	1	Systems	Electrical system	Conductors and insulators	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Develop
32	4	2	Systems	Electrical system	Batteries in series	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
33	4	3	Systems	Electrical system	Bulbs in series and parallel	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Apply / Consolidate
34	4	4	Systems	Electrical system	Electrical mastery and responsibility	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Master / Transfer
35	4	5	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Introduce
36	4	6	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Develop
37	4	7	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Develop
38	4	8	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Apply / Consolidate
39	4	9	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Apply / Consolidate
40	4	10	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Master / Transfer

2. Weekly KP Plan - Atomic KP Summary, Retrieval and Scope

Week	Atomic KP Summary	Named Spiral Retrieval	Observable Behaviour	Vocabulary	Scope Boundary
1	1. State that a cell is a basic unit of life 2. Explain that reproduction ensures continuity of a kind 3. Recognise that many characteristics pass from parents to offspring 4. Distinguish inherited similarity from an acquired change	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains cells, continuity and inherited characteristics accurately using relevant evidence	reproduction, cells, continuity, inherited, characteristics, state, cell, basic, unit, life	P5 boundary: vegetative propagation methods and genetics terminology are not required
2	1. Identify anther and stigma as parts involved in reproduction 2. Identify ovule as the site linked to seed formation 3. Match reproductive flower parts to their roles 4. Interpret a labelled flower diagram without requiring microscopic detail	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains flower parts and their roles accurately using relevant evidence	reproduction, flower, parts, roles, identify, anther, stigma, involved, ovule, site	P5 boundary: vegetative propagation methods and genetics terminology are not required
3	1. Define pollination as transfer of pollen grains from anther to stigma 2. Identify wind or animals as pollinating agents 3. Distinguish pollination from fertilisation 4. Apply pollination knowledge to an unfamiliar flower	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains pollination accurately using relevant evidence	reproduction, pollination, define, transfer, pollen, grains, anther, stigma, identify, wind	P5 boundary: vegetative propagation methods and genetics terminology are not required
4	1. State that fertilisation involves fusion of male and female reproductive cells 2. Relate fertilisation to seed production 3. Sequence pollination before fertilisation 4. Correct a model that confuses pollination and fertilisation	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains fertilisation and seed production accurately using relevant evidence	reproduction, fertilisation, seed, production, state, involves, fusion, male, female, reproductive	P5 boundary: vegetative propagation methods and genetics terminology are not required
5	1. Explain why dispersal reduces competition near the parent plant 2. Recognise wind, water, animals and explosive action as dispersal methods 3. Relate fruit or seed features to a dispersal method 4. Infer a dispersal method from observable evidence	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains seed dispersal accurately using relevant evidence	reproduction, seed, dispersal, explain, why, reduces, competition, near, parent, plant	P5 boundary: vegetative propagation methods and genetics terminology are not required
6	1. Describe germination as growth of a seed into a young plant 2. Compare reproduction by spores and by seeds 3. Classify familiar examples by spores or seeds 4. Plan an observation of germination	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains germination and reproduction by spores or seeds accurately using relevant evidence	reproduction, germination, spores, seeds, describe, growth, seed, young, plant, compare	P5 boundary: vegetative propagation methods and genetics terminology are not required
7	1. Sequence pollination, fertilisation, seed production, dispersal and germination 2. Explain continuity of kind across a plant cycle 3. Interpret reproduction evidence in diagrams and tables 4. Evaluate an incomplete reproduction model	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Explains reproduction mastery accurately using relevant evidence	reproduction, mastery, sequence, pollination, fertilisation, seed, production, dispersal, germination, explain	P5 boundary: vegetative propagation methods and genetics terminology are not required
8	1. Identify ice, water and water vapour as three states 2. Compare water in solid, liquid and gas states 3. Recognise that the three states are interchangeable 4. Classify observations by state of water	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains three states of water accurately using relevant evidence	water, three, states, identify, ice, vapour, compare, solid, liquid, gas	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
9	1. Define melting as solid to liquid 2. Define freezing as liquid to solid 3. State that ice melts and water freezes at 0°C 4. Interpret temperature evidence during melting or freezing	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains melting and freezing at 0°c accurately using relevant evidence	water, melting, freezing, 0°c, define, solid, liquid, state, ice, melts	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
10	1. Define boiling as liquid to gas 2. Define condensation as gas to liquid 3. State that water boils at 100°C under standard classroom conditions 4. Apply heat gain or loss to boiling and condensation	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains boiling and condensation accurately using relevant evidence	water, boiling, condensation, define, liquid, gas, state, boils, 100°c, under	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
11	1. Describe evaporation as liquid water changing to water vapour 2. Recognise that evaporation can occur below boiling point 3. Distinguish evaporation from boiling 4. Use particle-free observable evidence to explain evaporation	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains evaporation accurately using relevant evidence	water, evaporation, describe, liquid, changing, vapour, recognise, can, occur, below	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
12	1. State that higher temperature increases evaporation rate 2. State that stronger wind increases evaporation rate 3. State that larger exposed surface area increases evaporation rate 4. Design a fair test of one evaporation variable	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains rate of evaporation accurately using relevant evidence	water, rate, evaporation, state, higher, temperature, increases, stronger, wind, larger	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
13	1. Explain evaporation and condensation in the water cycle 2. Sequence water-cycle processes 3. Interpret a water-cycle diagram 4. Explain why the water cycle is important	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains water cycle accurately using relevant evidence	water, cycle, explain, evaporation, condensation, sequence, processes, interpret, diagram, why	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
14	1. Recognise the importance of water to life processes 2. Describe the impact of water pollution on Earth's water resources 3. Explain the importance of the water cycle using scientific evidence 4. Propose a responsible water-conservation action supported by reasoning	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Explains water, life and resource responsibility accurately using relevant evidence	water, life, resource, responsibility, recognise, importance, processes, describe, impact, pollution	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required
15	1. State that roots take in water 2. State that water-carrying tubes transport water through the plant 3. Trace water from roots to leaves 4. Interpret coloured-water evidence for transport	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains water uptake and transport accurately using relevant evidence	plant, transport, system, water, uptake, state, roots, take, carrying, tubes	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
16	1. State that leaves make food 2. State that food-carrying tubes transport food to other plant parts 3. Trace food from leaves to growing or storage parts 4. Distinguish food-carrying from water-carrying tubes	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains food production and transport accurately using relevant evidence	plant, transport, system, food, production, state, leaves, make, carrying, tubes	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
17	1. State that plants take in carbon dioxide and give out oxygen during photosynthesis 2. Recognise that plants also respire 3. Compare gas exchange descriptions using observable inputs and outputs 4. Use evidence to avoid the misconception that plants only take in carbon dioxide	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains plant gas exchange accurately using relevant evidence	plant, transport, system, gas, exchange, state, plants, take, carbon, dioxide	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
18	1. Plan an investigation showing water movement in a plant 2. Identify variables and observations in a transport test 3. Record transport evidence accurately 4. Evaluate limitations of a plant-transport investigation	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains transport investigations accurately using relevant evidence	plant, transport, system, investigations, plan, investigation, showing, water, movement, identify	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
19	1. Predict effects when water transport is blocked 2. Predict effects when food transport is blocked 3. Use location of damage to infer the affected transport pathway 4. Explain the prediction using part-function relationships	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains effects of blocked transport accurately using relevant evidence	plant, transport, system, effects, blocked, predict, when, water, food, use	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
20	1. Construct a model showing roots, leaves and transport tubes 2. Use arrows consistently to show movement 3. Compare a model with observed evidence 4. Revise the model without adding non-required terminology	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains plant transport model accurately using relevant evidence	plant, transport, system, model, construct, showing, roots, leaves, tubes, use	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
21	1. Integrate roots, leaves and transport tubes 2. Compare transport of water and food 3. Apply transport knowledge to an unfamiliar plant 4. Evaluate a claim about direction and source of transported substances	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Explains plant-system mastery accurately using relevant evidence	plant, transport, system, mastery, integrate, roots, leaves, tubes, compare, water	P5 boundary: xylem, phloem, stomata and transpiration pull are not required
22	1. Recognise nitrogen, oxygen, carbon dioxide and water vapour as gases in air 2. Compare inhaled and exhaled air qualitatively 3. Relate oxygen intake and carbon dioxide output to respiration 4. Interpret simple air-composition evidence without requiring exact percentages	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains composition of air accurately using relevant evidence	human, respiratory, circulatory, systems, composition, air, recognise, nitrogen, oxygen, carbon	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
23	1. Identify nose, windpipe and lungs 2. State the function of each required respiratory part 3. Trace air through the respiratory system 4. Correct an incorrectly labelled respiratory diagram	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains respiratory-system parts accurately using relevant evidence	human, respiratory, circulatory, systems, system, parts, identify, nose, windpipe, lungs	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
24	1. Identify heart, blood and blood vessels 2. State the function of each required circulatory component 3. Trace substances transported by blood vessels 4. Interpret a simple circulation model	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains circulatory-system parts accurately using relevant evidence	human, respiratory, circulatory, systems, system, parts, identify, heart, blood, vessels	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
25	1. State that blood vessels transport oxygen and carbon dioxide 2. State that blood vessels transport digested food 3. Relate transported substances to respiratory and digestive systems 4. Explain why cells depend on transport	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains transported substances accurately using relevant evidence	human, respiratory, circulatory, systems, transported, substances, state, blood, vessels, transport	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
26	1. Explain how digestive, respiratory and circulatory systems work together 2. Trace oxygen from air to body cells 3. Trace digested food from small intestine to body cells 4. Trace carbon dioxide from cells towards exhalation	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains integrated human systems accurately using relevant evidence	human, respiratory, circulatory, systems, integrated, explain, how, digestive, work, together	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
27	1. Compare how plants, fish and humans take in oxygen and give out carbon dioxide 2. Compare transport in plants and humans 3. Interpret a comparison table 4. Explain one similarity and one difference using evidence	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains comparing gas exchange and transport accurately using relevant evidence	human, respiratory, circulatory, systems, comparing, gas, exchange, transport, compare, how	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
28	1. Apply system integration to exercise or health contexts 2. Interpret pulse, breathing or transport evidence qualitatively 3. Evaluate an incomplete human-system model 4. Revise an explanation within MOE scope	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Explains human-system mastery accurately using relevant evidence	human, respiratory, circulatory, systems, system, mastery, apply, integration, exercise, health	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required
29	1. Identify battery, wire, bulb and switch 2. State the function of each circuit component 3. Recognise a circuit as an electrical system 4. Match real components to circuit symbols	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains circuit components and system accurately using relevant evidence	electrical, system, circuit, components, identify, battery, wire, bulb, switch, state	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
30	1. State that current flows in a closed circuit 2. Distinguish complete and incomplete paths 3. Predict whether a bulb lights from a circuit diagram 4. Correct an open circuit	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains closed and open circuits accurately using relevant evidence	electrical, system, system, closed, open, circuits, state, current, flows, circuit, distinguish	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
31	1. Identify electrical conductors and insulators 2. Use a circuit to test a material 3. Classify a tested material using evidence 4. Evaluate whether a conductivity test is fair	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains conductors and insulators accurately using relevant evidence	electrical, system, conductors, insulators, identify, use, circuit, test, material, classify	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
32	1. Construct circuits with batteries in series 2. Investigate the effect of number of batteries on current using bulb brightness as evidence 3. Keep other circuit variables constant 4. Interpret results without claiming an unmeasured current value	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains batteries in series accurately using relevant evidence	electrical, system, batteries, series, construct, circuits, investigate, effect, number, current	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
33	1. Construct bulbs in series 2. Construct bulbs in parallel 3. Compare effects of number and arrangement of bulbs 4. Interpret a circuit diagram with branches	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains bulbs in series and parallel accurately using relevant evidence	electrical, system, bulbs, series, parallel, construct, compare, effects, number, arrangement	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
34	1. Troubleshoot a simple circuit systematically 2. Apply circuit knowledge to an unfamiliar device 3. Evaluate circuit evidence and method 4. Explain safe, responsible and conserving use of electricity	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Explains electrical mastery and responsibility accurately using relevant evidence	electrical, system, mastery, responsibility, troubleshoot, simple, circuit, systematically, apply, knowledge	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required
35	1. Sequence pollination, fertilisation, seed production, dispersal and germination 2. Distinguish pollination from fertilisation using a labelled model 3. Interpret evidence from a seed or spore investigation 4. Evaluate how failure of one stage affects continuity of a plant kind	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains reproduction × evidence: evaluate a flowering-plant reproduction claim accurately using relevant evidence	cross, topic, mastery, reproduction, evidence, evaluate, flowering, plant, claim, sequence	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory
36	1. Compare melting, freezing, boiling, evaporation and condensation 2. Interpret temperature-time evidence around 0°C and 100°C 3. Evaluate a fair test of one evaporation-rate factor 4. Explain why conserving usable water remains important despite the water cycle	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains water × investigation: water change and evaporation investigation mastery accurately using relevant evidence	evaporation, mastery, water, investigation, change, evaporation, compare, melting, freezing	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory
37	1. Trace water and food through a functional plant model 2. Trace oxygen, carbon dioxide and digested food through a human model 3. Compare plant tubes and human blood vessels without non-required terminology 4. Predict a system consequence when one transport pathway is disrupted	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains plant × human systems: compare transport systems accurately using relevant evidence	cross, topic, mastery, plant, human, systems, compare, transport, trace, water	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory

Week	Atomic KP Summary	Named Spiral Retrieval	Observable Behaviour	Vocabulary	Scope Boundary
38	1. Construct a closed circuit from a circuit diagram 2. Differentiate conductors from insulators using test evidence 3. Compare series and parallel bulb arrangements qualitatively 4. Evaluate whether a circuit investigation changes only one variable	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains electricity × fair test: circuit construction and variable control accurately using relevant evidence	cross, topic, mastery, electricity, fair, test, circuit, construction, variable, control	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory
39	1. Read a table or graph involving a P5 life-process context 2. Link an observation to an evidence-based inference 3. Correct a model that violates one P5 scope boundary 4. Construct a claim-evidence-reasoning response across two P5 topics	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains cross-topic data: interpret unfamiliar p5 science evidence accurately using relevant evidence	cross, topic, mastery, data, interpret, unfamiliar, science, evidence, read, table	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory
40	1. Retrieve one core outcome from each P5 theme 2. Apply P5 knowledge in an unfamiliar but age-appropriate context 3. Evaluate a method, model or conclusion using stated evidence 4. Explain a multi-step P5 system or cycle without importing P6 content	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Explains p5 cumulative mastery: p5 cumulative transfer and misconception correction accurately using relevant evidence	cross, topic, mastery, cumulative, transfer, misconception, correction, retrieve, one, core	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory

3. Atomic KP Register - Atomic KP Content View

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P5-W01-KP1	1	Cycles	Reproduction	Cells, continuity and inherited characteristics	1	State that a cell is a basic unit of life	Introduce	MOE Explicit Core	Know / Understand
P5-W01-KP2	1	Cycles	Reproduction	Cells, continuity and inherited characteristics	2	Explain that reproduction ensures continuity of a kind	Introduce	MOE Explicit Core	Explain / Interpret
P5-W01-KP3	1	Cycles	Reproduction	Cells, continuity and inherited characteristics	3	Recognise that many characteristics pass from parents to offspring	Introduce	MOE Practice / Application	Apply / Analyse
P5-W01-KP4	1	Cycles	Reproduction	Cells, continuity and inherited characteristics	4	Distinguish inherited similarity from an acquired change	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W02-KP1	2	Cycles	Reproduction	Flower parts and their roles	1	Identify anther and stigma as parts involved in reproduction	Develop	MOE Explicit Core	Know / Understand
P5-W02-KP2	2	Cycles	Reproduction	Flower parts and their roles	2	Identify ovule as the site linked to seed formation	Develop	MOE Explicit Core	Explain / Interpret
P5-W02-KP3	2	Cycles	Reproduction	Flower parts and their roles	3	Match reproductive flower parts to their roles	Develop	MOE Practice / Application	Apply / Analyse
P5-W02-KP4	2	Cycles	Reproduction	Flower parts and their roles	4	Interpret a labelled flower diagram without requiring microscopic detail	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W03-KP1	3	Cycles	Reproduction	Pollination	1	Define pollination as transfer of pollen grains from anther to stigma	Develop	MOE Explicit Core	Know / Understand
P5-W03-KP2	3	Cycles	Reproduction	Pollination	2	Identify wind or animals as pollinating agents	Develop	MOE Explicit Core	Explain / Interpret
P5-W03-KP3	3	Cycles	Reproduction	Pollination	3	Distinguish pollination from fertilisation	Develop	MOE Practice / Application	Apply / Analyse
P5-W03-KP4	3	Cycles	Reproduction	Pollination	4	Apply pollination knowledge to an unfamiliar flower	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W04-KP1	4	Cycles	Reproduction	Fertilisation and seed production	1	State that fertilisation involves fusion of male and female reproductive cells	Develop	MOE Explicit Core	Know / Understand
P5-W04-KP2	4	Cycles	Reproduction	Fertilisation and seed production	2	Relate fertilisation to seed production	Develop	MOE Explicit Core	Explain / Interpret
P5-W04-KP3	4	Cycles	Reproduction	Fertilisation and seed production	3	Sequence pollination before fertilisation	Develop	MOE Practice / Application	Apply / Analyse
P5-W04-KP4	4	Cycles	Reproduction	Fertilisation and seed production	4	Correct a model that confuses pollination and fertilisation	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W05-KP1	5	Cycles	Reproduction	Seed dispersal	1	Explain why dispersal reduces competition near the parent plant	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W05-KP2	5	Cycles	Reproduction	Seed dispersal	2	Recognise wind, water, animals and explosive action as dispersal methods	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W05-KP3	5	Cycles	Reproduction	Seed dispersal	3	Relate fruit or seed features to a dispersal method	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W05-KP4	5	Cycles	Reproduction	Seed dispersal	4	Infer a dispersal method from observable evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W06-KP1	6	Cycles	Reproduction	Germination and reproduction by spores or seeds	1	Describe germination as growth of a seed into a young plant	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W06-KP2	6	Cycles	Reproduction	Germination and reproduction by spores or seeds	2	Compare reproduction by spores and by seeds	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W06-KP3	6	Cycles	Reproduction	Germination and reproduction by spores or seeds	3	Classify familiar examples by spores or seeds	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W06-KP4	6	Cycles	Reproduction	Germination and reproduction by spores or seeds	4	Plan an observation of germination	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W07-KP1	7	Cycles	Reproduction	Reproduction mastery	1	Sequence pollination, fertilisation, seed production, dispersal and germination	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W07-KP2	7	Cycles	Reproduction	Reproduction mastery	2	Explain continuity of kind across a plant cycle	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W07-KP3	7	Cycles	Reproduction	Reproduction mastery	3	Interpret reproduction evidence in diagrams and tables	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W07-KP4	7	Cycles	Reproduction	Reproduction mastery	4	Evaluate an incomplete reproduction model	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P5-W08-KP1	8	Cycles	Water	Three states of water	1	Identify ice, water and water vapour as three states	Introduce	MOE Explicit Core	Know / Understand
P5-W08-KP2	8	Cycles	Water	Three states of water	2	Compare water in solid, liquid and gas states	Introduce	MOE Explicit Core	Explain / Interpret
P5-W08-KP3	8	Cycles	Water	Three states of water	3	Recognise that the three states are interchangeable	Introduce	MOE Practice / Application	Apply / Analyse
P5-W08-KP4	8	Cycles	Water	Three states of water	4	Classify observations by state of water	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W09-KP1	9	Cycles	Water	Melting and freezing at 0°C	1	Define melting as solid to liquid	Develop	MOE Explicit Core	Know / Understand
P5-W09-KP2	9	Cycles	Water	Melting and freezing at 0°C	2	Define freezing as liquid to solid	Develop	MOE Explicit Core	Explain / Interpret
P5-W09-KP3	9	Cycles	Water	Melting and freezing at 0°C	3	State that ice melts and water freezes at 0°C	Develop	MOE Practice / Application	Apply / Analyse
P5-W09-KP4	9	Cycles	Water	Melting and freezing at 0°C	4	Interpret temperature evidence during melting or freezing	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W10-KP1	10	Cycles	Water	Boiling and condensation	1	Define boiling as liquid to gas	Develop	MOE Explicit Core	Know / Understand
P5-W10-KP2	10	Cycles	Water	Boiling and condensation	2	Define condensation as gas to liquid	Develop	MOE Explicit Core	Explain / Interpret
P5-W10-KP3	10	Cycles	Water	Boiling and condensation	3	State that water boils at 100°C under standard classroom conditions	Develop	MOE Practice / Application	Apply / Analyse
P5-W10-KP4	10	Cycles	Water	Boiling and condensation	4	Apply heat gain or loss to boiling and condensation	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W11-KP1	11	Cycles	Water	Evaporation	1	Describe evaporation as liquid water changing to water vapour	Develop	MOE Explicit Core	Know / Understand
P5-W11-KP2	11	Cycles	Water	Evaporation	2	Recognise that evaporation can occur below boiling point	Develop	MOE Explicit Core	Explain / Interpret
P5-W11-KP3	11	Cycles	Water	Evaporation	3	Distinguish evaporation from boiling	Develop	MOE Practice / Application	Apply / Analyse
P5-W11-KP4	11	Cycles	Water	Evaporation	4	Use particle-free observable evidence to explain evaporation	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W12-KP1	12	Cycles	Water	Rate of evaporation	1	State that higher temperature increases evaporation rate	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W12-KP2	12	Cycles	Water	Rate of evaporation	2	State that stronger wind increases evaporation rate	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W12-KP3	12	Cycles	Water	Rate of evaporation	3	State that larger exposed surface area increases evaporation rate	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W12-KP4	12	Cycles	Water	Rate of evaporation	4	Design a fair test of one evaporation variable	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W13-KP1	13	Cycles	Water	Water cycle	1	Explain evaporation and condensation in the water cycle	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W13-KP2	13	Cycles	Water	Water cycle	2	Sequence water-cycle processes	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W13-KP3	13	Cycles	Water	Water cycle	3	Interpret a water-cycle diagram	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W13-KP4	13	Cycles	Water	Water cycle	4	Explain why the water cycle is important	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W14-KP1	14	Cycles	Water	Water, life and resource responsibility	1	Recognise the importance of water to life processes	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W14-KP2	14	Cycles	Water	Water, life and resource responsibility	2	Describe the impact of water pollution on Earth's water resources	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W14-KP3	14	Cycles	Water	Water, life and resource responsibility	3	Explain the importance of the water cycle using scientific evidence	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W14-KP4	14	Cycles	Water	Water, life and resource responsibility	4	Propose a responsible water-conservation action supported by reasoning	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P5-W15-KP1	15	Systems	Plant transport system	Water uptake and transport	1	State that roots take in water	Introduce	MOE Explicit Core	Know / Understand
P5-W15-KP2	15	Systems	Plant transport system	Water uptake and transport	2	State that water-carrying tubes transport water through the plant	Introduce	MOE Explicit Core	Explain / Interpret
P5-W15-KP3	15	Systems	Plant transport system	Water uptake and transport	3	Trace water from roots to leaves	Introduce	MOE Practice / Application	Apply / Analyse
P5-W15-KP4	15	Systems	Plant transport system	Water uptake and transport	4	Interpret coloured-water evidence for transport	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W16-KP1	16	Systems	Plant transport system	Food production and transport	1	State that leaves make food	Develop	MOE Explicit Core	Know / Understand
P5-W16-KP2	16	Systems	Plant transport system	Food production and transport	2	State that food-carrying tubes transport food to other plant parts	Develop	MOE Explicit Core	Explain / Interpret
P5-W16-KP3	16	Systems	Plant transport system	Food production and transport	3	Trace food from leaves to growing or storage parts	Develop	MOE Practice / Application	Apply / Analyse
P5-W16-KP4	16	Systems	Plant transport system	Food production and transport	4	Distinguish food-carrying from water-carrying tubes	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W17-KP1	17	Systems	Plant transport system	Plant gas exchange	1	State that plants take in carbon dioxide and give out oxygen during photosynthesis	Develop	MOE Explicit Core	Know / Understand
P5-W17-KP2	17	Systems	Plant transport system	Plant gas exchange	2	Recognise that plants also respire	Develop	MOE Explicit Core	Explain / Interpret
P5-W17-KP3	17	Systems	Plant transport system	Plant gas exchange	3	Compare gas exchange descriptions using observable inputs and outputs	Develop	MOE Practice / Application	Apply / Analyse

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P5-W17-KP4	17	Systems	Plant transport system	Plant gas exchange	4	Use evidence to avoid the misconception that plants only take in carbon dioxide	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W18-KP1	18	Systems	Plant transport system	Transport investigations	1	Plan an investigation showing water movement in a plant	Develop	MOE Explicit Core	Know / Understand
P5-W18-KP2	18	Systems	Plant transport system	Transport investigations	2	Identify variables and observations in a transport test	Develop	MOE Explicit Core	Explain / Interpret
P5-W18-KP3	18	Systems	Plant transport system	Transport investigations	3	Record transport evidence accurately	Develop	MOE Practice / Application	Apply / Analyse
P5-W18-KP4	18	Systems	Plant transport system	Transport investigations	4	Evaluate limitations of a plant-transport investigation	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W19-KP1	19	Systems	Plant transport system	Effects of blocked transport	1	Predict effects when water transport is blocked	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W19-KP2	19	Systems	Plant transport system	Effects of blocked transport	2	Predict effects when food transport is blocked	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W19-KP3	19	Systems	Plant transport system	Effects of blocked transport	3	Use location of damage to infer the affected transport pathway	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W19-KP4	19	Systems	Plant transport system	Effects of blocked transport	4	Explain the prediction using part-function relationships	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W20-KP1	20	Systems	Plant transport system	Plant transport model	1	Construct a model showing roots, leaves and transport tubes	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W20-KP2	20	Systems	Plant transport system	Plant transport model	2	Use arrows consistently to show movement	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W20-KP3	20	Systems	Plant transport system	Plant transport model	3	Compare a model with observed evidence	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W20-KP4	20	Systems	Plant transport system	Plant transport model	4	Revise the model without adding non-required terminology	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W21-KP1	21	Systems	Plant transport system	Plant-system mastery	1	Integrate roots, leaves and transport tubes	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W21-KP2	21	Systems	Plant transport system	Plant-system mastery	2	Compare transport of water and food	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W21-KP3	21	Systems	Plant transport system	Plant-system mastery	3	Apply transport knowledge to an unfamiliar plant	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W21-KP4	21	Systems	Plant transport system	Plant-system mastery	4	Evaluate a claim about direction and source of transported substances	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P5-W22-KP1	22	Systems	Human respiratory and circulatory systems	Composition of air	1	Recognise nitrogen, oxygen, carbon dioxide and water vapour as gases in air	Introduce	MOE Explicit Core	Know / Understand
P5-W22-KP2	22	Systems	Human respiratory and circulatory systems	Composition of air	2	Compare inhaled and exhaled air qualitatively	Introduce	MOE Explicit Core	Explain / Interpret
P5-W22-KP3	22	Systems	Human respiratory and circulatory systems	Composition of air	3	Relate oxygen intake and carbon dioxide output to respiration	Introduce	MOE Practice / Application	Apply / Analyse
P5-W22-KP4	22	Systems	Human respiratory and circulatory systems	Composition of air	4	Interpret simple air-composition evidence without requiring exact percentages	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W23-KP1	23	Systems	Human respiratory and circulatory systems	Respiratory-system parts	1	Identify nose, windpipe and lungs	Develop	MOE Explicit Core	Know / Understand
P5-W23-KP2	23	Systems	Human respiratory and circulatory systems	Respiratory-system parts	2	State the function of each required respiratory part	Develop	MOE Explicit Core	Explain / Interpret
P5-W23-KP3	23	Systems	Human respiratory and circulatory systems	Respiratory-system parts	3	Trace air through the respiratory system	Develop	MOE Practice / Application	Apply / Analyse
P5-W23-KP4	23	Systems	Human respiratory and circulatory systems	Respiratory-system parts	4	Correct an incorrectly labelled respiratory diagram	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W24-KP1	24	Systems	Human respiratory and circulatory systems	Circulatory-system parts	1	Identify heart, blood and blood vessels	Develop	MOE Explicit Core	Know / Understand
P5-W24-KP2	24	Systems	Human respiratory and circulatory systems	Circulatory-system parts	2	State the function of each required circulatory component	Develop	MOE Explicit Core	Explain / Interpret
P5-W24-KP3	24	Systems	Human respiratory and circulatory systems	Circulatory-system parts	3	Trace substances transported by blood vessels	Develop	MOE Practice / Application	Apply / Analyse
P5-W24-KP4	24	Systems	Human respiratory and circulatory systems	Circulatory-system parts	4	Interpret a simple circulation model	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W25-KP1	25	Systems	Human respiratory and circulatory systems	Transported substances	1	State that blood vessels transport oxygen and carbon dioxide	Develop	MOE Explicit Core	Know / Understand
P5-W25-KP2	25	Systems	Human respiratory and circulatory systems	Transported substances	2	State that blood vessels transport digested food	Develop	MOE Explicit Core	Explain / Interpret
P5-W25-KP3	25	Systems	Human respiratory and circulatory systems	Transported substances	3	Relate transported substances to respiratory and digestive systems	Develop	MOE Practice / Application	Apply / Analyse
P5-W25-KP4	25	Systems	Human respiratory and circulatory systems	Transported substances	4	Explain why cells depend on transport	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W26-KP1	26	Systems	Human respiratory and circulatory systems	Integrated human systems	1	Explain how digestive, respiratory and circulatory systems work together	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W26-KP2	26	Systems	Human respiratory and circulatory systems	Integrated human systems	2	Trace oxygen from air to body cells	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W26-KP3	26	Systems	Human respiratory and circulatory systems	Integrated human systems	3	Trace digested food from small intestine to body cells	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W26-KP4	26	Systems	Human respiratory and circulatory systems	Integrated human systems	4	Trace carbon dioxide from cells towards exhalation	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W27-KP1	27	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	1	Compare how plants, fish and humans take in oxygen and give out carbon dioxide	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W27-KP2	27	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	2	Compare transport in plants and humans	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W27-KP3	27	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	3	Interpret a comparison table	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W27-KP4	27	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	4	Explain one similarity and one difference using evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W28-KP1	28	Systems	Human respiratory and circulatory systems	Human-system mastery	1	Apply system integration to exercise or health contexts	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W28-KP2	28	Systems	Human respiratory and circulatory systems	Human-system mastery	2	Interpret pulse, breathing or transport evidence qualitatively	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W28-KP3	28	Systems	Human respiratory and circulatory systems	Human-system mastery	3	Evaluate an incomplete human-system model	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W28-KP4	28	Systems	Human respiratory and circulatory systems	Human-system mastery	4	Revise an explanation within MOE scope	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P5-W29-KP1	29	Systems	Electrical system	Circuit components and system	1	Identify battery, wire, bulb and switch	Introduce	MOE Explicit Core	Know / Understand
P5-W29-KP2	29	Systems	Electrical system	Circuit components and system	2	State the function of each circuit component	Introduce	MOE Explicit Core	Explain / Interpret
P5-W29-KP3	29	Systems	Electrical system	Circuit components and system	3	Recognise a circuit as an electrical system	Introduce	MOE Practice / Application	Apply / Analyse
P5-W29-KP4	29	Systems	Electrical system	Circuit components and system	4	Match real components to circuit symbols	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W30-KP1	30	Systems	Electrical system	Closed and open circuits	1	State that current flows in a closed circuit	Develop	MOE Explicit Core	Know / Understand
P5-W30-KP2	30	Systems	Electrical system	Closed and open circuits	2	Distinguish complete and incomplete paths	Develop	MOE Explicit Core	Explain / Interpret
P5-W30-KP3	30	Systems	Electrical system	Closed and open circuits	3	Predict whether a bulb lights from a circuit diagram	Develop	MOE Practice / Application	Apply / Analyse
P5-W30-KP4	30	Systems	Electrical system	Closed and open circuits	4	Correct an open circuit	Develop	MOE Transfer / Evaluation	Evaluate / Improve

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P5-W31-KP1	31	Systems	Electrical system	Conductors and insulators	1	Identify electrical conductors and insulators	Develop	MOE Explicit Core	Know / Understand
P5-W31-KP2	31	Systems	Electrical system	Conductors and insulators	2	Use a circuit to test a material	Develop	MOE Explicit Core	Explain / Interpret
P5-W31-KP3	31	Systems	Electrical system	Conductors and insulators	3	Classify a tested material using evidence	Develop	MOE Practice / Application	Apply / Analyse
P5-W31-KP4	31	Systems	Electrical system	Conductors and insulators	4	Evaluate whether a conductivity test is fair	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W32-KP1	32	Systems	Electrical system	Batteries in series	1	Construct circuits with batteries in series	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W32-KP2	32	Systems	Electrical system	Batteries in series	2	Investigate the effect of number of batteries on current using bulb brightness as evidence	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W32-KP3	32	Systems	Electrical system	Batteries in series	3	Keep other circuit variables constant	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W32-KP4	32	Systems	Electrical system	Batteries in series	4	Interpret results without claiming an unmeasured current value	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W33-KP1	33	Systems	Electrical system	Bulbs in series and parallel	1	Construct bulbs in series	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W33-KP2	33	Systems	Electrical system	Bulbs in series and parallel	2	Construct bulbs in parallel	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W33-KP3	33	Systems	Electrical system	Bulbs in series and parallel	3	Compare effects of number and arrangement of bulbs	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W33-KP4	33	Systems	Electrical system	Bulbs in series and parallel	4	Interpret a circuit diagram with branches	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W34-KP1	34	Systems	Electrical system	Electrical mastery and responsibility	1	Troubleshoot a simple circuit systematically	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W34-KP2	34	Systems	Electrical system	Electrical mastery and responsibility	2	Apply circuit knowledge to an unfamiliar device	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W34-KP3	34	Systems	Electrical system	Electrical mastery and responsibility	3	Evaluate circuit evidence and method	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W34-KP4	34	Systems	Electrical system	Electrical mastery and responsibility	4	Explain safe, responsible and conserving use of electricity	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P5-W35-KP1	35	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	1	Sequence pollination, fertilisation, seed production, dispersal and germination	Introduce	MOE Explicit Core	Know / Understand
P5-W35-KP2	35	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	2	Distinguish pollination from fertilisation using a labelled model	Introduce	MOE Explicit Core	Explain / Interpret
P5-W35-KP3	35	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	3	Interpret evidence from a seed or spore investigation	Introduce	MOE Practice / Application	Apply / Analyse
P5-W35-KP4	35	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	4	Evaluate how failure of one stage affects continuity of a plant kind	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P5-W36-KP1	36	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	1	Compare melting, freezing, boiling, evaporation and condensation	Develop	MOE Explicit Core	Know / Understand
P5-W36-KP2	36	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	2	Interpret temperature-time evidence around 0°C and 100°C	Develop	MOE Explicit Core	Explain / Interpret
P5-W36-KP3	36	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	3	Evaluate a fair test of one evaporation-rate factor	Develop	MOE Practice / Application	Apply / Analyse
P5-W36-KP4	36	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	4	Explain why conserving usable water remains important despite the water cycle	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W37-KP1	37	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	1	Trace water and food through a functional plant model	Develop	MOE Explicit Core	Know / Understand
P5-W37-KP2	37	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	2	Trace oxygen, carbon dioxide and digested food through a human model	Develop	MOE Explicit Core	Explain / Interpret
P5-W37-KP3	37	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	3	Compare plant tubes and human blood vessels without non-required terminology	Develop	MOE Practice / Application	Apply / Analyse
P5-W37-KP4	37	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	4	Predict a system consequence when one transport pathway is disrupted	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P5-W38-KP1	38	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	1	Construct a closed circuit from a circuit diagram	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W38-KP2	38	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	2	Differentiate conductors from insulators using test evidence	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W38-KP3	38	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	3	Compare series and parallel bulb arrangements qualitatively	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W38-KP4	38	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	4	Evaluate whether a circuit investigation changes only one variable	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W39-KP1	39	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	1	Read a table or graph involving a P5 life-process context	Apply / Consolidate	MOE Explicit Core	Know / Understand
P5-W39-KP2	39	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	2	Link an observation to an evidence-based inference	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P5-W39-KP3	39	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	3	Correct a model that violates one P5 scope boundary	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P5-W39-KP4	39	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	4	Construct a claim-evidence-reasoning response across two P5 topics	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P5-W40-KP1	40	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	1	Retrieve one core outcome from each P5 theme	Master / Transfer	MOE Explicit Core	Know / Understand
P5-W40-KP2	40	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	2	Apply P5 knowledge in an unfamiliar but age-appropriate context	Master / Transfer	MOE Explicit Core	Explain / Interpret
P5-W40-KP3	40	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	3	Evaluate a method, model or conclusion using stated evidence	Master / Transfer	MOE Practice / Application	Apply / Analyse
P5-W40-KP4	40	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	4	Explain a multi-step P5 system or cycle without importing P6 content	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve

3. Atomic KP Register - Assessment, Retrieval and Scope View

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W01-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately state that a cell is a basic unit of life, using relevant observation, data or model evidence	reproduction, cells, continuity, inherited, characteristics, state, cell, basic, unit, life	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W01-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately explain that reproduction ensures continuity of a kind, using relevant observation, data or model evidence	reproduction, cells, continuity, inherited, characteristics, explain, ensures, kind	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W01-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately recognise that many characteristics pass from parents to offspring, using relevant observation, data or model evidence	reproduction, cells, continuity, inherited, characteristics, recognise, many, pass, parents, offspring	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W01-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately distinguish inherited similarity from an acquired change, using relevant observation, data or model evidence	reproduction, cells, continuity, inherited, characteristics, distinguish, similarity, acquired, change	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W02-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately identify anther and stigma as parts involved in reproduction, using relevant observation, data or model evidence	reproduction, flower, parts, roles, identify, anther, stigma, involved	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W02-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately identify ovule as the site linked to seed formation, using relevant observation, data or model evidence	reproduction, flower, parts, roles, identify, ovule, site, linked, seed, formation	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W02-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately match reproductive flower parts to their roles, using relevant observation, data or model evidence	reproduction, flower, parts, roles, match, reproductive	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W02-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately interpret a labelled flower diagram without requiring microscopic detail, using relevant observation, data or model evidence	reproduction, flower, parts, roles, interpret, labelled, diagram, without, requiring, microscopic	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W03-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately define pollination as transfer of pollen grains from anther to stigma, using relevant observation, data or model evidence	reproduction, pollination, define, transfer, pollen, grains, anther, stigma	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W03-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately identify wind or animals as pollinating agents, using relevant observation, data or model evidence	reproduction, pollination, identify, wind, animals, pollinating, agents	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W03-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately distinguish pollination from fertilisation, using relevant observation, data or model evidence	reproduction, pollination, distinguish, fertilisation	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W03-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately apply pollination knowledge to an unfamiliar flower, using relevant observation, data or model evidence	reproduction, pollination, apply, knowledge, unfamiliar, flower	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W04-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately state that fertilisation involves fusion of male and female reproductive cells, using relevant observation, data or model evidence	reproduction, fertilisation, seed, production, state, involves, fusion, male, female, reproductive	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W04-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately relate fertilisation to seed production, using relevant observation, data or model evidence	reproduction, fertilisation, seed, production, relate	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W04-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately sequence pollination before fertilisation, using relevant observation, data or model evidence	reproduction, fertilisation, seed, production, sequence, pollination, before	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W04-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately correct a model that confuses pollination and fertilisation, using relevant observation, data or model evidence	reproduction, fertilisation, seed, production, correct, model, confuses, pollination	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W05-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately explain why dispersal reduces competition near the parent plant, using relevant observation, data or model evidence	reproduction, seed, dispersal, explain, why, reduces, competition, near, parent, plant	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W05-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately recognise wind, water, animals and explosive action as dispersal methods, using relevant observation, data or model evidence	reproduction, seed, dispersal, recognise, wind, water, animals, explosive, action, methods	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W05-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately relate fruit or seed features to a dispersal method, using relevant observation, data or model evidence	reproduction, seed, dispersal, relate, fruit, features, method	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W05-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately infer a dispersal method from observable evidence, using relevant observation, data or model evidence	reproduction, seed, dispersal, infer, method, observable, evidence	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W06-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately describe germination as growth of a seed into a young plant, using relevant observation, data or model evidence	reproduction, germination, spores, seeds, describe, growth, seed, young, plant	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W06-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately compare reproduction by spores and by seeds, using relevant observation, data or model evidence	reproduction, germination, spores, seeds, compare	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W06-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately classify familiar examples by spores or seeds, using relevant observation, data or model evidence	reproduction, germination, spores, seeds, classify, familiar, examples	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W06-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately plan an observation of germination, using relevant observation, data or model evidence	reproduction, germination, spores, seeds, plan, observation	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W07-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately sequence pollination, fertilisation, seed production, dispersal and germination, using relevant observation, data or model evidence	reproduction, mastery, sequence, pollination, fertilisation, seed, production, dispersal, germination	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W07-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately explain continuity of kind across a plant cycle, using relevant observation, data or model evidence	reproduction, mastery, explain, continuity, kind, across, plant, cycle	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W07-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately interpret reproduction evidence in diagrams and tables, using relevant observation, data or model evidence	reproduction, mastery, interpret, evidence, diagrams, tables	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W07-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Accurately evaluate an incomplete reproduction model, using relevant observation, data or model evidence	reproduction, mastery, evaluate, incomplete, model	P5 boundary: vegetative propagation methods and genetics terminology are not required	Verified against V7 compliance register
P5-W08-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately identify ice, water and water vapour as three states, using relevant observation, data or model evidence	water, three, states, identify, ice, vapour	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W08-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately compare water in solid, liquid and gas states, using relevant observation, data or model evidence	water, three, states, compare, solid, liquid, gas	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W08-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately recognise that the three states are interchangeable, using relevant observation, data or model evidence	water, three, states, recognise, interchangeable	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W08-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately classify observations by state of water, using relevant observation, data or model evidence	water, three, states, classify, observations, state	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W09-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately define melting as solid to liquid, using relevant observation, data or model evidence	water, melting, freezing, 0°c, define, solid, liquid	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W09-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately define freezing as liquid to solid, using relevant observation, data or model evidence	water, melting, freezing, 0°c, define, liquid, solid	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W09-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately state that ice melts and water freezes at 0°C, using relevant observation, data or model evidence	water, melting, freezing, 0°c, state, ice, melts, freezes	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W09-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately interpret temperature evidence during melting or freezing, using relevant observation, data or model evidence	water, melting, freezing, 0°c, interpret, temperature, evidence, during	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W10-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately define boiling as liquid to gas, using relevant observation, data or model evidence	water, boiling, condensation, define, liquid, gas	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W10-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately define condensation as gas to liquid, using relevant observation, data or model evidence	water, boiling, condensation, define, gas, liquid	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W10-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately state that water boils at 100°C under standard classroom conditions, using relevant observation, data or model evidence	water, boiling, condensation, state, boils, 100°c, under, standard, classroom, conditions	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W10-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately apply heat gain or loss to boiling and condensation, using relevant observation, data or model evidence	water, boiling, condensation, apply, heat, gain, loss	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W11-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately describe evaporation as liquid water changing to water vapour, using relevant observation, data or model evidence	water, evaporation, describe, liquid, changing, vapour	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W11-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately recognise that evaporation can occur below boiling point, using relevant observation, data or model evidence	water, evaporation, recognise, can, occur, below, boiling, point	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W11-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately distinguish evaporation from boiling, using relevant observation, data or model evidence	water, evaporation, distinguish, boiling	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W11-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately use particle-free observable evidence to explain evaporation, using relevant observation, data or model evidence	water, evaporation, use, particle, free, observable, evidence, explain	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W12-KP1	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately state that higher temperature increases evaporation rate, using relevant observation, data or model evidence	water, rate, evaporation, state, higher, temperature, increases	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W12-KP2	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately state that stronger wind increases evaporation rate, using relevant observation, data or model evidence	water, rate, evaporation, state, stronger, wind, increases	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W12-KP3	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately state that larger exposed surface area increases evaporation rate, using relevant observation, data or model evidence	water, rate, evaporation, state, larger, exposed, surface, area, increases	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W12-KP4	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately design a fair test of one evaporation variable, using relevant observation, data or model evidence	water, rate, evaporation, design, fair, test, one, variable	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W13-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately explain evaporation and condensation in the water cycle, using relevant observation, data or model evidence	water, cycle, explain, evaporation, condensation	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W13-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately sequence water-cycle processes, using relevant observation, data or model evidence	water, cycle, sequence, processes	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W13-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately interpret a water-cycle diagram, using relevant observation, data or model evidence	water, cycle, interpret, diagram	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W13-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately explain why the water cycle is important, using relevant observation, data or model evidence	water, cycle, explain, why, important	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W14-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately recognise the importance of water to life processes, using relevant observation, data or model evidence	water, life, resource, responsibility, recognise, importance, processes	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W14-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately describe the impact of water pollution on Earth's water resources, using relevant observation, data or model evidence	water, life, resource, responsibility, describe, impact, pollution, earth, resources	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W14-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately explain the importance of the water cycle using scientific evidence, using relevant observation, data or model evidence	water, life, resource, responsibility, explain, importance, cycle, scientific, evidence	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W14-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Accurately propose a responsible water-conservation action supported by reasoning, using relevant observation, data or model evidence	water, life, resource, responsibility, propose, responsible, conservation, action, supported, reasoning	P5 boundary: use wind, temperature and exposed surface area for evaporation; particle theory and humidity are not required	Verified against V7 compliance register
P5-W15-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately state that roots take in water, using relevant observation, data or model evidence	plant, transport, system, water, uptake, state, roots, take	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W15-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately state that water-carrying tubes transport water through the plant, using relevant observation, data or model evidence	plant, transport, system, water, uptake, state, carrying, tubes, through	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W15-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately trace water from roots to leaves, using relevant observation, data or model evidence	plant, transport, system, water, uptake, trace, roots, leaves	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W15-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately interpret coloured-water evidence for transport, using relevant observation, data or model evidence	plant, transport, system, water, uptake, interpret, coloured, evidence	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W16-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately state that leaves make food, using relevant observation, data or model evidence	plant, transport, system, food, production, state, leaves, make	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W16-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately state that food-carrying tubes transport food to other plant parts, using relevant observation, data or model evidence	plant, transport, system, food, production, state, carrying, tubes, other, parts	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W16-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately trace food from leaves to growing or storage parts, using relevant observation, data or model evidence	plant, transport, system, food, production, trace, leaves, growing, storage, parts	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W16-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately distinguish food-carrying from water-carrying tubes, using relevant observation, data or model evidence	plant, transport, system, food, production, distinguish, carrying, water, tubes	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W17-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately state that plants take in carbon dioxide and give out oxygen during photosynthesis, using relevant observation, data or model evidence	plant, transport, system, gas, exchange, state, plants, take, carbon, dioxide	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W17-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately recognise that plants also respire, using relevant observation, data or model evidence	plant, transport, system, gas, exchange, recognise, plants, also, respire	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W17-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately compare gas exchange descriptions using observable inputs and outputs, using relevant observation, data or model evidence	plant, transport, system, gas, exchange, compare, descriptions, observable, inputs, outputs	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W17-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately use evidence to avoid the misconception that plants only take in carbon dioxide, using relevant observation, data or model evidence	plant, transport, system, gas, exchange, use, evidence, avoid, misconception, plants	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W18-KP1	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately plan an investigation showing water movement in a plant, using relevant observation, data or model evidence	plant, transport, system, investigations, plan, investigation, showing, water, movement	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W18-KP2	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately identify variables and observations in a transport test, using relevant observation, data or model evidence	plant, transport, system, investigations, identify, variables, observations, test	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W18-KP3	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately record transport evidence accurately, using relevant observation, data or model evidence	plant, transport, system, investigations, record, evidence, accurately	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W18-KP4	Question; hypothesise; investigate; evaluate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately evaluate limitations of a plant-transport investigation, using relevant observation, data or model evidence	plant, transport, system, investigations, evaluate, limitations, investigation	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W19-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately predict effects when water transport is blocked, using relevant observation, data or model evidence	plant, transport, system, effects, blocked, predict, when, water	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W19-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately predict effects when food transport is blocked, using relevant observation, data or model evidence	plant, transport, system, effects, blocked, predict, when, food	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W19-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately use location of damage to infer the affected transport pathway, using relevant observation, data or model evidence	plant, transport, system, effects, blocked, use, location, damage, infer, affected	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W19-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately explain the prediction using part-function relationships, using relevant observation, data or model evidence	plant, transport, system, effects, blocked, explain, prediction, part, function, relationships	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W20-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately construct a model showing roots, leaves and transport tubes, using relevant observation, data or model evidence	plant, transport, system, model, construct, showing, roots, leaves, tubes	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W20-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately use arrows consistently to show movement, using relevant observation, data or model evidence	plant, transport, system, model, use, arrows, consistently, show, movement	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W20-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately compare a model with observed evidence, using relevant observation, data or model evidence	plant, transport, system, model, compare, observed, evidence	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W20-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately revise the model without adding non-required terminology, using relevant observation, data or model evidence	plant, transport, system, model, revise, without, adding, non, required, terminology	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W21-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately integrate roots, leaves and transport tubes, using relevant observation, data or model evidence	plant, transport, system, mastery, integrate, roots, leaves, tubes	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W21-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately compare transport of water and food, using relevant observation, data or model evidence	plant, transport, system, mastery, compare, water, food	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W21-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately apply transport knowledge to an unfamiliar plant, using relevant observation, data or model evidence	plant, transport, system, mastery, apply, knowledge, unfamiliar	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W21-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Accurately evaluate a claim about direction and source of transported substances, using relevant observation, data or model evidence	plant, transport, system, mastery, evaluate, claim, about, direction, source, transported	P5 boundary: xylem, phloem, stomata and transpiration pull are not required	Verified against V7 compliance register
P5-W22-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately recognise nitrogen, oxygen, carbon dioxide and water vapour as gases in air, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, composition, air, recognise, nitrogen, oxygen, carbon	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W22-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately compare inhaled and exhaled air qualitatively, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, composition, air, compare, inhaled, exhaled, qualitatively	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W22-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately relate oxygen intake and carbon dioxide output to respiration, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, composition, air, relate, oxygen, intake, carbon	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W22-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately interpret simple air-composition evidence without requiring exact percentages, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, composition, air, interpret, simple, evidence, without	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W23-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately identify nose, windpipe and lungs, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, identify, nose, windpipe, lungs	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W23-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately state the function of each required respiratory part, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, state, function, each, required	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W23-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately trace air through the respiratory system, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, trace, air, through	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W23-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately correct an incorrectly labelled respiratory diagram, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, correct, incorrectly, labelled, diagram	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W24-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately identify heart, blood and blood vessels, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, identify, heart, blood, vessels	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W24-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately state the function of each required circulatory component, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, state, function, each, required evidence	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W24-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately trace substances transported by blood vessels, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, trace, substances, transported, blood	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W24-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately interpret a simple circulation model, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, parts, interpret, simple, circulation, model	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W25-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately state that blood vessels transport oxygen and carbon dioxide, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, transported, substances, state, blood, vessels, transport	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W25-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately state that blood vessels transport digested food, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, transported, substances, state, blood, vessels, transport	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W25-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately relate transported substances to respiratory and digestive systems, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, transported, substances, relate, digestive evidence	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W25-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately explain why cells depend on transport, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, transported, substances, explain, why, cells, depend	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W26-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately explain how digestive, respiratory and circulatory systems work together, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, integrated, explain, how, digestive, work, together	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W26-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately trace oxygen from air to body cells, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, integrated, trace, oxygen, air, body, cells	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W26-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately trace digested food from small intestine to body cells, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, integrated, trace, digested, food, small, intestine	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W26-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately trace carbon dioxide from cells towards exhalation, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, integrated, trace, carbon, dioxide, cells, towards	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W27-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately compare how plants, fish and humans take in oxygen and give out carbon dioxide, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, comparing, gas, exchange, transport, compare, how	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W27-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately compare transport in plants and humans, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, comparing, gas, exchange, transport, compare, plants	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W27-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately interpret a comparison table, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, comparing, gas, exchange, transport, interpret, comparison	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W27-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately explain one similarity and one difference using evidence, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, comparing, gas, exchange, transport, explain, one	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W28-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately apply system integration to exercise or health contexts, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, mastery, apply, integration, exercise, health	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W28-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately interpret pulse, breathing or transport evidence qualitatively, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, mastery, interpret, pulse, breathing, transport	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W28-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately evaluate an incomplete human-system model, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, mastery, evaluate, incomplete, model	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W28-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Accurately revise an explanation within MOE scope, using relevant observation, data or model evidence	human, respiratory, circulatory, systems, system, mastery, revise, explanation, within, moe	P5 boundary: alveoli, heart chambers/valves, artery, vein and capillary recall are not required	Verified against V7 compliance register
P5-W29-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately identify battery, wire, bulb and switch, using relevant observation, data or model evidence	electrical, system, circuit, components, identify, battery, wire, bulb, switch	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W29-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately state the function of each circuit component, using relevant observation, data or model evidence	electrical, system, circuit, components, state, function, each, component	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W29-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately recognise a circuit as an electrical system, using relevant observation, data or model evidence	electrical, system, circuit, components, recognise	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W29-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately match real components to circuit symbols, using relevant observation, data or model evidence	electrical, system, circuit, components, match, real, symbols	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W30-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately state that current flows in a closed circuit, using relevant observation, data or model evidence	electrical, system, closed, open, circuits, state, current, flows, circuit	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W30-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately distinguish complete and incomplete paths, using relevant observation, data or model evidence	electrical, system, closed, open, circuits, distinguish, complete, incomplete, paths	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W30-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately predict whether a bulb lights from a circuit diagram, using relevant observation, data or model evidence	electrical, system, closed, open, circuits, predict, whether, bulb, lights, circuit	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W30-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately correct an open circuit, using relevant observation, data or model evidence	electrical, system, closed, open, circuits, correct, circuit	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W31-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately identify electrical conductors and insulators, using relevant observation, data or model evidence	electrical, system, conductors, insulators, identify	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W31-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately use a circuit to test a material, using relevant observation, data or model evidence	electrical, system, conductors, insulators, use, circuit, test, material	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W31-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately classify a tested material using evidence, using relevant observation, data or model evidence	electrical, system, conductors, insulators, classify, tested, material, evidence	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W31-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately evaluate whether a conductivity test is fair, using relevant observation, data or model evidence	electrical, system, conductors, insulators, evaluate, whether, conductivity, test, fair	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W32-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately construct circuits with batteries in series, using relevant observation, data or model evidence	electrical, system, batteries, series, construct, circuits	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W32-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately investigate the effect of number of batteries on current using bulb brightness as evidence, using relevant observation, data or model evidence	electrical, system, batteries, series, investigate, effect, number, current, bulb, brightness	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W32-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately keep other circuit variables constant, using relevant observation, data or model evidence	electrical, system, batteries, series, keep, other, circuit, variables, constant	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W32-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately interpret results without claiming an unmeasured current value, using relevant observation, data or model evidence	electrical, system, batteries, series, interpret, results, without, claiming, unmeasured, current	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W33-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately construct bulbs in series, using relevant observation, data or model evidence	electrical, system, bulbs, series, parallel, construct	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W33-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately construct bulbs in parallel, using relevant observation, data or model evidence	electrical, system, bulbs, series, parallel, construct	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W33-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately compare effects of number and arrangement of bulbs, using relevant observation, data or model evidence	electrical, system, bulbs, series, parallel, compare, effects, number, arrangement	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W33-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately interpret a circuit diagram with branches, using relevant observation, data or model evidence	electrical, system, bulbs, series, parallel, interpret, circuit, diagram, branches	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W34-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately troubleshoot a simple circuit systematically, using relevant observation, data or model evidence	electrical, system, mastery, responsibility, troubleshoot, simple, circuit, systematically	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W34-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately apply circuit knowledge to an unfamiliar device, using relevant observation, data or model evidence	electrical, system, mastery, responsibility, apply, circuit, knowledge, unfamiliar, device	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W34-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately evaluate circuit evidence and method, using relevant observation, data or model evidence	electrical, system, mastery, responsibility, evaluate, circuit, evidence, method	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W34-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Accurately explain safe, responsible and conserving use of electricity, using relevant observation, data or model evidence	electrical, system, mastery, responsibility, explain, safe, responsible, conserving, use, electricity	P5 boundary: quantitative current, voltage, resistance and electron-flow theory are not required	Verified against V7 compliance register
P5-W35-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately sequence pollination, fertilisation, seed production, dispersal and germination, using relevant observation, data or model evidence	cross, topic, mastery, reproduction, evidence, evaluate, flowering, plant, claim, sequence	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W35-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately distinguish pollination from fertilisation using a labelled model, using relevant observation, data or model evidence	cross, topic, mastery, reproduction, evidence, evaluate, flowering, plant, claim, distinguish	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W35-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately interpret evidence from a seed or spore investigation, using relevant observation, data or model evidence	cross, topic, mastery, reproduction, evidence, evaluate, flowering, plant, claim, interpret	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W35-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately evaluate how failure of one stage affects continuity of a plant kind, using relevant observation, data or model evidence	cross, topic, mastery, reproduction, evidence, evaluate, flowering, plant, claim, how	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W36-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately compare melting, freezing, boiling, evaporation and condensation, using relevant observation, data or model evidence	cross, topic, mastery, water, investigation, change, evaporation, compare, melting, freezing	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W36-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately interpret temperature-time evidence around 0°C and 100°C, using relevant observation, data or model evidence	cross, topic, mastery, water, investigation, change, evaporation, interpret, temperature, time	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W36-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately evaluate a fair test of one evaporation-rate factor, using relevant observation, data or model evidence	cross, topic, mastery, water, investigation, change, evaporation, evaluate, fair, test	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W36-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately explain why conserving usable water remains important despite the water cycle, using relevant observation, data or model evidence	cross, topic, mastery, water, investigation, change, evaporation, explain, why, conserving	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W37-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately trace water and food through a functional plant model, using relevant observation, data or model evidence	cross, topic, mastery, plant, human, systems, compare, transport, trace, water	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W37-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately trace oxygen, carbon dioxide and digested food through a human model, using relevant observation, data or model evidence	cross, topic, mastery, plant, human, systems, compare, transport, trace, oxygen	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W37-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately compare plant tubes and human blood vessels without non-required terminology, using relevant observation, data or model evidence	cross, topic, mastery, plant, human, systems, compare, transport, tubes, blood	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W37-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately predict a system consequence when one transport pathway is disrupted, using relevant observation, data or model evidence	cross, topic, mastery, plant, human, systems, compare, transport, predict, system	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W38-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately construct a closed circuit from a circuit diagram, using relevant observation, data or model evidence	cross, topic, mastery, electricity, fair, test, circuit, construction, variable, control	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W38-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately differentiate conductors from insulators using test evidence, using relevant observation, data or model evidence	cross, topic, mastery, electricity, fair, test, circuit, construction, variable, control	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P5-W38-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately compare series and parallel bulb arrangements qualitatively, using relevant observation, data or model evidence	cross, topic, mastery, electricity, fair, test, circuit, construction, variable, control	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W38-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately evaluate whether a circuit investigation changes only one variable, using relevant observation, data or model evidence	cross, topic, mastery, electricity, fair, test, circuit, construction, variable, control	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W39-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately read a table or graph involving a P5 life-process context, using relevant observation, data or model evidence	cross, topic, mastery, data, interpret, unfamiliar, science, evidence, read, table	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W39-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately link an observation to an evidence-based inference, using relevant observation, data or model evidence	cross, topic, mastery, data, interpret, unfamiliar, science, evidence, link, observation	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W39-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately correct a model that violates one P5 scope boundary, using relevant observation, data or model evidence	cross, topic, mastery, data, interpret, unfamiliar, science, evidence, correct, model	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W39-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately construct a claim-evidence-reasoning response across two P5 topics, using relevant observation, data or model evidence	cross, topic, mastery, data, interpret, unfamiliar, science, evidence, construct, claim	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W40-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Short response	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately retrieve one core outcome from each P5 theme, using relevant observation, data or model evidence	cross, topic, mastery, cumulative, transfer, misconception, correction, retrieve, one, core	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W40-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Diagram / table / graph response	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately apply P5 knowledge in an unfamiliar but age-appropriate context, using relevant observation, data or model evidence	cross, topic, mastery, cumulative, transfer, misconception, correction, apply, knowledge, unfamiliar	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W40-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Constructed explanation	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately evaluate a method, model or conclusion using stated evidence, using relevant observation, data or model evidence	cross, topic, mastery, cumulative, transfer, misconception, correction, evaluate, method, model	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register
P5-W40-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility; integrity	Method / model critique	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Accurately explain a multi-step P5 system or cycle without importing P6 content, using relevant observation, data or model evidence	cross, topic, mastery, cumulative, transfer, misconception, correction, explain, multi, step	P5 boundary: use MOE functional descriptions; avoid secondary-level terminology and quantitative electrical theory	Verified against V7 compliance register

4. Vertical Progression

Theme / Dimension	Prior prerequisite	Current-level learning	Next-level bridge	Progression logic
Diversity	Retrieve characteristics and evidence rules	Apply diversity evidence in systems and reproduction	Apply roles and variation in environments	Observable classification -> functional and ecological reasoning
Cycles	Retrieve life cycles only	Reproduction and water cycles	Integrate cycles with energy and environments	Sequence -> mechanism -> system consequence
Cycles	Matter: mass, volume and three states	Reproduction and water cycle	Cross-theme synthesis	Observable cycles and states -> continuity and water cycling -> transfer
Interactions	Light and heat phenomena	Compare exchanges and system interactions	Forces and environment	Direct effects -> interacting factors and causal chains
Energy	Light and heat	Electrical systems and energy-use responsibility	Photosynthesis; energy forms and conversion	Observable effects -> functional systems -> energy acquisition and conversion
Practices	Fair tests, diagrams, tables, simple graphs	Controlled investigations and system models	Evaluate evidence, methods and multi-source data	Increasing independence and evidence quality

5. Spiral Retrieval Map

Level	Level Week	Continuum Week	Theme	Current Topic	Current Focus	Named Retrieval	Practice Link	Learning Stage	Checkpoint Form	Follow-up
P5	1	81	Cycles	Reproduction	Cells, continuity and inherited characteristics	Recent: none; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Observe; infer; explain; apply	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P5	2	82	Cycles	Reproduction	Flower parts and their roles	Recent: P5-W01 to W01; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	3	83	Cycles	Reproduction	Pollination	Recent: P5-W01 to W02; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	4	84	Cycles	Reproduction	Fertilisation and seed production	Recent: P5-W02 to W03; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	5	85	Cycles	Reproduction	Seed dispersal	Recent: P5-W03 to W04; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Interpret; analyse; communicate	Apply / Consolidate	Transfer checkpoint	Record weak KP ID and schedule retrieval
P5	6	86	Cycles	Reproduction	Germination and reproduction by spores or seeds	Recent: P5-W04 to W05; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	7	87	Cycles	Reproduction	Reproduction mastery	Recent: P5-W05 to W06; Spaced: first-term build; Prerequisite: P3-W21-KP1; P3-W29-KP3	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P5	8	88	Cycles	Water	Three states of water	Recent: P5-W06 to W07; Spaced: first-term build; Prerequisite: P4-W27-KP1; P4-W34-KP4	Observe; infer; explain; apply	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P5	9	89	Cycles	Water	Melting and freezing at 0°C	Recent: P5-W07 to W08; Spaced: P5-W01; Prerequisite: P4-W27-KP1; P4-W34-KP4	Interpret; analyse; communicate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	10	90	Cycles	Water	Boiling and condensation	Recent: P5-W08 to W09; Spaced: P5-W02; Prerequisite: P4-W27-KP1; P4-W34-KP4	Observe; infer; explain; apply	Develop	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P5	11	91	Cycles	Water	Evaporation	Recent: P5-W09 to W10; Spaced: P5-W03; Prerequisite: P4-W27-KP1; P4-W34-KP4	Interpret; analyse; communicate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	12	92	Cycles	Water	Rate of evaporation	Recent: P5-W10 to W11; Spaced: P5-W04; Prerequisite: P4-W27-KP1; P4-W34-KP4	Question; hypothesise; investigate; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	13	93	Cycles	Water	Water cycle	Recent: P5-W11 to W12; Spaced: P5-W05; Prerequisite: P4-W27-KP1; P4-W34-KP4	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	14	94	Cycles	Water	Water, life and resource responsibility	Recent: P5-W12 to W13; Spaced: P5-W06; Prerequisite: P4-W27-KP1; P4-W34-KP4	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P5	15	95	Systems	Plant transport system	Water uptake and transport	Recent: P5-W13 to W14; Spaced: P5-W07; Prerequisite: P4-W01-KP2; P4-W07-KP4	Interpret; analyse; communicate	Introduce	Transfer checkpoint	Record weak KP ID and schedule retrieval
P5	16	96	Systems	Plant transport system	Food production and transport	Recent: P5-W14 to W15; Spaced: P5-W08; Prerequisite: P4-W01-KP2; P4-W07-KP4	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	17	97	Systems	Plant transport system	Plant gas exchange	Recent: P5-W15 to W16; Spaced: P5-W09; Prerequisite: P4-W01-KP2; P4-W07-KP4	Interpret; analyse; communicate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	18	98	Systems	Plant transport system	Transport investigations	Recent: P5-W16 to W17; Spaced: P5-W10; Prerequisite: P4-W01-KP2; P4-W07-KP4	Question; hypothesise; investigate; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	19	99	Systems	Plant transport system	Effects of blocked transport	Recent: P5-W17 to W18; Spaced: P5-W11; Prerequisite: P4-W01-KP2; P4-W07-KP4	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	20	100	Systems	Plant transport system	Plant transport model	Recent: P5-W18 to W19; Spaced: P5-W12; Prerequisite: P4-W01-KP2; P4-W07-KP4	Interpret; analyse; communicate	Apply / Consolidate	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P5	21	101	Systems	Plant transport system	Plant-system mastery	Recent: P5-W19 to W20; Spaced: P5-W13; Prerequisite: P4-W01-KP2; P4-W07-KP4	Observe; infer; explain; apply	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P5	22	102	Systems	Human respiratory and circulatory systems	Composition of air	Recent: P5-W20 to W21; Spaced: P5-W14; Prerequisite: P4-W08-KP1; P4-W14-KP4	Interpret; analyse; communicate	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P5	23	103	Systems	Human respiratory and circulatory systems	Respiratory-system parts	Recent: P5-W21 to W22; Spaced: P5-W15; Prerequisite: P4-W08-KP1; P4-W14-KP4	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	24	104	Systems	Human respiratory and circulatory systems	Circulatory-system parts	Recent: P5-W22 to W23; Spaced: P5-W16; Prerequisite: P4-W08-KP1; P4-W14-KP4	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	25	105	Systems	Human respiratory and circulatory systems	Transported substances	Recent: P5-W23 to W24; Spaced: P5-W17; Prerequisite: P4-W08-KP1; P4-W14-KP4	Observe; infer; explain; apply	Develop	Transfer checkpoint	Record weak KP ID and schedule retrieval
P5	26	106	Systems	Human respiratory and circulatory systems	Integrated human systems	Recent: P5-W24 to W25; Spaced: P5-W18; Prerequisite: P4-W08-KP1; P4-W14-KP4	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	27	107	Systems	Human respiratory and circulatory systems	Comparing gas exchange and transport	Recent: P5-W25 to W26; Spaced: P5-W19; Prerequisite: P4-W08-KP1; P4-W14-KP4	Interpret; analyse; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	28	108	Systems	Human respiratory and circulatory systems	Human-system mastery	Recent: P5-W26 to W27; Spaced: P5-W20; Prerequisite: P4-W08-KP1; P4-W14-KP4	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P5	29	109	Systems	Electrical system	Circuit components and system	Recent: P5-W27 to W28; Spaced: P5-W21; Prerequisite: P3-W11-KP2; P4-W26-KP4	Observe; infer; explain; apply	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P5	30	110	Systems	Electrical system	Closed and open circuits	Recent: P5-W28 to W29; Spaced: P5-W22; Prerequisite: P3-W11-KP2; P4-W26-KP4	Observe; infer; explain; apply	Develop	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P5	31	111	Systems	Electrical system	Conductors and insulators	Recent: P5-W29 to W30; Spaced: P5-W23; Prerequisite: P3-W11-KP2; P4-W26-KP4	Question; hypothesise; investigate; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	32	112	Systems	Electrical system	Batteries in series	Recent: P5-W30 to W31; Spaced: P5-W24; Prerequisite: P3-W11-KP2; P4-W26-KP4	Question; hypothesise; investigate; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	33	113	Systems	Electrical system	Bulbs in series and parallel	Recent: P5-W31 to W32; Spaced: P5-W25; Prerequisite: P3-W11-KP2; P4-W26-KP4	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	34	114	Systems	Electrical system	Electrical mastery and responsibility	Recent: P5-W32 to W33; Spaced: P5-W26; Prerequisite: P3-W11-KP2; P4-W26-KP4	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval

Level	Level Week	Continuum Week	Theme	Current Topic	Current Focus	Named Retrieval	Practice Link	Learning Stage	Checkpoint Form	Follow-up
P5	35	115	Integration	P5 cross-topic mastery	Reproduction × evidence: Evaluate a flowering-plant reproduction claim	Recent: P5-W33 to W34; Spaced: P5-W27; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Introduce	Transfer checkpoint	Record weak KP ID and schedule retrieval
P5	36	116	Integration	P5 cross-topic mastery	Water × investigation: Water change and evaporation investigation mastery	Recent: P5-W34 to W35; Spaced: P5-W28; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	37	117	Integration	P5 cross-topic mastery	Plant × human systems: Compare transport systems	Recent: P5-W35 to W36; Spaced: P5-W29; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P5	38	118	Integration	P5 cross-topic mastery	Electricity × fair test: Circuit construction and variable control	Recent: P5-W36 to W37; Spaced: P5-W30; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	39	119	Integration	P5 cross-topic mastery	Cross-topic data: Interpret unfamiliar P5 science evidence	Recent: P5-W37 to W38; Spaced: P5-W31; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P5	40	120	Integration	P5 cross-topic mastery	P5 cumulative mastery: P5 cumulative transfer and misconception correction	Recent: P5-W38 to W39; Spaced: P5-W32; Prerequisite: P5-W07-KP4; P5-W14-KP4; P5-W21-KP4; P5-W28-KP4; P5-W34-KP4	Interpret; investigate; evaluate; communicate	Master / Transfer	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks

6. MOE Coverage Audit

Level	Theme	MOE Topic / Outcome Block	First KP	Last KP	Status	Scope / Evidence Note
P5	Cycles	Cell, reproduction, continuity and parent-offspring characteristics	P5-W01-KP1	P5-W01-KP4	Covered	Genetics terminology excluded
P5	Cycles	Pollination, fertilisation, seeds, dispersal and germination	P5-W02-KP1	P5-W07-KP4	Covered	Vegetative propagation not required
P5	Cycles	Water states and changes; 0°C and 100°C fixed points	P5-W08-KP1	P5-W10-KP4	Covered	Particle theory excluded
P5	Cycles	Evaporation factors, water cycle, importance, pollution and conservation	P5-W11-KP1	P5-W14-KP4	Covered	Wind, temperature, exposed surface area
P5	Systems	Plant food/water transport and investigation	P5-W15-KP1	P5-W21-KP4	Covered	Xylem/phloem/stomata excluded
P5	Systems	Air composition; human respiratory/circulatory parts and functions	P5-W22-KP1	P5-W25-KP4	Covered	Detailed anatomy excluded
P5	Systems	System integration; gas exchange and transport comparisons	P5-W26-KP1	P5-W28-KP4	Covered	Functional comparison at P5 level
P5	Systems	Electrical circuits, closed path, conductors and insulators	P5-W29-KP1	P5-W31-KP4	Covered	No voltage/resistance calculations
P5	Systems	Construct circuits; investigate series batteries and series/parallel bulbs	P5-W32-KP1	P5-W34-KP4	Covered	Safety and conservation included
P5	Integration	P5 cumulative application without P6 photosynthesis	P5-W35-KP1	P5-W40-KP4	Covered	New V6 boundary protection

7. Assessment Blueprint

Rule	Requirement	Audit Check
Knowledge mix	65% current / 20% recent / 15% spaced	Name every source KP ID
Visual/data	At least 30% of marks	Use answer-relevant diagrams, tables, graphs, models or setups
Constructed response	At least 40% of marks	Require explaining, predicting, justifying, critiquing or improving
Scientific inquiry	At least two practices per paper	Include variables, fair test, data or method evaluation
Advanced demand	Depth without premature content	Use unfamiliar contexts, competing evidence and model revision
Mastery	Internal guide: 80%+ secure; 60-79% developing; below 60% reteach	Judge relevant core KPs, not total score only
Follow-up	Retrieve weak KP in 2-4 weeks	Use matched but non-identical evidence
Scope	Later-level content is not required early	Extensions must be labelled and never replace core mastery

8. Sources and Governance

Type	Source / Rule	URL / Basis	Use	Status
Primary official source	MOE Science Teaching & Learning Syllabus, Primary (2023)	https://www.moe.gov.sg/-/media/files/primary/syllabus/2023-primary-science.pdf	P3-P6 topics, learning outcomes, practices, values and notes	Reviewed for V5
Assessment reference	SEAB 2026 PSLE Science Syllabus	https://www.seab.gov.sg/files/PSLE%20Syllabus%20documents/2026%20PSLE/0009_y26_sy.pdf	Assessment objectives and visual/data representations	Reviewed
Governance	Master matrix precedes level KP lists	Internal PSLE Checkpoint rule	P3/P4/P5/P6 KP lists must be filtered from this master	Authoritative
V4 foundation	P4/P5 boundaries rebuilt	Deep review finding	Moved Reproduction and Water to P5; removed P4 human reproduction	Retained
V5 correction	P5 Water completeness	Final review finding	Added importance to life processes and water-pollution impact	Completed
V7 correction	Compliance-first rebuild and prerequisite correction	MOE Primary Science Syllabus 2023	P4 Matter restored; P6 sequence corrected; topic-based stages applied	Verified against compliance register
Derivation record	Grade KP list generated from V7 Master Matrix	D:/Work & Company/XIN Technology/PSLE Checkpoint/Science/Primary_3_to_Primary_6_Science_Complete_Yearly_Master_Matrix_V7_MOE_2023.xlsx	Weekly, atomic, progression, spiral and outcome-level coverage records retained without rewriting	Verified during export