

YEAR 6 BIOLOGICAL SCIENCE UNIT PLAN

Year / Level	Year 6
Science Strand	Biological Science
Unit Title	School Habitat Investigation – Physical Conditions and Plant Growth
Duration	7 lessons × 40 minutes
Unit Overview	Students become habitat field scientists and investigate two terrestrial habitats within the school grounds. They identify and classify habitats, plan a fair and repeatable investigation, collect measurements and observations from three sample sites in each habitat, organise and graph data, analyse patterns and relationships, consider human impacts, evaluate reliability and use evidence to conclude which habitat provides the best conditions for plant growth, abundance and ground cover.
Achievement Standard	Relevant Year 6 achievement standard: Students explain how the growth and survival of living things are impacted by changes in physical conditions. They plan safe, repeatable investigations; identify variables and risks; use equipment to collect data with appropriate precision; organise and process data to examine patterns, trends and relationships; consider possible sources of error; and draw reasonable conclusions.
Unit Rationale	This unit connects Biological Science understanding with authentic field inquiry. Students move from recognising habitat conditions to planning, measuring, comparing, analysing and evaluating evidence. Repeated sampling across two school habitats develops understanding that physical conditions vary within environments and may influence plant growth and survival, while also building fair-testing, data representation and evidence-based reasoning skills.
Key Concepts	• Habitats provide living things with resources and physical conditions needed for survival. • Physical conditions can vary between and within terrestrial habitats. • Changes or differences in light, moisture, soil conditions and other physical factors can affect plant growth and survival. • Fair, repeatable sampling and accurate measurement produce comparable evidence. • Tables and graphs reveal patterns, trends and relationships. • Human activity can alter habitat conditions and influence living things. • Scientific conclusions must be supported by evidence and evaluated for reliability.

Australian Curriculum Science Content Descriptors	Science Understanding: • AC9S6U01 – Investigate the physical conditions of aquatic and terrestrial ecosystems and how the growth and survival of living things is affected by changing physical conditions. Science as a Human Endeavour: • AC9S6H02 – Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions.
Science Inquiry Skills	• AC9S6I01 – Pose investigable questions and make predictions to identify patterns or test relationships. • AC9S6I02 – Plan and conduct repeatable investigations, identify variables and risks, and plan safe use of equipment. • AC9S6I03 – Use equipment to observe, measure and record data with reasonable precision. • AC9S6I04 – Construct and use tables, graphs and other representations to organise/process data and identify patterns, trends and relationships. • AC9S6I05 – Compare methods/findings, recognise possible sources of error, pose further questions and draw reasonable conclusions. • AC9S6I06 – Communicate ideas and findings for specific purposes and audiences.
General Capabilities	• Literacy – scientific vocabulary, explanations and evidence-based conclusions • Numeracy – measurement, averages, percentages, tables, scales and graphs • Critical and Creative Thinking – questioning, predicting, analysing patterns and evaluating evidence • Personal and Social Capability – collaboration, group roles and safe fieldwork • Digital Literacy – entering, processing and graphing investigation data
Cross-curriculum Priorities	Aboriginal and Torres Strait Islander Histories and Cultures – opportunities may be included when discussing respectful fieldwork on Country/Place and First Nations knowledge of physical conditions needed for plant and animal survival. Apply local protocols and school context.

Monitoring	Progress is monitored through teacher questioning, journal entries, planning decisions, fieldwork observations, equipment use, data accuracy, graph construction, scientific discussion, analysis responses, exit checks and the developing evidence portfolio.
Formative Assessment	• Lesson 1 habitat classification and exit response • Lesson 2 investigation question, prediction, variables, risk assessment and repeatable method • Lessons 3–4 fieldwork observations, measurement accuracy and consistent sampling • Lesson 5 data entry, averages and graph check • Lesson 6 written analysis of patterns, relationships and human impacts • Lesson 7 evaluation of fairness/reliability and reflection
Summative Assessment (Final Task)	Completed School Habitat Investigation portfolio: students use evidence from Habitat A and Habitat B to answer the inquiry question, “Which school habitat provided the best conditions for plant growth?” The final evidence includes the investigation plan, field data, comparison table/graph, analysis of patterns and human impacts, evaluation of reliability, evidence-based conclusion, improvement and reflection.
Success Criteria	• I can identify and classify habitats and physical habitat conditions. • I can plan a fair, safe and repeatable investigation. • I can collect accurate, comparable measurements and observations. • I can organise data and create an appropriate, correctly labelled graph. • I can identify patterns and relationships and explain possible human impacts using evidence. • I can evaluate fairness and reliability and identify limitations. • I can answer the inquiry question with an evidence-based conclusion and suggest an improvement.

Considerations for teaching and learning in this unit	Use explicit modelling before independent work; maintain consistent scientific vocabulary; pre-teach equipment use; use mixed-ability fieldwork groups with clear roles; provide sentence stems and worked examples where needed; allow oral rehearsal before writing; provide enlarged/accessible recording sheets where required; check device/spreadsheet access before Lesson 5; choose two safe, contrasting terrestrial school habitats; and avoid presenting correlation as proof of causation.
Prior Knowledge Students Require	• Living things have needs and live in environments that provide resources. • Basic distinction between living and non-living features. • Experience making observations and simple measurements. • Basic understanding of fair testing and recording data. • Familiarity with tables and simple graphs. • Vocabulary: habitat, organism, environment, measurement, observation, data.
Investigating Safely	• Complete school risk-management/CARA requirements before fieldwork. • Establish boundaries, supervision, group roles and stop/return signals. • Check uneven ground, sun/heat exposure, insects, sharp objects and unfamiliar plants. • Use sun protection, enclosed shoes and any required PPE. • Demonstrate safe use of meters, rulers and quadrats; do not taste or handle unknown organisms/materials. • Follow school procedures for fieldwork and digital equipment.
Key Vocabulary	habitat • organism • aquatic • terrestrial • environment • physical condition • light • soil moisture • soil pH • leaf litter • ground cover • abundance • sample • sample site • observation • measurement • quantitative • qualitative • variable • independent variable • dependent variable • controlled variable • fair test • repeatable • comparable • data • average • pattern • trend • relationship • graph • human impact • evidence • reliability • limitation • conclusion
Resources to support knowing and engaging your learners	• Visuals: What Is a Habitat?, Aquatic vs Terrestrial Habitats, Physical Habitat Conditions • Student Science Journal Parts A–G and Habitat A/B Field Recording Sheets • Data and Graphs workbook / spreadsheet software • Field equipment: clipboards, quadrat/marked sample area, light meter/device, soil moisture meter, ruler, soil pH equipment if selected • Computers/laptops and projector/interactive whiteboard • Pencils/highlighters and appropriate fieldwork safety equipment

Teaching and Learning Sequence

Lesson	Focus / Big Idea	Pedagogy	Curriculum Links	Learning Intentions	Success Criteria	Differentiation	Hands-On & Adventure Tasks	Science Journal Evidence (Portfolio)	Assessment Links / Evidence Collected	Materials & Resources
Lesson 1 What Is a Habitat?	Habitats can be classified as aquatic or terrestrial; physical conditions vary and affect living things.	Explicit teaching; visual classification; guided discussion; journal application.	AC9S6U01 AC9S6I01	We are learning to identify and classify habitats and recognise the conditions that living things need to survive.	I can explain what a habitat is. I can distinguish aquatic and terrestrial habitats. I can classify habitat features. I can identify our investigation as terrestrial.	Support: word bank, visuals, paired talk. Extension: justify classifications using evidence. Adjustments: oral/scribed responses.	Classify habitat examples; connect school grounds to terrestrial habitats; identify measurable physical conditions.	Part A: habitat definition, aquatic/terrestrial classification, school habitat explanation.	Formative: questioning, journal responses, exit check naming a physical condition.	Habitat posters; Part A journal; pencils/highlighters.
Lesson 2 Planning a Fair Habitat Investigation	A strong investigation is fair, safe, measurable and repeatable.	Modelled inquiry planning; explicit variables teaching; guided planning; peer method check.	AC9S6U01 AC9S6I01–I03	We are learning to plan a fair and repeatable scientific investigation.	I can write a question and prediction. I can identify IV, DV and controls. I can select equipment. I can identify risks and write a repeatable method.	Support: model question/method and variable prompts. Extension: justify controls and equipment choices. Adjustments: step cards/checklist.	Plan the two-habitat investigation; choose physical condition; identify variables/equipment; risk assess; write method.	Part B: question, prediction, variables, equipment, risk assessment and method.	Formative: plan conference and partner repeatability test.	Physical Conditions poster; Part B; sample field equipment.
Lesson 3 Habitat A Field Investigation	Multiple samples collected consistently provide stronger evidence about habitat conditions.	Teacher modelling; collaborative field inquiry; gradual release; observation vs inference.	AC9S6U01 AC9S6I02–I03	We are learning to collect accurate and consistent observations and measurements from a habitat.	I can use equipment appropriately. I can collect three samples. I can record measurements accurately. I can identify human impacts.	Support: assigned group roles and measurement checklist. Extension: identify cautious early patterns. Adjustments: accessible sampling role/site.	Measure three sample sites in Habitat A; record light, moisture, leaf litter, ground cover, shrubs and observations; sketch habitat.	Habitat A Field Recording Sheet: quantitative data, observations, human impacts, sketch and initial noticing.	Formative: teacher observation of equipment use, consistency, units and evidence recording.	Habitat A sheet; clipboards; meters; ruler; quadrat; safety equipment.
Lesson 4 Habitat B Field Investigation	Using the same variables, equipment and procedure produces comparable data.	Repeated field inquiry; consistency checks; independent sampling; preliminary comparison.	AC9S6U01 AC9S6I02–I03	We are learning to collect comparable data from a second habitat by repeating the same investigation procedure.	I can repeat the same procedure. I can measure the same variables. I can collect three samples. I can record observations and human impacts accurately.	Support: Habitat A procedure checklist. Extension: justify why a method change would weaken comparison. Adjustments: structured roles and prompts.	Repeat the three-site investigation in Habitat B; record human impacts; make cautious initial comparisons.	Habitat B Field Recording Sheet and initial comparison statements.	Formative: consistency/data check and exit explanation of comparable data.	Habitat B sheet; Habitat A sheet; same field equipment and safety equipment.

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Lesson 5 Collating, Comparing and Graphing Data	Organising and representing data makes patterns, differences and relationships visible.	Explicit spreadsheet modelling; guided data entry; graph selection; independent graph creation.	AC9S6U01 AC9S6I04	We are learning to organise and represent data so that patterns and relationships can be identified.	I can enter data accurately. I can compare Habitat A and B. I can select an appropriate graph. I can create a correctly labelled graph.	Support: step-by-step workbook instructions and graph exemplar. Extension: compare graph types and justify selection. Adjustments: paired data entry/teacher template.	Enter Habitat A/B data; examine averages; compare habitats; create a column, scatter or line graph appropriate to the question.	Part D and Data & Graphs workbook: tables, averages and completed graph.	Formative: accuracy check, graph title/axes/scale check and pattern discussion.	Field sheets; Part D; computers; spreadsheet workbook; projector.
Lesson 6 Analysing the Evidence & Human Impacts	Evidence is used to describe patterns and relationships; human activity may alter habitat conditions and vegetation.	Teacher think-aloud; evidence annotation; guided comparison; scientific explanation writing.	AC9S6U01 AC9S6H02 AC9S6I04–I05	We are learning to analyse our evidence to identify patterns and explain how physical conditions and human activities may influence plants.	I can compare the two habitats using data. I can identify a pattern or relationship. I can use evidence to explain my thinking. I can describe possible human impacts without claiming unsupported cause and effect.	Support: sentence stems (The data show... This suggests...). Extension: identify alternative explanations/limitations. Adjustments: highlighted graph evidence and oral rehearsal.	Use tables/graphs to compare conditions and plant responses; identify human changes such as mowing, paths or buildings; link claims to measured/observed evidence.	Part E: analysis of evidence; Human Impacts page; written evidence statements.	Formative: evidence-to-claim conference; check that statements distinguish observation, inference and causation.	Completed graphs/workbook; Part E; Human Impacts visual/journal page; highlighters.
Lesson 7 Reliability, Conclusion and Reflection	Scientists evaluate evidence quality before drawing conclusions and proposing improvements.	Comparative scenarios; explicit conclusion modelling; independent writing; reflection.	AC9S6U01 AC9S6I05–I06	We are learning to evaluate our investigation and draw an evidence-based scientific conclusion.	I can evaluate fairness and reliability. I can answer the inquiry question using evidence. I can support my conclusion with data. I can suggest an improvement and reflect on my learning.	Support: Answer–Evidence–Explanation scaffold and evidence bank. Extension: evaluate confidence and propose further investigation. Adjustments: sentence starters/oral planning.	Evaluate fairness/reliability; answer “Which school habitat provided the best conditions for plant growth?” using at least two pieces of evidence; propose improvement; reflect.	Reliability page; Part G Conclusion; final reflection.	Summative: completed portfolio, evidence-based conclusion, improvement and reflection.	Completed journal; field sheets; graph/workbook; Physical Conditions poster; projector.