



Primary 6 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_6_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
P6	40	160	P6-W01-KP1 to P6-W40-KP4	11	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	Energy	Photosynthesis	Energy for life processes	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Introduce
2	1	2	Energy	Photosynthesis	Sun and ways organisms obtain energy	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Develop
3	1	3	Energy	Photosynthesis	Photosynthesis overview	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Develop
4	1	4	Energy	Photosynthesis	Requirement: light energy	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Develop
5	1	5	Energy	Photosynthesis	Requirement: water	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
6	1	6	Energy	Photosynthesis	Requirement: carbon dioxide	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
7	1	7	Energy	Photosynthesis	Products and evidence	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
8	1	8	Energy	Photosynthesis	Photosynthesis mastery	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Master / Transfer
9	1	9	Energy	Energy forms and conversion	Energy forms	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Introduce
10	1	10	Energy	Energy forms and conversion	Energy resources and the Sun	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
11	2	1	Energy	Energy forms and conversion	Single-step conversions	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
12	2	2	Energy	Energy forms and conversion	Multi-step conversions	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
13	2	3	Energy	Energy forms and conversion	Responsible energy use	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Apply / Consolidate
14	2	4	Energy	Energy forms and conversion	Energy conversion applications	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Apply / Consolidate
15	2	5	Energy	Energy forms and conversion	Investigating energy conversion	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
16	2	6	Energy	Energy forms and conversion	Energy diagrams and data	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Master / Transfer
17	2	7	Interactions	Forces	Pushes, pulls and effects	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Introduce
18	2	8	Interactions	Forces	Types of forces	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
19	2	9	Interactions	Forces	Gravitational force	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
20	2	10	Interactions	Forces	Frictional force	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
21	3	1	Interactions	Forces	Investigating friction	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
22	3	2	Interactions	Forces	Elastic spring force	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Apply / Consolidate
23	3	3	Interactions	Forces	Investigating springs	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Apply / Consolidate
24	3	4	Interactions	Forces	Combined effects of forces	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Master / Transfer
25	3	5	Interactions	Environment	Environmental factors and survival	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Introduce
26	3	6	Interactions	Environment	Producers, consumers and decomposers	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
27	3	7	Interactions	Environment	Food chains	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
28	3	8	Interactions	Environment	Food webs	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
29	3	9	Interactions	Environment	Unfavourable environments	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Develop
30	3	10	Interactions	Environment	Adaptations and survival	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Apply / Consolidate
31	4	1	Interactions	Environment	Observing interacting factors	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Apply / Consolidate
32	4	2	Interactions	Environment	Human negative impacts	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Apply / Consolidate
33	4	3	Interactions	Environment	Human positive impacts	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Apply / Consolidate
34	4	4	Interactions	Environment	Population-change reasoning	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Master / Transfer
35	4	5	Integration	P3-P6 synthesis	Interactions retrieval	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Introduce
36	4	6	Integration	P3-P6 synthesis	Energy retrieval	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Develop
37	4	7	Integration	P3-P6 synthesis	Experimental design	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Develop
38	4	8	Integration	P3-P6 synthesis	Data and graph interpretation	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Apply / Consolidate
39	4	9	Integration	P3-P6 synthesis	Evidence-based explanation	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Apply / Consolidate
40	4	10	Integration	P3-P6 synthesis	Cumulative mastery and transfer	Interpret; analyse; communicate	Curiosity; objectivity; 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. Recognise that living things need energy to carry out life processes 2. State that respiration releases energy from food at the required level 3. Distinguish obtaining energy from obtaining food 4. Interpret a simple energy-for-life-process model	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains energy for life processes accurately using relevant evidence	photosynthesis, energy, life, processes, recognise, living, things, need, carry, out	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
2	1. Recognise the Sun as the primary source of light and heat energy 2. Differentiate how plants and animals obtain energy 3. Trace a simple Sun-to-plant-to-animal energy pathway 4. Correct the claim that plants obtain food directly from soil	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains sun and ways organisms obtain energy accurately using relevant evidence	photosynthesis, sun, ways, organisms, obtain, energy, recognise, primary, source, light	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
3	1. State that photosynthesis produces sugar and oxygen 2. Identify water, light energy and carbon dioxide as requirements 3. Represent requirements and products in an input-output model 4. Communicate photosynthesis accurately using a word or input-output model	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains photosynthesis overview accurately using relevant evidence	photosynthesis, overview, state, produces, sugar, oxygen, identify, water, light, energy	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
4	1. Predict the effect of removing light from a photosynthesis investigation 2. Identify the changed and measured variables in a light investigation 3. Interpret evidence comparing a light and no-light setup 4. Evaluate whether the comparison is fair	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains requirement: light energy accurately using relevant evidence	photosynthesis, requirement, light, energy, predict, effect, removing, investigation, identify, changed	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
5	1. Predict the effect of insufficient water on photosynthesis evidence 2. Control other variables when investigating water requirement 3. Interpret observations without confusing wilting with direct proof of photosynthesis 4. Improve a water-requirement investigation	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains requirement: water accurately using relevant evidence	photosynthesis, requirement, water, predict, effect, insufficient, evidence, control, other, variables	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
6	1. Predict the effect of limiting carbon dioxide in a photosynthesis investigation 2. Identify a suitable comparison for carbon-dioxide availability 3. Interpret provided data as evidence for a requirement 4. State a conclusion limited to the evidence	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains requirement: carbon dioxide accurately using relevant evidence	photosynthesis, requirement, carbon, dioxide, predict, effect, limiting, investigation, identify, suitable	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
7	1. Relate sugar production to stored or transported food 2. Recognise oxygen as a product of photosynthesis 3. Distinguish a product from a requirement 4. Evaluate whether observations support a product claim	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains products and evidence accurately using relevant evidence	photosynthesis, products, evidence, relate, sugar, production, stored, transported, food, recognise	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
8	1. Integrate requirements, products and energy in one model 2. Compare plant energy acquisition with animal energy acquisition 3. Evaluate an unfamiliar photosynthesis investigation 4. Construct a complete evidence-based explanation within P6 boundaries	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Explains photosynthesis mastery accurately using relevant evidence	photosynthesis, mastery, integrate, requirements, products, energy, one, model, compare, plant	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required
9	1. Recognise kinetic energy, potential energy, light energy, electrical energy, sound energy and heat energy 2. Identify energy forms in familiar objects 3. Distinguish an energy form from an energy source 4. Justify an identified energy form using observable evidence	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains energy forms accurately using relevant evidence	energy, forms, conversion, recognise, kinetic, potential, light, electrical, sound, heat	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
10	1. Recognise that energy from most resources is derived in some way from the Sun 2. Trace solar energy into food, fuels or moving air at an appropriate level 3. Identify exceptions without overgeneralising 4. Evaluate a claim about the origin of energy in a context	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains energy resources and the sun accurately using relevant evidence	energy, forms, conversion, resources, sun, recognise, most, derived, some, way	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
11	1. State that energy can change from one form to another 2. Identify input and output energy forms in a device 3. Represent one conversion with arrows 4. Distinguish useful output from the device itself	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains single-step conversions accurately using relevant evidence	energy, forms, conversion, single, step, conversions, state, can, change, one	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
12	1. Trace two or more energy conversions 2. Order conversion stages correctly 3. Interpret an energy-flow diagram 4. Correct a missing or wrongly labelled conversion	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains multi-step conversions accurately using relevant evidence	energy, forms, conversion, multi, step, conversions, trace, two, more, order	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
13	1. Identify intended and unintended energy outputs in a device 2. Explain why reducing unnecessary outputs supports responsible energy use 3. Compare two devices using provided qualitative evidence 4. Recommend an energy-responsible action using qualitative observations and provided evidence	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains responsible energy use accurately using relevant evidence	energy, forms, conversion, responsible, use, identify, intended, unintended, outputs, device	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
14	1. Trace electrical energy to light, sound, heat or kinetic outputs 2. Trace light energy from the Sun into an appropriate everyday context 3. Interpret a multi-step conversion chain without relying on photosynthesis or food webs 4. Correct an incomplete energy-conversion model using given evidence	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains energy conversion applications accurately using relevant evidence	energy, forms, conversion, applications, trace, electrical, light, sound, heat, kinetic	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
15	1. Plan an investigation of an energy conversion 2. Identify suitable observations or measurements 3. Record inputs and outputs clearly 4. Evaluate whether evidence shows the claimed conversion	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains investigating energy conversion accurately using relevant evidence	energy, forms, conversion, investigating, plan, investigation, identify, suitable, observations, measurements	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
16	1. Interpret energy-flow arrow diagrams without calculating efficiency 2. Interpret tables or graphs of energy-related observations 3. Compare two systems using given evidence 4. Communicate a complete conversion chain	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Explains energy diagrams and data accurately using relevant evidence	energy, forms, conversion, diagrams, data, interpret, flow, arrow, without, calculating	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required
17	1. Identify a force as a push or pull 2. State that a force can move a stationary object 3. State that a force can stop or change motion 4. State that a force can change an object's shape	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains pushes, pulls and effects accurately using relevant evidence	forces, pushes, pulls, effects, identify, force, push, pull, state, can	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
18	1. Recognise magnetic, gravitational, elastic spring and frictional forces 2. Match each force to a familiar example 3. Distinguish contact and non-contact examples without requiring those labels 4. Identify more than one force acting in a context	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains types of forces accurately using relevant evidence	forces, types, recognise, magnetic, gravitational, elastic, spring, frictional, match, each	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
19	1. State that gravitational force pulls objects towards Earth 2. Use gravitational force to explain falling 3. Distinguish gravitational force from a push by a person 4. Apply gravity to an unfamiliar situation	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains gravitational force accurately using relevant evidence	forces, gravitational, force, state, pulls, objects, towards, earth, use, explain	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
20	1. State that friction acts against movement when surfaces move against each other 2. Identify useful and unwanted effects of friction 3. Predict how changing surfaces affects motion 4. Explain a motion change using friction	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains frictional force accurately using relevant evidence	forces, frictional, force, state, friction, acts, against, movement, when, surfaces	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
21	1. Formulate a testable question about friction 2. Design a fair test of surface or load 3. Measure motion outcome consistently 4. Interpret friction data and evaluate the method	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains investigating friction accurately using relevant evidence	forces, investigating, friction, formulate, testable, question, about, design, fair, test	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
22	1. Recognise elastic spring force when a spring is stretched or compressed 2. Relate added load to spring extension within tested conditions 3. Interpret a load-extension table or graph 4. Avoid predicting beyond the evidence	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains elastic spring force accurately using relevant evidence	forces, elastic, spring, force, recognise, when, stretched, compressed, relate, added	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
23	1. Design a fair spring investigation 2. Measure extension from a consistent reference point 3. Record repeated measurements 4. Evaluate reliability and safety	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains investigating springs accurately using relevant evidence	forces, investigating, springs, design, fair, spring, investigation, measure, extension, consistent	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
24	1. Infer the effect of forces acting in the same or opposite directions 2. Explain speeding up, slowing down or direction change 3. Interpret a force-effect diagram without requiring vector calculation 4. Revise an explanation when motion evidence changes	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Explains combined effects of forces accurately using relevant evidence	forces, combined, effects, infer, effect, acting, same, opposite, directions, explain	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required
25	1. Identify temperature, light and water as physical survival factors 2. Identify food availability as a survival factor 3. Identify other organisms as survival factors 4. Use evidence to explain an organism's distribution	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains environmental factors and survival accurately using relevant evidence	environment, environmental, factors, survival, identify, temperature, light, water, physical, food	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
26	1. Identify producers, consumers and decomposers 2. State each role in an environment 3. Classify an organism from information given 4. Explain why all three roles matter	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains producers, consumers and decomposers accurately using relevant evidence	environment, producers, consumers, decomposers, identify, state, each, role, classify, organism	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
27	1. Construct a food chain with arrows showing energy pathway 2. Identify producer, consumer, predator and prey 3. Trace energy from the Sun through living things 4. Correct reversed or missing food-chain arrows	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains food chains accurately using relevant evidence	environment, food, chains, construct, chain, arrows, showing, energy, pathway, identify	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
28	1. Combine connected food chains into a food web 2. Identify organisms with more than one food source 3. Predict a direct effect of a population change 4. Justify the prediction using linked feeding relationships	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains food webs accurately using relevant evidence	environment, food, webs, combine, connected, chains, web, identify, organisms, more	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
29	1. Recognise that organisms may adapt and survive, move, or die 2. Relate an environmental change to survival factors 3. Compare possible organism responses 4. Avoid claiming every individual adapts immediately	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains unfavourable environments accurately using relevant evidence	environment, unfavourable, environments, recognise, organisms, may, adapt, survive, move, die	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
30	1. Relate a structural or behavioural feature to survival 2. Use environment evidence to explain usefulness of a feature 3. Compare adaptations in two environments 4. Evaluate an unsupported adaptation claim	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains adaptations and survival accurately using relevant evidence	environment, adaptations, survival, relate, structural, behavioural, feature, use, evidence, explain	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
31	1. Plan observations of environmental factors 2. Collect and record information consistently 3. Identify relationships without assuming causation 4. Evaluate limitations of field observations	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains observing interacting factors accurately using relevant evidence	environment, observing, interacting, factors, plan, observations, environmental, collect, record, information	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
32	1. Explain effects of resource depletion and deforestation 2. Explain land, water and air pollution impacts 3. Explain global warming as a negative impact at syllabus level 4. Trace an impact through a food web or survival factor	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains human negative impacts accurately using relevant evidence	environment, human, negative, impacts, explain, effects, resource, depletion, deforestation, land	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology

Week	Atomic KP Summary	Named Spiral Retrieval	Observable Behaviour	Vocabulary	Scope Boundary
33	1. Explain conservation as a positive impact 2. Explain reforestation as a positive impact 3. Compare environmental actions using evidence 4. Propose a responsible action and justify it	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains human positive impacts accurately using relevant evidence	environment, human, positive, impacts, explain, conservation, impact, reforestation, compare, environmental	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
34	1. Predict consequences of increasing or decreasing one population 2. Trace direct and indirect effects in a food web 3. Distinguish evidence-based prediction from certainty 4. Revise a prediction when new information appears	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Explains population-change reasoning accurately using relevant evidence	environment, population, change, reasoning, predict, consequences, increasing, decreasing, one, trace	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology
35	1. Retrieve magnets, light, heat, forces and environments 2. Identify interacting causes in a novel context 3. Use diagrams and data to explain an effect 4. Revise a causal explanation	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains interactions retrieval accurately using relevant evidence	synthesis, interactions, retrieval, retrieve, magnets, light, heat, forces, environments, identify	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts
36	1. Retrieve light, heat, electricity, photosynthesis and conversions 2. Trace energy across topics 3. Interpret an energy-rich multi-part diagram 4. Evaluate an energy claim within syllabus scope	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains energy retrieval accurately using relevant evidence	synthesis, energy, retrieval, retrieve, light, heat, electricity, photosynthesis, conversions, trace	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts
37	1. Formulate a testable question and hypothesis 2. Identify changed, measured and controlled variables 3. Choose suitable apparatus and measurement 4. Evaluate fairness, reliability and safety	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains experimental design accurately using relevant evidence	synthesis, experimental, design, formulate, testable, question, hypothesis, identify, changed, measured	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts
38	1. Read tables, bar graphs and line graphs accurately 2. Describe patterns without overclaiming 3. Use data as evidence for a conclusion 4. Identify anomalous or insufficient evidence	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains data and graph interpretation accurately using relevant evidence	synthesis, data, graph, interpretation, read, tables, bar, graphs, line, accurately	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts
39	1. Write a claim supported by relevant evidence 2. Connect evidence to a scientific principle 3. Compare an alternative explanation 4. Revise the claim when evidence conflicts	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains evidence-based explanation accurately using relevant evidence	synthesis, evidence, based, explanation, write, claim, supported, relevant, connect, scientific	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts
40	1. Select relevant knowledge across themes 2. Apply knowledge to an unfamiliar multi-step situation 3. Communicate using words, diagrams, tables or graphs 4. Evaluate and improve a solution or model	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Explains cumulative mastery and transfer accurately using relevant evidence	synthesis, cumulative, mastery, transfer, select, relevant, knowledge, across, themes, apply	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts

3. Atomic KP Register - Atomic KP Content View

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P6-W01-KP1	1	Energy	Photosynthesis	Energy for life processes	1	Recognise that living things need energy to carry out life processes	Introduce	MOE Explicit Core	Know / Understand
P6-W01-KP2	1	Energy	Photosynthesis	Energy for life processes	2	State that respiration releases energy from food at the required level	Introduce	MOE Explicit Core	Explain / Interpret
P6-W01-KP3	1	Energy	Photosynthesis	Energy for life processes	3	Distinguish obtaining energy from obtaining food	Introduce	MOE Practice / Application	Apply / Analyse
P6-W01-KP4	1	Energy	Photosynthesis	Energy for life processes	4	Interpret a simple energy-for-life-process model	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P6-W02-KP1	2	Energy	Photosynthesis	Sun and ways organisms obtain energy	1	Recognise the Sun as the primary source of light and heat energy	Develop	MOE Explicit Core	Know / Understand
P6-W02-KP2	2	Energy	Photosynthesis	Sun and ways organisms obtain energy	2	Differentiate how plants and animals obtain energy	Develop	MOE Explicit Core	Explain / Interpret
P6-W02-KP3	2	Energy	Photosynthesis	Sun and ways organisms obtain energy	3	Trace a simple Sun-to-plant-to-animal energy pathway	Develop	MOE Practice / Application	Apply / Analyse
P6-W02-KP4	2	Energy	Photosynthesis	Sun and ways organisms obtain energy	4	Correct the claim that plants obtain food directly from soil	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W03-KP1	3	Energy	Photosynthesis	Photosynthesis overview	1	State that photosynthesis produces sugar and oxygen	Develop	MOE Explicit Core	Know / Understand
P6-W03-KP2	3	Energy	Photosynthesis	Photosynthesis overview	2	Identify water, light energy and carbon dioxide as requirements	Develop	MOE Explicit Core	Explain / Interpret
P6-W03-KP3	3	Energy	Photosynthesis	Photosynthesis overview	3	Represent requirements and products in an input-output model	Develop	MOE Practice / Application	Apply / Analyse
P6-W03-KP4	3	Energy	Photosynthesis	Photosynthesis overview	4	Communicate photosynthesis accurately using a word or input-output model	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W04-KP1	4	Energy	Photosynthesis	Requirement: light energy	1	Predict the effect of removing light from a photosynthesis investigation	Develop	MOE Explicit Core	Know / Understand
P6-W04-KP2	4	Energy	Photosynthesis	Requirement: light energy	2	Identify the changed and measured variables in a light investigation	Develop	MOE Explicit Core	Explain / Interpret
P6-W04-KP3	4	Energy	Photosynthesis	Requirement: light energy	3	Interpret evidence comparing a light and no-light setup	Develop	MOE Practice / Application	Apply / Analyse
P6-W04-KP4	4	Energy	Photosynthesis	Requirement: light energy	4	Evaluate whether the comparison is fair	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W05-KP1	5	Energy	Photosynthesis	Requirement: water	1	Predict the effect of insufficient water on photosynthesis evidence	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W05-KP2	5	Energy	Photosynthesis	Requirement: water	2	Control other variables when investigating water requirement	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W05-KP3	5	Energy	Photosynthesis	Requirement: water	3	Interpret observations without confusing wilting with direct proof of photosynthesis	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W05-KP4	5	Energy	Photosynthesis	Requirement: water	4	Improve a water-requirement investigation	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W06-KP1	6	Energy	Photosynthesis	Requirement: carbon dioxide	1	Predict the effect of limiting carbon dioxide in a photosynthesis investigation	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W06-KP2	6	Energy	Photosynthesis	Requirement: carbon dioxide	2	Identify a suitable comparison for carbon-dioxide availability	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W06-KP3	6	Energy	Photosynthesis	Requirement: carbon dioxide	3	Interpret provided data as evidence for a requirement	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W06-KP4	6	Energy	Photosynthesis	Requirement: carbon dioxide	4	State a conclusion limited to the evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W07-KP1	7	Energy	Photosynthesis	Products and evidence	1	Relate sugar production to stored or transported food	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W07-KP2	7	Energy	Photosynthesis	Products and evidence	2	Recognise oxygen as a product of photosynthesis	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W07-KP3	7	Energy	Photosynthesis	Products and evidence	3	Distinguish a product from a requirement	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W07-KP4	7	Energy	Photosynthesis	Products and evidence	4	Evaluate whether observations support a product claim	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W08-KP1	8	Energy	Photosynthesis	Photosynthesis mastery	1	Integrate requirements, products and energy in one model	Master / Transfer	MOE Explicit Core	Know / Understand
P6-W08-KP2	8	Energy	Photosynthesis	Photosynthesis mastery	2	Compare plant energy acquisition with animal energy acquisition	Master / Transfer	MOE Explicit Core	Explain / Interpret
P6-W08-KP3	8	Energy	Photosynthesis	Photosynthesis mastery	3	Evaluate an unfamiliar photosynthesis investigation	Master / Transfer	MOE Practice / Application	Apply / Analyse
P6-W08-KP4	8	Energy	Photosynthesis	Photosynthesis mastery	4	Construct a complete evidence-based explanation within P6 boundaries	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P6-W09-KP1	9	Energy	Energy forms and conversion	Energy forms	1	Recognise kinetic energy, potential energy, light energy, electrical energy, sound energy and heat energy	Introduce	MOE Explicit Core	Know / Understand
P6-W09-KP2	9	Energy	Energy forms and conversion	Energy forms	2	Identify energy forms in familiar objects	Introduce	MOE Explicit Core	Explain / Interpret
P6-W09-KP3	9	Energy	Energy forms and conversion	Energy forms	3	Distinguish an energy form from an energy source	Introduce	MOE Practice / Application	Apply / Analyse
P6-W09-KP4	9	Energy	Energy forms and conversion	Energy forms	4	Justify an identified energy form using observable evidence	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P6-W10-KP1	10	Energy	Energy forms and conversion	Energy resources and the Sun	1	Recognise that energy from most resources is derived in some way from the Sun	Develop	MOE Explicit Core	Know / Understand
P6-W10-KP2	10	Energy	Energy forms and conversion	Energy resources and the Sun	2	Trace solar energy into food, fuels or moving air at an appropriate level	Develop	MOE Explicit Core	Explain / Interpret
P6-W10-KP3	10	Energy	Energy forms and conversion	Energy resources and the Sun	3	Identify exceptions without overgeneralising	Develop	MOE Practice / Application	Apply / Analyse
P6-W10-KP4	10	Energy	Energy forms and conversion	Energy resources and the Sun	4	Evaluate a claim about the origin of energy in a context	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W11-KP1	11	Energy	Energy forms and conversion	Single-step conversions	1	State that energy can change from one form to another	Develop	MOE Explicit Core	Know / Understand
P6-W11-KP2	11	Energy	Energy forms and conversion	Single-step conversions	2	Identify input and output energy forms in a device	Develop	MOE Explicit Core	Explain / Interpret
P6-W11-KP3	11	Energy	Energy forms and conversion	Single-step conversions	3	Represent one conversion with arrows	Develop	MOE Practice / Application	Apply / Analyse
P6-W11-KP4	11	Energy	Energy forms and conversion	Single-step conversions	4	Distinguish useful output from the device itself	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W12-KP1	12	Energy	Energy forms and conversion	Multi-step conversions	1	Trace two or more energy conversions	Develop	MOE Explicit Core	Know / Understand
P6-W12-KP2	12	Energy	Energy forms and conversion	Multi-step conversions	2	Order conversion stages correctly	Develop	MOE Explicit Core	Explain / Interpret
P6-W12-KP3	12	Energy	Energy forms and conversion	Multi-step conversions	3	Interpret an energy-flow diagram	Develop	MOE Practice / Application	Apply / Analyse
P6-W12-KP4	12	Energy	Energy forms and conversion	Multi-step conversions	4	Correct a missing or wrongly labelled conversion	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W13-KP1	13	Energy	Energy forms and conversion	Responsible energy use	1	Identify intended and unintended energy outputs in a device	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W13-KP2	13	Energy	Energy forms and conversion	Responsible energy use	2	Explain why reducing unnecessary outputs supports responsible energy use	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W13-KP3	13	Energy	Energy forms and conversion	Responsible energy use	3	Compare two devices using provided qualitative evidence	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W13-KP4	13	Energy	Energy forms and conversion	Responsible energy use	4	Recommend an energy-responsible action using qualitative observations and provided evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W14-KP1	14	Energy	Energy forms and conversion	Energy conversion applications	1	Trace electrical energy to light, sound, heat or kinetic outputs	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W14-KP2	14	Energy	Energy forms and conversion	Energy conversion applications	2	Trace light energy from the Sun into an appropriate everyday context	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W14-KP3	14	Energy	Energy forms and conversion	Energy conversion applications	3	Interpret a multi-step conversion chain without relying on photosynthesis or food webs	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W14-KP4	14	Energy	Energy forms and conversion	Energy conversion applications	4	Correct an incomplete energy-conversion model using given evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W15-KP1	15	Energy	Energy forms and conversion	Investigating energy conversion	1	Plan an investigation of an energy conversion	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W15-KP2	15	Energy	Energy forms and conversion	Investigating energy conversion	2	Identify suitable observations or measurements	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W15-KP3	15	Energy	Energy forms and conversion	Investigating energy conversion	3	Record inputs and outputs clearly	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W15-KP4	15	Energy	Energy forms and conversion	Investigating energy conversion	4	Evaluate whether evidence shows the claimed conversion	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W16-KP1	16	Energy	Energy forms and conversion	Energy diagrams and data	1	Interpret energy-flow arrow diagrams without calculating efficiency	Master / Transfer	MOE Explicit Core	Know / Understand
P6-W16-KP2	16	Energy	Energy forms and conversion	Energy diagrams and data	2	Interpret tables or graphs of energy-related observations	Master / Transfer	MOE Explicit Core	Explain / Interpret
P6-W16-KP3	16	Energy	Energy forms and conversion	Energy diagrams and data	3	Compare two systems using given evidence	Master / Transfer	MOE Practice / Application	Apply / Analyse
P6-W16-KP4	16	Energy	Energy forms and conversion	Energy diagrams and data	4	Communicate a complete conversion chain	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P6-W17-KP1	17	Interactions	Forces	Pushes, pulls and effects	1	Identify a force as a push or pull	Introduce	MOE Explicit Core	Know / Understand
P6-W17-KP2	17	Interactions	Forces	Pushes, pulls and effects	2	State that a force can move a stationary object	Introduce	MOE Explicit Core	Explain / Interpret

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P6-W17-KP3	17	Interactions	Forces	Pushes, pulls and effects	3	State that a force can stop or change motion	Introduce	MOE Practice / Application	Apply / Analyse
P6-W17-KP4	17	Interactions	Forces	Pushes, pulls and effects	4	State that a force can change an object's shape	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P6-W18-KP1	18	Interactions	Forces	Types of forces	1	Recognise magnetic, gravitational, elastic spring and frictional forces	Develop	MOE Explicit Core	Know / Understand
P6-W18-KP2	18	Interactions	Forces	Types of forces	2	Match each force to a familiar example	Develop	MOE Explicit Core	Explain / Interpret
P6-W18-KP3	18	Interactions	Forces	Types of forces	3	Distinguish contact and non-contact examples without requiring those labels	Develop	MOE Practice / Application	Apply / Analyse
P6-W18-KP4	18	Interactions	Forces	Types of forces	4	Identify more than one force acting in a context	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W19-KP1	19	Interactions	Forces	Gravitational force	1	State that gravitational force pulls objects towards Earth	Develop	MOE Explicit Core	Know / Understand
P6-W19-KP2	19	Interactions	Forces	Gravitational force	2	Use gravitational force to explain falling	Develop	MOE Explicit Core	Explain / Interpret
P6-W19-KP3	19	Interactions	Forces	Gravitational force	3	Distinguish gravitational force from a push by a person	Develop	MOE Practice / Application	Apply / Analyse
P6-W19-KP4	19	Interactions	Forces	Gravitational force	4	Apply gravity to an unfamiliar situation	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W20-KP1	20	Interactions	Forces	Frictional force	1	State that friction acts against movement when surfaces move against each other	Develop	MOE Explicit Core	Know / Understand
P6-W20-KP2	20	Interactions	Forces	Frictional force	2	Identify useful and unwanted effects of friction	Develop	MOE Explicit Core	Explain / Interpret
P6-W20-KP3	20	Interactions	Forces	Frictional force	3	Predict how changing surfaces affects motion	Develop	MOE Practice / Application	Apply / Analyse
P6-W20-KP4	20	Interactions	Forces	Frictional force	4	Explain a motion change using friction	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W21-KP1	21	Interactions	Forces	Investigating friction	1	Formulate a testable question about friction	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W21-KP2	21	Interactions	Forces	Investigating friction	2	Design a fair test of surface or load	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W21-KP3	21	Interactions	Forces	Investigating friction	3	Measure motion outcome consistently	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W21-KP4	21	Interactions	Forces	Investigating friction	4	Interpret friction data and evaluate the method	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W22-KP1	22	Interactions	Forces	Elastic spring force	1	Recognise elastic spring force when a spring is stretched or compressed	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W22-KP2	22	Interactions	Forces	Elastic spring force	2	Relate added load to spring extension within tested conditions	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W22-KP3	22	Interactions	Forces	Elastic spring force	3	Interpret a load-extension table or graph	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W22-KP4	22	Interactions	Forces	Elastic spring force	4	Avoid predicting beyond the evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W23-KP1	23	Interactions	Forces	Investigating springs	1	Design a fair spring investigation	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W23-KP2	23	Interactions	Forces	Investigating springs	2	Measure extension from a consistent reference point	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W23-KP3	23	Interactions	Forces	Investigating springs	3	Record repeated measurements	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W23-KP4	23	Interactions	Forces	Investigating springs	4	Evaluate reliability and safety	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W24-KP1	24	Interactions	Forces	Combined effects of forces	1	Infer the effect of forces acting in the same or opposite directions	Master / Transfer	MOE Explicit Core	Know / Understand
P6-W24-KP2	24	Interactions	Forces	Combined effects of forces	2	Explain speeding up, slowing down or direction change	Master / Transfer	MOE Explicit Core	Explain / Interpret
P6-W24-KP3	24	Interactions	Forces	Combined effects of forces	3	Interpret a force-effect diagram without requiring vector calculation	Master / Transfer	MOE Practice / Application	Apply / Analyse
P6-W24-KP4	24	Interactions	Forces	Combined effects of forces	4	Revise an explanation when motion evidence changes	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve
P6-W25-KP1	25	Interactions	Environment	Environmental factors and survival	1	Identify temperature, light and water as physical survival factors	Introduce	MOE Explicit Core	Know / Understand
P6-W25-KP2	25	Interactions	Environment	Environmental factors and survival	2	Identify food availability as a survival factor	Introduce	MOE Explicit Core	Explain / Interpret
P6-W25-KP3	25	Interactions	Environment	Environmental factors and survival	3	Identify other organisms as survival factors	Introduce	MOE Practice / Application	Apply / Analyse
P6-W25-KP4	25	Interactions	Environment	Environmental factors and survival	4	Use evidence to explain an organism's distribution	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P6-W26-KP1	26	Interactions	Environment	Producers, consumers and decomposers	1	Identify producers, consumers and decomposers	Develop	MOE Explicit Core	Know / Understand
P6-W26-KP2	26	Interactions	Environment	Producers, consumers and decomposers	2	State each role in an environment	Develop	MOE Explicit Core	Explain / Interpret
P6-W26-KP3	26	Interactions	Environment	Producers, consumers and decomposers	3	Classify an organism from information given	Develop	MOE Practice / Application	Apply / Analyse
P6-W26-KP4	26	Interactions	Environment	Producers, consumers and decomposers	4	Explain why all three roles matter	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W27-KP1	27	Interactions	Environment	Food chains	1	Construct a food chain with arrows showing energy pathway	Develop	MOE Explicit Core	Know / Understand
P6-W27-KP2	27	Interactions	Environment	Food chains	2	Identify producer, consumer, predator and prey	Develop	MOE Explicit Core	Explain / Interpret
P6-W27-KP3	27	Interactions	Environment	Food chains	3	Trace energy from the Sun through living things	Develop	MOE Practice / Application	Apply / Analyse
P6-W27-KP4	27	Interactions	Environment	Food chains	4	Correct reversed or missing food-chain arrows	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W28-KP1	28	Interactions	Environment	Food webs	1	Combine connected food chains into a food web	Develop	MOE Explicit Core	Know / Understand
P6-W28-KP2	28	Interactions	Environment	Food webs	2	Identify organisms with more than one food source	Develop	MOE Explicit Core	Explain / Interpret
P6-W28-KP3	28	Interactions	Environment	Food webs	3	Predict a direct effect of a population change	Develop	MOE Practice / Application	Apply / Analyse
P6-W28-KP4	28	Interactions	Environment	Food webs	4	Justify the prediction using linked feeding relationships	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W29-KP1	29	Interactions	Environment	Unfavourable environments	1	Recognise that organisms may adapt and survive, move, or die	Develop	MOE Explicit Core	Know / Understand
P6-W29-KP2	29	Interactions	Environment	Unfavourable environments	2	Relate an environmental change to survival factors	Develop	MOE Explicit Core	Explain / Interpret
P6-W29-KP3	29	Interactions	Environment	Unfavourable environments	3	Compare possible organism responses	Develop	MOE Practice / Application	Apply / Analyse
P6-W29-KP4	29	Interactions	Environment	Unfavourable environments	4	Avoid claiming every individual adapts immediately	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W30-KP1	30	Interactions	Environment	Adaptations and survival	1	Relate a structural or behavioural feature to survival	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W30-KP2	30	Interactions	Environment	Adaptations and survival	2	Use environment evidence to explain usefulness of a feature	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W30-KP3	30	Interactions	Environment	Adaptations and survival	3	Compare adaptations in two environments	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W30-KP4	30	Interactions	Environment	Adaptations and survival	4	Evaluate an unsupported adaptation claim	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W31-KP1	31	Interactions	Environment	Observing interacting factors	1	Plan observations of environmental factors	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W31-KP2	31	Interactions	Environment	Observing interacting factors	2	Collect and record information consistently	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W31-KP3	31	Interactions	Environment	Observing interacting factors	3	Identify relationships without assuming causation	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W31-KP4	31	Interactions	Environment	Observing interacting factors	4	Evaluate limitations of field observations	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W32-KP1	32	Interactions	Environment	Human negative impacts	1	Explain effects of resource depletion and deforestation	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W32-KP2	32	Interactions	Environment	Human negative impacts	2	Explain land, water and air pollution impacts	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W32-KP3	32	Interactions	Environment	Human negative impacts	3	Explain global warming as a negative impact at syllabus level	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W32-KP4	32	Interactions	Environment	Human negative impacts	4	Trace an impact through a food web or survival factor	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W33-KP1	33	Interactions	Environment	Human positive impacts	1	Explain conservation as a positive impact	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W33-KP2	33	Interactions	Environment	Human positive impacts	2	Explain reforestation as a positive impact	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W33-KP3	33	Interactions	Environment	Human positive impacts	3	Compare environmental actions using evidence	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W33-KP4	33	Interactions	Environment	Human positive impacts	4	Propose a responsible action and justify it	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W34-KP1	34	Interactions	Environment	Population-change reasoning	1	Predict consequences of increasing or decreasing one population	Master / Transfer	MOE Explicit Core	Know / Understand
P6-W34-KP2	34	Interactions	Environment	Population-change reasoning	2	Trace direct and indirect effects in a food web	Master / Transfer	MOE Explicit Core	Explain / Interpret
P6-W34-KP3	34	Interactions	Environment	Population-change reasoning	3	Distinguish evidence-based prediction from certainty	Master / Transfer	MOE Practice / Application	Apply / Analyse
P6-W34-KP4	34	Interactions	Environment	Population-change reasoning	4	Revise a prediction when new information appears	Master / Transfer	MOE Transfer / Evaluation	Evaluate / Improve

KP ID	Week	Theme	Topic	Weekly Focus	No.	Atomic Knowledge Point	Stage	Status	Cognitive Demand
P6-W35-KP1	35	Integration	P3-P6 synthesis	Interactions retrieval	1	Retrieve magnets, light, heat, forces and environments	Introduce	MOE Explicit Core	Know / Understand
P6-W35-KP2	35	Integration	P3-P6 synthesis	Interactions retrieval	2	Identify interacting causes in a novel context	Introduce	MOE Explicit Core	Explain / Interpret
P6-W35-KP3	35	Integration	P3-P6 synthesis	Interactions retrieval	3	Use diagrams and data to explain an effect	Introduce	MOE Practice / Application	Apply / Analyse
P6-W35-KP4	35	Integration	P3-P6 synthesis	Interactions retrieval	4	Revise a causal explanation	Introduce	MOE Transfer / Evaluation	Evaluate / Improve
P6-W36-KP1	36	Integration	P3-P6 synthesis	Energy retrieval	1	Retrieve light, heat, electricity, photosynthesis and conversions	Develop	MOE Explicit Core	Know / Understand
P6-W36-KP2	36	Integration	P3-P6 synthesis	Energy retrieval	2	Trace energy across topics	Develop	MOE Explicit Core	Explain / Interpret
P6-W36-KP3	36	Integration	P3-P6 synthesis	Energy retrieval	3	Interpret an energy-rich multi-part diagram	Develop	MOE Practice / Application	Apply / Analyse
P6-W36-KP4	36	Integration	P3-P6 synthesis	Energy retrieval	4	Evaluate an energy claim within syllabus scope	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W37-KP1	37	Integration	P3-P6 synthesis	Experimental design	1	Formulate a testable question and hypothesis	Develop	MOE Explicit Core	Know / Understand
P6-W37-KP2	37	Integration	P3-P6 synthesis	Experimental design	2	Identify changed, measured and controlled variables	Develop	MOE Explicit Core	Explain / Interpret
P6-W37-KP3	37	Integration	P3-P6 synthesis	Experimental design	3	Choose suitable apparatus and measurement	Develop	MOE Practice / Application	Apply / Analyse
P6-W37-KP4	37	Integration	P3-P6 synthesis	Experimental design	4	Evaluate fairness, reliability and safety	Develop	MOE Transfer / Evaluation	Evaluate / Improve
P6-W38-KP1	38	Integration	P3-P6 synthesis	Data and graph interpretation	1	Read tables, bar graphs and line graphs accurately	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W38-KP2	38	Integration	P3-P6 synthesis	Data and graph interpretation	2	Describe patterns without overclaiming	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W38-KP3	38	Integration	P3-P6 synthesis	Data and graph interpretation	3	Use data as evidence for a conclusion	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W38-KP4	38	Integration	P3-P6 synthesis	Data and graph interpretation	4	Identify anomalous or insufficient evidence	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W39-KP1	39	Integration	P3-P6 synthesis	Evidence-based explanation	1	Write a claim supported by relevant evidence	Apply / Consolidate	MOE Explicit Core	Know / Understand
P6-W39-KP2	39	Integration	P3-P6 synthesis	Evidence-based explanation	2	Connect evidence to a scientific principle	Apply / Consolidate	MOE Explicit Core	Explain / Interpret
P6-W39-KP3	39	Integration	P3-P6 synthesis	Evidence-based explanation	3	Compare an alternative explanation	Apply / Consolidate	MOE Practice / Application	Apply / Analyse
P6-W39-KP4	39	Integration	P3-P6 synthesis	Evidence-based explanation	4	Revise the claim when evidence conflicts	Apply / Consolidate	MOE Transfer / Evaluation	Evaluate / Improve
P6-W40-KP1	40	Integration	P3-P6 synthesis	Cumulative mastery and transfer	1	Select relevant knowledge across themes	Master / Transfer	MOE Explicit Core	Know / Understand
P6-W40-KP2	40	Integration	P3-P6 synthesis	Cumulative mastery and transfer	2	Apply knowledge to an unfamiliar multi-step situation	Master / Transfer	MOE Explicit Core	Explain / Interpret
P6-W40-KP3	40	Integration	P3-P6 synthesis	Cumulative mastery and transfer	3	Communicate using words, diagrams, tables or graphs	Master / Transfer	MOE Practice / Application	Apply / Analyse
P6-W40-KP4	40	Integration	P3-P6 synthesis	Cumulative mastery and transfer	4	Evaluate and improve a solution or model	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
P6-W01-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately recognise that living things need energy to carry out life processes, using relevant observation, data or model evidence	photosynthesis, energy, life, processes, recognise, living, things, need, carry, out	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W01-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately state that respiration releases energy from food at the required level, using relevant observation, data or model evidence	photosynthesis, energy, life, processes, state, respiration, releases, food, required, level	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W01-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately distinguish obtaining energy from obtaining food, using relevant observation, data or model evidence	photosynthesis, energy, life, processes, distinguish, obtaining, food	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W01-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately interpret a simple energy-for-life-process model, using relevant observation, data or model evidence	photosynthesis, energy, life, processes, interpret, simple, process, model	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W02-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately recognise the Sun as the primary source of light and heat energy, using relevant observation, data or model evidence	photosynthesis, sun, ways, organisms, obtain, energy, recognise, primary, source, light	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W02-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately differentiate how plants and animals obtain energy, using relevant observation, data or model evidence	photosynthesis, sun, ways, organisms, obtain, energy, differentiate, how, plants, animals	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W02-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately trace a simple Sun-to-plant-to-animal energy pathway, using relevant observation, data or model evidence	photosynthesis, sun, ways, organisms, obtain, energy, trace, simple, plant, animal	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W02-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately correct the claim that plants obtain food directly from soil, using relevant observation, data or model evidence	photosynthesis, sun, ways, organisms, obtain, energy, correct, claim, plants, food	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W03-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately state that photosynthesis produces sugar and oxygen, using relevant observation, data or model evidence	photosynthesis, overview, state, produces, sugar, oxygen	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W03-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately identify water, light energy and carbon dioxide as requirements, using relevant observation, data or model evidence	photosynthesis, overview, identify, water, light, energy, carbon, dioxide, requirements	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W03-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately represent requirements and products in an input-output model, using relevant observation, data or model evidence	photosynthesis, overview, represent, requirements, products, input, output, model	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W03-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately communicate photosynthesis accurately using a word or input-output model, using relevant observation, data or model evidence	photosynthesis, overview, communicate, accurately, word, input, output, model	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W04-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately predict the effect of removing light from a photosynthesis investigation, using relevant observation, data or model evidence	photosynthesis, requirement, light, energy, predict, effect, removing, investigation	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W04-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately identify the changed and measured variables in a light investigation, using relevant observation, data or model evidence	photosynthesis, requirement, light, energy, identify, changed, measured, variables, investigation	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W04-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately interpret evidence comparing a light and no-light setup, using relevant observation, data or model evidence	photosynthesis, requirement, light, energy, interpret, evidence, comparing, setup	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W04-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately evaluate whether the comparison is fair, using relevant observation, data or model evidence	photosynthesis, requirement, light, energy, evaluate, whether, comparison, fair	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W05-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately predict the effect of insufficient water on photosynthesis evidence, using relevant observation, data or model evidence	photosynthesis, requirement, water, predict, effect, insufficient, evidence	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W05-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately control other variables when investigating water requirement, using relevant observation, data or model evidence	photosynthesis, requirement, water, control, other, variables, when, investigating	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W05-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately interpret observations without confusing willing with direct proof of photosynthesis, using relevant observation, data or model evidence	photosynthesis, requirement, water, interpret, observations, without, confusing, willing, direct, proof	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W05-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately improve a water-requirement investigation, using relevant observation, data or model evidence	photosynthesis, requirement, water, improve, investigation	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W06-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately predict the effect of limiting carbon dioxide in a photosynthesis investigation, using relevant observation, data or model evidence	photosynthesis, requirement, carbon, dioxide, predict, effect, limiting, investigation	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W06-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately identify a suitable comparison for carbon-dioxide availability, using relevant observation, data or model evidence	photosynthesis, requirement, carbon, dioxide, identify, suitable, comparison, availability	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W06-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately interpret provided data as evidence for a requirement, using relevant observation, data or model evidence	photosynthesis, requirement, carbon, dioxide, interpret, provided, data, evidence	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W06-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately state a conclusion limited to the evidence, using relevant observation, data or model evidence	photosynthesis, requirement, carbon, dioxide, state, conclusion, limited, evidence	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P6-W07-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately relate sugar production to stored or transported food, using relevant observation, data or model evidence	photosynthesis, products, evidence, relate, sugar, production, stored, transported, food	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W07-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately recognise oxygen as a product of photosynthesis, using relevant observation, data or model evidence	photosynthesis, products, evidence, recognise, oxygen, product	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W07-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately distinguish a product from a requirement, using relevant observation, data or model evidence	photosynthesis, products, evidence, distinguish, product, requirement	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W07-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately evaluate whether observations support a product claim, using relevant observation, data or model evidence	photosynthesis, products, evidence, evaluate, whether, observations, support, product, claim	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W08-KP1	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately integrate requirements, products and energy in one model, using relevant observation, data or model evidence	photosynthesis, mastery, integrate, requirements, products, energy, one, model	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W08-KP2	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately compare plant energy acquisition with animal energy acquisition, using relevant observation, data or model evidence	photosynthesis, mastery, compare, plant, energy, acquisition, animal	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W08-KP3	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately evaluate an unfamiliar photosynthesis investigation, using relevant observation, data or model evidence	photosynthesis, mastery, evaluate, unfamiliar, investigation	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W08-KP4	Observe; interpret; investigate; model; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Accurately construct a complete evidence-based explanation within P6 boundaries, using relevant observation, data or model evidence	photosynthesis, mastery, construct, complete, evidence, based, explanation, within, boundaries	P6 boundary: chemical equations, chloroplast details and cellular-respiration mechanisms are not required	Verified against V7 compliance register
P6-W09-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately recognise kinetic energy, potential energy, light energy, electrical energy, sound energy and heat energy, using relevant observation, data or model evidence	energy, forms, conversion, recognise, kinetic, potential, light, electrical, sound, heat	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W09-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately identify energy forms in familiar objects, using relevant observation, data or model evidence	energy, forms, conversion, identify, familiar, objects	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W09-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately distinguish an energy form from an energy source, using relevant observation, data or model evidence	energy, forms, conversion, distinguish, form, source	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W09-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately justify an identified energy form using observable evidence, using relevant observation, data or model evidence	energy, forms, conversion, justify, identified, form, observable, evidence	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W10-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately recognise that energy from most resources is derived in some way from the Sun, using relevant observation, data or model evidence	energy, forms, conversion, resources, sun, recognise, most, derived, some, way	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W10-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately trace solar energy into food, fuels or moving air at an appropriate level, using relevant observation, data or model evidence	energy, forms, conversion, resources, sun, trace, solar, food, fuels, moving	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W10-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately identify exceptions without overgeneralising, using relevant observation, data or model evidence	energy, forms, conversion, resources, sun, identify, exceptions, without, overgeneralising	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W10-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately evaluate a claim about the origin of energy in a context, using relevant observation, data or model evidence	energy, forms, conversion, resources, sun, evaluate, claim, about, origin, context	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W11-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately state that energy can change from one form to another, using relevant observation, data or model evidence	energy, forms, conversion, single, step, conversions, state, can, change, one	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W11-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately identify input and output energy forms in a device, using relevant observation, data or model evidence	energy, forms, conversion, single, step, conversions, identify, input, output, device	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W11-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately represent one conversion with arrows, using relevant observation, data or model evidence	energy, forms, conversion, single, step, conversions, represent, one, arrows	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W11-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately distinguish useful output from the device itself, using relevant observation, data or model evidence	energy, forms, conversion, single, step, conversions, distinguish, useful, output, device	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W12-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately trace two or more energy conversions, using relevant observation, data or model evidence	energy, forms, conversion, multi, step, conversions, trace, two, more	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W12-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately order conversion stages correctly, using relevant observation, data or model evidence	energy, forms, conversion, multi, step, conversions, order, stages, correctly	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W12-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately interpret an energy-flow diagram, using relevant observation, data or model evidence	energy, forms, conversion, multi, step, conversions, interpret, flow, diagram	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W12-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately correct a missing or wrongly labelled conversion, using relevant observation, data or model evidence	energy, forms, conversion, multi, step, conversions, correct, missing, wrongly, labelled	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W13-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Short response	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately identify intended and unintended energy outputs in a device, using relevant observation, data or model evidence	energy, forms, conversion, responsible, use, identify, intended, unintended, outputs, device	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W13-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Diagram / table / graph response	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately explain why reducing unnecessary outputs supports responsible energy use, using relevant observation, data or model evidence	energy, forms, conversion, responsible, use, explain, why, reducing, unnecessary, outputs	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W13-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Constructed explanation	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately compare two devices using provided qualitative evidence, using relevant observation, data or model evidence	energy, forms, conversion, responsible, use, compare, two, devices, provided, qualitative	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W13-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Method / model critique	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately recommend an energy-responsible action using qualitative observations and provided evidence, using relevant observation, data or model evidence	energy, forms, conversion, responsible, use, recommend, action, qualitative, observations, provided	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W14-KP1	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Short response	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately trace electrical energy to light, sound, heat or kinetic outputs, using relevant observation, data or model evidence	energy, forms, conversion, applications, trace, electrical, light, sound, heat, kinetic	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P6-W14-KP2	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Diagram / table / graph response	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately trace light energy from the Sun into an appropriate everyday context, using relevant observation, data or model evidence	energy, forms, conversion, applications, trace, light, sun, appropriate, everyday, context	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W14-KP3	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Constructed explanation	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately interpret a multi-step conversion chain without relying on photosynthesis or food webs, using relevant observation, data or model evidence	energy, forms, conversion, applications, interpret, multi, step, chain, without, relying	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W14-KP4	Interpret; investigate; evaluate; communicate	Objectivity; responsibility	Method / model critique	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately correct an incomplete energy-conversion model using given evidence, using relevant observation, data or model evidence	energy, forms, conversion, applications, correct, incomplete, model, given, evidence	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W15-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately plan an investigation of an energy conversion, using relevant observation, data or model evidence	energy, forms, conversion, investigating, plan, investigation	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W15-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately identify suitable observations or measurements, using relevant observation, data or model evidence	energy, forms, conversion, investigating, identify, suitable, observations, measurements	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W15-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately record inputs and outputs clearly, using relevant observation, data or model evidence	energy, forms, conversion, investigating, record, inputs, outputs, clearly	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W15-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately evaluate whether evidence shows the claimed conversion, using relevant observation, data or model evidence	energy, forms, conversion, investigating, evaluate, whether, evidence, shows, claimed evidence	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W16-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately interpret energy-flow arrow diagrams without calculating efficiency, using relevant observation, data or model evidence	energy, forms, conversion, diagrams, data, interpret, flow, arrow, without, calculating	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W16-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately interpret tables or graphs of energy-related observations, using relevant observation, data or model evidence	energy, forms, conversion, diagrams, data, interpret, tables, graphs, related, observations	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W16-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately compare two systems using given evidence, using relevant observation, data or model evidence	energy, forms, conversion, diagrams, data, compare, two, systems, given, evidence	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W16-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Accurately communicate a complete conversion chain, using relevant observation, data or model evidence	energy, forms, conversion, diagrams, data, communicate, complete, chain	P6 boundary: chemical/gravitational/elastic potential terms and efficiency calculations are not required	Verified against V7 compliance register
P6-W17-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately identify a force as a push or pull, using relevant observation, data or model evidence	forces, pushes, pulls, effects, identify, force, push, pull	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W17-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately state that a force can move a stationary object, using relevant observation, data or model evidence	forces, pushes, pulls, effects, state, force, can, move, stationary, object	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W17-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately state that a force can stop or change motion, using relevant observation, data or model evidence	forces, pushes, pulls, effects, state, force, can, stop, change, motion	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W17-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately state that a force can change an object's shape, using relevant observation, data or model evidence	forces, pushes, pulls, effects, state, force, can, change, object, shape	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W18-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately recognise magnetic, gravitational, elastic spring and frictional forces, using relevant observation, data or model evidence	forces, types, recognise, magnetic, gravitational, elastic, spring, frictional	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W18-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately match each force to a familiar example, using relevant observation, data or model evidence	forces, types, match, each, force, familiar, example	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W18-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately distinguish contact and non-contact examples without requiring those labels, using relevant observation, data or model evidence	forces, types, distinguish, contact, non, examples, without, requiring, those, labels	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W18-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately identify more than one force acting in a context, using relevant observation, data or model evidence	forces, types, identify, more, than, one, force, acting, context	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W19-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately state that gravitational force pulls objects towards Earth, using relevant observation, data or model evidence	forces, gravitational, force, state, pulls, objects, towards, earth	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W19-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately use gravitational force to explain falling, using relevant observation, data or model evidence	forces, gravitational, force, use, explain, falling	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W19-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately distinguish gravitational force from a push by a person, using relevant observation, data or model evidence	forces, gravitational, force, distinguish, push, person	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W19-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately apply gravity to an unfamiliar situation, using relevant observation, data or model evidence	forces, gravitational, force, apply, gravity, unfamiliar, situation	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W20-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately state that friction acts against movement when surfaces move against each other, using relevant observation, data or model evidence	forces, frictional, force, state, friction, acts, against, movement, when, surfaces	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W20-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately identify useful and unwanted effects of friction, using relevant observation, data or model evidence	forces, frictional, force, identify, useful, unwanted, effects, friction	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W20-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately predict how changing surfaces affects motion, using relevant observation, data or model evidence	forces, frictional, force, predict, how, changing, surfaces, affects, motion	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W20-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately explain a motion change using friction, using relevant observation, data or model evidence	forces, frictional, force, explain, motion, change, friction	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W21-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately formulate a testable question about friction, using relevant observation, data or model evidence	forces, investigating, friction, formulate, testable, question, about	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W21-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately design a fair test of surface or load, using relevant observation, data or model evidence	forces, investigating, friction, design, fair, test, surface, load	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W21-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately measure motion outcome consistently, using relevant observation, data or model evidence	forces, investigating, friction, measure, motion, outcome, consistently	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W21-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately interpret friction data and evaluate the method, using relevant observation, data or model evidence	forces, investigating, friction, interpret, data, evaluate, method	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P6-W22-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately recognise elastic spring force when a spring is stretched or compressed, using relevant observation, data or model evidence	forces, elastic, spring, force, recognise, when, stretched, compressed	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W22-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately relate added load to spring extension within tested conditions, using relevant observation, data or model evidence	forces, elastic, spring, force, relate, added, load, extension, within, tested	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W22-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately interpret a load-extension table or graph, using relevant observation, data or model evidence	forces, elastic, spring, force, interpret, load, extension, table, graph	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W22-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately avoid predicting beyond the evidence, using relevant observation, data or model evidence	forces, elastic, spring, force, avoid, predicting, beyond, evidence	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W23-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately design a fair spring investigation, using relevant observation, data or model evidence	forces, investigating, springs, design, fair, spring, investigation	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W23-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately measure extension from a consistent reference point, using relevant observation, data or model evidence	forces, investigating, springs, measure, extension, consistent, reference, point	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W23-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately record repeated measurements, using relevant observation, data or model evidence	forces, investigating, springs, record, repeated, measurements	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W23-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately evaluate reliability and safety, using relevant observation, data or model evidence	forces, investigating, springs, evaluate, reliability, safety	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W24-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately infer the effect of forces acting in the same or opposite directions, using relevant observation, data or model evidence	forces, combined, effects, infer, effect, acting, same, opposite, directions	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W24-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately explain speeding up, slowing down or direction change, using relevant observation, data or model evidence	forces, combined, effects, explain, speeding, slowing, down, direction, change	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W24-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately interpret a force-effect diagram without requiring vector calculation, using relevant observation, data or model evidence	forces, combined, effects, interpret, force, effect, diagram, without, requiring, vector	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W24-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Accurately revise an explanation when motion evidence changes, using relevant observation, data or model evidence	forces, combined, effects, revise, explanation, when, motion, evidence, changes	P6 boundary: rolling-object friction direction and required air-/water-resistance terminology are not required	Verified against V7 compliance register
P6-W25-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify temperature, light and water as physical survival factors, using relevant observation, data or model evidence	environment, environmental, factors, survival, identify, temperature, light, water, physical	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W25-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify food availability as a survival factor, using relevant observation, data or model evidence	environment, environmental, factors, survival, identify, food, availability, factor	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W25-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify other organisms as survival factors, using relevant observation, data or model evidence	environment, environmental, factors, survival, identify, other, organisms	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W25-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately use evidence to explain an organism's distribution, using relevant observation, data or model evidence	environment, environmental, factors, survival, use, evidence, explain, organism, distribution	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W26-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify producers, consumers and decomposers, using relevant observation, data or model evidence	environment, producers, consumers, decomposers, identify	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W26-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately state each role in an environment, using relevant observation, data or model evidence	environment, producers, consumers, decomposers, state, each, role	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W26-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately classify an organism from information given, using relevant observation, data or model evidence	environment, producers, consumers, decomposers, classify, organism, information, given	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W26-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain why all three roles matter, using relevant observation, data or model evidence	environment, producers, consumers, decomposers, explain, why, all, three, roles, matter	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W27-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately construct a food chain with arrows showing energy pathway, using relevant observation, data or model evidence	environment, food, chains, construct, chain, arrows, showing, energy, pathway	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W27-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify producer, consumer, predator and prey, using relevant observation, data or model evidence	environment, food, chains, identify, producer, consumer, predator, prey	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W27-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately trace energy from the Sun through living things, using relevant observation, data or model evidence	environment, food, chains, trace, energy, sun, through, living, things	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W27-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately correct reversed or missing food-chain arrows, using relevant observation, data or model evidence	environment, food, chains, correct, reversed, missing, chain, arrows	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W28-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately combine connected food chains into a food web, using relevant observation, data or model evidence	environment, food, webs, combine, connected, chains, web	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W28-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify organisms with more than one food source, using relevant observation, data or model evidence	environment, food, webs, identify, organisms, more, than, one, source	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W28-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately predict a direct effect of a population change, using relevant observation, data or model evidence	environment, food, webs, predict, direct, effect, population, change	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W28-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately justify the prediction using linked feeding relationships, using relevant observation, data or model evidence	environment, food, webs, justify, prediction, linked, feeding, relationships	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W29-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately recognise that organisms may adapt and survive, move, or die, using relevant observation, data or model evidence	environment, unfavourable, environments, recognise, organisms, may, adapt, survive, move, die	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W29-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately relate an environmental change to survival factors, using relevant observation, data or model evidence	environment, unfavourable, environments, relate, environmental, change, survival, factors	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W29-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately compare possible organism responses, using relevant observation, data or model evidence	environment, unfavourable, environments, compare, possible, organism, responses	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P6-W29-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately avoid claiming every individual adapts immediately, using relevant observation, data or model evidence	environment, unfavourable, environments, avoid, claiming, every, individual, adapts, immediately	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W30-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately relate a structural or behavioural feature to survival, using relevant observation, data or model evidence	environment, adaptations, survival, relate, structural, behavioural, feature	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W30-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately use environment evidence to explain usefulness of a feature, using relevant observation, data or model evidence	environment, adaptations, survival, use, evidence, explain, usefulness, feature	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W30-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately compare adaptations in two environments, using relevant observation, data or model evidence	environment, adaptations, survival, compare, two, environments	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W30-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately evaluate an unsupported adaptation claim, using relevant observation, data or model evidence	environment, adaptations, survival, evaluate, unsupported, adaptation, claim	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W31-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately plan observations of environmental factors, using relevant observation, data or model evidence	environment, observing, interacting, factors, plan, observations, environmental	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W31-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately collect and record information consistently, using relevant observation, data or model evidence	environment, observing, interacting, factors, collect, record, information, consistently	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W31-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately identify relationships without assuming causation, using relevant observation, data or model evidence	environment, observing, interacting, factors, identify, relationships, without, assuming, causation	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W31-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately evaluate limitations of field observations, using relevant observation, data or model evidence	environment, observing, interacting, factors, evaluate, limitations, field, observations	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W32-KP1	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Short response	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain effects of resource depletion and deforestation, using relevant observation, data or model evidence	environment, human, negative, impacts, explain, effects, resource, depletion, deforestation	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W32-KP2	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain land, water and air pollution impacts, using relevant observation, data or model evidence	environment, human, negative, impacts, explain, land, water, air, pollution	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W32-KP3	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain global warming as a negative impact at syllabus level, using relevant observation, data or model evidence	environment, human, negative, impacts, explain, global, warming, impact, syllabus, level	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W32-KP4	Observe; infer; explain; apply	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately trace an impact through a food web or survival factor, using relevant observation, data or model evidence	environment, human, negative, impacts, trace, impact, through, food, web, survival	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W33-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain conservation as a positive impact, using relevant observation, data or model evidence	environment, human, positive, impacts, explain, conservation, impact	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W33-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately explain reforestation as a positive impact, using relevant observation, data or model evidence	environment, human, positive, impacts, explain, reforestation, impact	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W33-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately compare environmental actions using evidence, using relevant observation, data or model evidence	environment, human, positive, impacts, compare, environmental, actions, evidence	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W33-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately propose a responsible action and justify it, using relevant observation, data or model evidence	environment, human, positive, impacts, propose, responsible, action, justify	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W34-KP1	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Short response	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately predict consequences of increasing or decreasing one population, using relevant observation, data or model evidence	environment, population, change, reasoning, predict, consequences, increasing, decreasing, one	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W34-KP2	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Diagram / table / graph response	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately trace direct and indirect effects in a food web, using relevant observation, data or model evidence	environment, population, change, reasoning, trace, direct, indirect, effects, food, web	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W34-KP3	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Constructed explanation	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately distinguish evidence-based prediction from certainty, using relevant observation, data or model evidence	environment, population, change, reasoning, distinguish, evidence, based, prediction, certainty	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W34-KP4	Interpret; analyse; communicate	Curiosity; responsibility; care and concern	Method / model critique	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Accurately revise a prediction when new information appears, using relevant observation, data or model evidence	environment, population, change, reasoning, revise, prediction, when, new, information, appears	P6 boundary: avoid detailed biogeochemical cycles and secondary-level ecology terminology	Verified against V7 compliance register
P6-W35-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately retrieve magnets, light, heat, forces and environments, using relevant observation, data or model evidence	synthesis, interactions, retrieval, retrieve, magnets, light, heat, forces, environments	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W35-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately identify interacting causes in a novel context, using relevant observation, data or model evidence	synthesis, interactions, retrieval, identify, interacting, causes, novel, context	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W35-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately use diagrams and data to explain an effect, using relevant observation, data or model evidence	synthesis, interactions, retrieval, use, diagrams, data, explain, effect	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W35-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately revise a causal explanation, using relevant observation, data or model evidence	synthesis, interactions, retrieval, revise, causal, explanation	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W36-KP1	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Short response	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately retrieve light, heat, electricity, photosynthesis and conversions, using relevant observation, data or model evidence	synthesis, energy, retrieval, retrieve, light, heat, electricity, photosynthesis, conversions	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W36-KP2	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately trace energy across topics, using relevant observation, data or model evidence	synthesis, energy, retrieval, trace, across, topics	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W36-KP3	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately interpret an energy-rich multi-part diagram, using relevant observation, data or model evidence	synthesis, energy, retrieval, interpret, rich, multi, part, diagram	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W36-KP4	Observe; infer; explain; apply	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately evaluate an energy claim within syllabus scope, using relevant observation, data or model evidence	synthesis, energy, retrieval, evaluate, claim, within, syllabus, scope	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register

KP ID	Scientific Practice	Values / Attitudes	Suggested Evidence	Retrieval	Success Criteria	Vocabulary	Scope Boundary	Review
P6-W37-KP1	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Short response	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately formulate a testable question and hypothesis, using relevant observation, data or model evidence	synthesis, experimental, design, formulate, testable, question, hypothesis	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W37-KP2	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately identify changed, measured and controlled variables, using relevant observation, data or model evidence	synthesis, experimental, design, identify, changed, measured, controlled, variables	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W37-KP3	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately choose suitable apparatus and measurement, using relevant observation, data or model evidence	synthesis, experimental, design, choose, suitable, apparatus, measurement	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W37-KP4	Question; hypothesise; investigate; evaluate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately evaluate fairness, reliability and safety, using relevant observation, data or model evidence	synthesis, experimental, design, evaluate, fairness, reliability, safety	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W38-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately read tables, bar graphs and line graphs accurately, using relevant observation, data or model evidence	synthesis, data, graph, interpretation, read, tables, bar, graphs, line, accurately	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W38-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately describe patterns without overclaiming, using relevant observation, data or model evidence	synthesis, data, graph, interpretation, describe, patterns, without, overclaiming	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W38-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately use data as evidence for a conclusion, using relevant observation, data or model evidence	synthesis, data, graph, interpretation, use, evidence, conclusion	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W38-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately identify anomalous or insufficient evidence, using relevant observation, data or model evidence	synthesis, data, graph, interpretation, identify, anomalous, insufficient, evidence	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W39-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately write a claim supported by relevant evidence, using relevant observation, data or model evidence	synthesis, evidence, based, explanation, write, claim, supported, relevant	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W39-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately connect evidence to a scientific principle, using relevant observation, data or model evidence	synthesis, evidence, based, explanation, connect, scientific, principle	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W39-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately compare an alternative explanation, using relevant observation, data or model evidence	synthesis, evidence, based, explanation, compare, alternative	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W39-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately revise the claim when evidence conflicts, using relevant observation, data or model evidence	synthesis, evidence, based, explanation, revise, claim, when, conflicts	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W40-KP1	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Short response	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately select relevant knowledge across themes, using relevant observation, data or model evidence	synthesis, cumulative, mastery, transfer, select, relevant, knowledge, across, themes	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W40-KP2	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Diagram / table / graph response	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately apply knowledge to an unfamiliar multi-step situation, using relevant observation, data or model evidence	synthesis, cumulative, mastery, transfer, apply, knowledge, unfamiliar, multi, step, situation	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W40-KP3	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Constructed explanation	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately communicate using words, diagrams, tables or graphs, using relevant observation, data or model evidence	synthesis, cumulative, mastery, transfer, communicate, words, diagrams, tables, graphs	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register
P6-W40-KP4	Interpret; analyse; communicate	Curiosity; objectivity; integrity	Method / model critique	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Accurately evaluate and improve a solution or model, using relevant observation, data or model evidence	synthesis, cumulative, mastery, transfer, evaluate, improve, solution, model	Transfer boundary: integrate only P3-P6 MOE content; do not introduce secondary concepts	Verified against V7 compliance register

4. Vertical Progression

Theme / Dimension	Prior prerequisite	Current-level learning	Next-level bridge	Progression logic
Diversity	Apply diversity evidence in systems and reproduction	Apply roles and variation in environments	Secondary bridge - not part of this KP list	Observable classification -> functional and ecological reasoning
Cycles	Reproduction and water cycles	Integrate cycles with energy and environments	Secondary bridge - not part of this KP list	Sequence -> mechanism -> system consequence
Cycles	Reproduction and water cycle	Cross-theme synthesis	Secondary bridge - not part of this KP list	Observable cycles and states -> continuity and water cycling -> transfer
Interactions	Compare exchanges and system interactions	Forces and environment	Secondary bridge - not part of this KP list	Direct effects -> interacting factors and causal chains
Energy	Electrical systems and energy-use responsibility	Photosynthesis; energy forms and conversion	Secondary bridge - not part of this KP list	Observable effects -> functional systems -> energy acquisition and conversion
Practices	Controlled investigations and system models	Evaluate evidence, methods and multi-source data	Secondary bridge - not part of this KP list	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
P6	1	121	Energy	Photosynthesis	Energy for life processes	Recent: none; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P6	2	122	Energy	Photosynthesis	Sun and ways organisms obtain energy	Recent: P6-W01 to W01; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	3	123	Energy	Photosynthesis	Photosynthesis overview	Recent: P6-W01 to W02; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	4	124	Energy	Photosynthesis	Requirement: light energy	Recent: P6-W02 to W03; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	5	125	Energy	Photosynthesis	Requirement: water	Recent: P6-W03 to W04; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Apply / Consolidate	Transfer checkpoint	Record weak KP ID and schedule retrieval
P6	6	126	Energy	Photosynthesis	Requirement: carbon dioxide	Recent: P6-W04 to W05; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	7	127	Energy	Photosynthesis	Products and evidence	Recent: P6-W05 to W06; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	8	128	Energy	Photosynthesis	Photosynthesis mastery	Recent: P6-W06 to W07; Spaced: first-term build; Prerequisite: P4-W04-KP2; P5-W15-KP1; P5-W17-KP3	Observe; interpret; investigate; model; evaluate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P6	9	129	Energy	Energy forms and conversion	Energy forms	Recent: P6-W07 to W08; Spaced: P6-W01; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Interpret; analyse; communicate	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P6	10	130	Energy	Energy forms and conversion	Energy resources and the Sun	Recent: P6-W08 to W09; Spaced: P6-W02; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Observe; infer; explain; apply	Develop	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P6	11	131	Energy	Energy forms and conversion	Single-step conversions	Recent: P6-W09 to W10; Spaced: P6-W03; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	12	132	Energy	Energy forms and conversion	Multi-step conversions	Recent: P6-W10 to W11; Spaced: P6-W04; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	13	133	Energy	Energy forms and conversion	Responsible energy use	Recent: P6-W11 to W12; Spaced: P6-W05; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Interpret; investigate; evaluate; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	14	134	Energy	Energy forms and conversion	Energy conversion applications	Recent: P6-W12 to W13; Spaced: P6-W06; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Interpret; investigate; evaluate; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	15	135	Energy	Energy forms and conversion	Investigating energy conversion	Recent: P6-W13 to W14; Spaced: P6-W07; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Question; hypothesise; investigate; evaluate	Apply / Consolidate	Transfer checkpoint	Record weak KP ID and schedule retrieval
P6	16	136	Energy	Energy forms and conversion	Energy diagrams and data	Recent: P6-W14 to W15; Spaced: P6-W08; Prerequisite: P4-W20-KP1; P4-W27-KP1; P5-W29-KP1	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P6	17	137	Interactions	Forces	Pushes, pulls and effects	Recent: P6-W15 to W16; Spaced: P6-W09; Prerequisite: P3-W31-KP1; P3-W36-KP3	Observe; infer; explain; apply	Introduce	Short retrieval	Record weak KP ID and schedule retrieval
P6	18	138	Interactions	Forces	Types of forces	Recent: P6-W16 to W17; Spaced: P6-W10; Prerequisite: P3-W31-KP1; P3-W36-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	19	139	Interactions	Forces	Gravitational force	Recent: P6-W17 to W18; Spaced: P6-W11; Prerequisite: P3-W31-KP1; P3-W36-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	20	140	Interactions	Forces	Frictional force	Recent: P6-W18 to W19; Spaced: P6-W12; Prerequisite: P3-W31-KP1; P3-W36-KP3	Observe; infer; explain; apply	Develop	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P6	21	141	Interactions	Forces	Investigating friction	Recent: P6-W19 to W20; Spaced: P6-W13; Prerequisite: P3-W31-KP1; P3-W36-KP3	Question; hypothesise; investigate; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	22	142	Interactions	Forces	Elastic spring force	Recent: P6-W20 to W21; Spaced: P6-W14; Prerequisite: P3-W31-KP1; P3-W36-KP3	Interpret; analyse; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	23	143	Interactions	Forces	Investigating springs	Recent: P6-W21 to W22; Spaced: P6-W15; Prerequisite: P3-W31-KP1; P3-W36-KP3	Question; hypothesise; investigate; evaluate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	24	144	Interactions	Forces	Combined effects of forces	Recent: P6-W22 to W23; Spaced: P6-W16; Prerequisite: P3-W31-KP1; P3-W36-KP3	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P6	25	145	Interactions	Environment	Environmental factors and survival	Recent: P6-W23 to W24; Spaced: P6-W17; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Interpret; analyse; communicate	Introduce	Transfer checkpoint	Record weak KP ID and schedule retrieval
P6	26	146	Interactions	Environment	Producers, consumers and decomposers	Recent: P6-W24 to W25; Spaced: P6-W18; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	27	147	Interactions	Environment	Food chains	Recent: P6-W25 to W26; Spaced: P6-W19; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	28	148	Interactions	Environment	Food webs	Recent: P6-W26 to W27; Spaced: P6-W20; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Develop	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
P6	29	149	Interactions	Environment	Unfavourable environments	Recent: P6-W27 to W28; Spaced: P6-W21; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	30	150	Interactions	Environment	Adaptations and survival	Recent: P6-W28 to W29; Spaced: P6-W22; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Interpret; analyse; communicate	Apply / Consolidate	Cumulative mastery and error analysis	Reassess named KP IDs within 2-4 weeks
P6	31	151	Interactions	Environment	Observing interacting factors	Recent: P6-W29 to W30; Spaced: P6-W23; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	32	152	Interactions	Environment	Human negative impacts	Recent: P6-W30 to W31; Spaced: P6-W24; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Observe; infer; explain; apply	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	33	153	Interactions	Environment	Human positive impacts	Recent: P6-W31 to W32; Spaced: P6-W25; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Interpret; analyse; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	34	154	Interactions	Environment	Population-change reasoning	Recent: P6-W32 to W33; Spaced: P6-W26; Prerequisite: P3-W04-KP1; P3-W21-KP1; P5-W14-KP3	Interpret; analyse; communicate	Master / Transfer	Short retrieval	Record weak KP ID and schedule retrieval
P6	35	155	Integration	P3-P6 synthesis	Interactions retrieval	Recent: P6-W33 to W34; Spaced: P6-W27; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Interpret; analyse; communicate	Introduce	Transfer checkpoint	Record weak KP ID and schedule retrieval
P6	36	156	Integration	P3-P6 synthesis	Energy retrieval	Recent: P6-W34 to W35; Spaced: P6-W28; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Observe; infer; explain; apply	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	37	157	Integration	P3-P6 synthesis	Experimental design	Recent: P6-W35 to W36; Spaced: P6-W29; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Question; hypothesise; investigate; evaluate	Develop	Short retrieval	Record weak KP ID and schedule retrieval
P6	38	158	Integration	P3-P6 synthesis	Data and graph interpretation	Recent: P6-W36 to W37; Spaced: P6-W30; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Interpret; analyse; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	39	159	Integration	P3-P6 synthesis	Evidence-based explanation	Recent: P6-W37 to W38; Spaced: P6-W31; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Interpret; analyse; communicate	Apply / Consolidate	Short retrieval	Record weak KP ID and schedule retrieval
P6	40	160	Integration	P3-P6 synthesis	Cumulative mastery and transfer	Recent: P6-W38 to W39; Spaced: P6-W32; Prerequisite: P5-W28-KP4; P5-W34-KP4; P6-W16-KP4; P6-W24-KP4; P6-W34-KP4	Interpret; analyse; 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
P6	Energy	Respiration releases energy; Sun; plants and animals obtain energy differently	P6-W01-KP1	P6-W02-KP4	Covered	Photosynthesis foundations taught first
P6	Energy	Photosynthesis requirements: water, light energy and carbon dioxide	P6-W03-KP1	P6-W06-KP4	Covered	Controlled investigations
P6	Energy	Photosynthesis products: sugar and oxygen; evidence and integration	P6-W07-KP1	P6-W08-KP4	Covered	No chemical equation/chloroplast detail
P6	Energy	Energy from the Sun; kinetic, potential, light, electrical, sound and heat	P6-W09-KP1	P6-W12-KP4	Covered	Specific potential-energy labels excluded
P6	Energy	Investigate energy conversion and practise responsible energy use	P6-W13-KP1	P6-W16-KP4	Covered	No conservation-law or efficiency-calculation requirement
P6	Interactions	Force as push/pull; effects; magnetic, gravitational, spring and friction	P6-W17-KP1	P6-W21-KP4	Covered	Required force outcomes
P6	Interactions	Investigate friction and elastic spring force; weight due to gravity	P6-W22-KP1	P6-W24-KP4	Covered	Rolling friction direction and resistance terms excluded
P6	Interactions	Organism, population, community, habitat and survival factors	P6-W25-KP1	P6-W28-KP4	Covered	Required ecological hierarchy
P6	Interactions	Producer, consumer, decomposer, predator, prey; chains and webs	P6-W29-KP1	P6-W31-KP4	Covered	Energy relationships without advanced ecology
P6	Interactions	Responses to unfavourable conditions and human environmental impact	P6-W32-KP1	P6-W34-KP4	Covered	Responsibility and evidence
P6	Integration	P3-P6 synthesis and PSLE scientific inquiry transfer	P6-W35-KP1	P6-W40-KP4	Covered	Only primary syllabus content

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