

YEAR 4 SCIENCE - BIOLOGICAL SCIENCES UNIT PLAN

Year / Level	Year 4
Science Strand	Biological Sciences
Unit Title	Habitats & Food Chains
Duration	7 lessons - 40 minutes per lesson
Unit Overview	Students investigate organisms and habitats, then focus on a Queensland grassland to explain the roles and interactions of producers, consumers and decomposers. They construct food chains, use arrows to represent energy transfer, organise population data in a column graph, identify patterns and relationships, and use evidence to predict changes to a mouse population. Students apply their learning to a grassland conservation issue and communicate an evidence-based recommendation to a Local Council audience.
Achievement Standard	Relevant Year 4 evidence: students identify the roles of organisms in a habitat and construct food chains; construct representations to organise data and information and identify patterns and relationships; and communicate ideas and findings for an identified audience and purpose, using scientific vocabulary when appropriate.
Unit Rationale	This sequence develops biological understanding from direct habitat observation to organism roles, feeding relationships, data interpretation, prediction and scientific communication. Each lesson deliberately produces concise evidence that contributes to the final Grassland Conservation Expo, allowing students to apply science understanding and inquiry skills in an authentic conservation context.
Key Concepts	• Habitats provide organisms with resources and conditions for survival. • Producers, consumers and decomposers have different but connected roles. • Food chains represent feeding relationships and the direction of energy transfer. • Population data can reveal patterns that support evidence-based predictions. • Scientific evidence can inform conservation recommendations and communication.
Australian Curriculum Science Content Descriptors	Science Understanding: • AC9S4U01 - explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships. Science as a Human Endeavour: • AC9S4H01 - investigate how scientists use data and evidence to develop explanations, and how scientists share scientific knowledge. • AC9S4H02 - investigate how scientific knowledge helps people to meet a need or solve a problem.
Science Inquiry Skills	• AC9S4I01 - pose questions and make predictions to explore observed patterns or relationships. • AC9S4I03 - follow procedures to make and record observations. • AC9S4I04 - construct and use representations, including tables and simple column graphs, to organise data and information, show relationships and identify patterns. • AC9S4I05 - compare findings, identify questions for further investigation and draw conclusions. • AC9S4I06 - create multimodal texts to communicate findings and ideas for identified audiences, using digital technologies as appropriate.
General Capabilities	• Literacy - scientific vocabulary, explanations and persuasive communication • Numeracy - reading data, scale and column graph construction • Critical and Creative Thinking - identifying patterns, explaining relationships and predicting impacts • Personal and Social Capability - collaboration, discussion and presentation • Digital Literacy - optional digital presentation/infographic creation
Cross-curriculum Priorities	Sustainability - students consider biodiversity, habitat protection and evidence-based conservation actions. Aboriginal and Torres Strait Islander Histories and Cultures may be incorporated through local perspectives on Country/Place and interconnected relationships within environments, where appropriate and locally supported.

Monitoring	Monitor progress through teacher questioning, observation, worksheet evidence, discussion and exit tickets. Track whether students can move from identifying organisms and roles to explaining feeding relationships, interpreting data, making evidence-based predictions and communicating a justified recommendation.
Formative Assessment	• Lesson 1 habitat observations and explanation of what makes an area a habitat. • Lesson 2 classification and role explanations for producers, consumers and decomposers. • Lesson 3 three food chains plus explanation of arrow direction and feeding relationship. • Lesson 4 accurate column graph, pattern statement and relationship explanation. • Lesson 5 mouse-population prediction justified with data and feeding relationships. • Lesson 6 conservation impact, evidence and Local Council recommendation.
Summative Assessment (Final Task)	Grassland Conservation Expo - Council Evidence Brief and presentation. Students select evidence from earlier lessons to communicate a grassland problem, population data and pattern, a feeding relationship, a justified mouse-population prediction and a conservation recommendation to the Local Council using scientific vocabulary and persuasive techniques.
Success Criteria	• I can identify and explain the roles of producers, consumers and decomposers in a grassland habitat. • I can construct a range of food chains and explain what the arrows represent. • I can construct a column graph, identify a pattern and explain a feeding relationship. • I can use patterns and evidence to make and justify a prediction about a mouse population. • I can communicate data, findings, predictions and a justified recommendation to a Local Council using scientific vocabulary and persuasive techniques.
Considerations for teaching and learning in this unit	Use explicit modelling before independent evidence tasks. Keep written evidence concise so each 40-minute lesson includes teaching, investigation and recording. Reuse visuals and previous worksheets to reduce cognitive load and show progression. Provide organism cards, sentence stems, word banks and partially completed examples where required. Extend students by asking them to trace impacts through multiple feeding relationships and justify alternative predictions. Use locally relevant grassland examples where possible.
Prior Knowledge Students Require	• Understand that living things have basic survival needs and live in environments that meet those needs. • Recognise common plants and animals and distinguish living from non-living things. • Read simple tables and compare quantities. • Use basic scientific observation language and record short explanations.
Investigating Safely	• Establish boundaries and behaviour expectations for the school habitat investigation. • Observe organisms without touching, disturbing or removing them. • Avoid unknown plants, fungi, insects and animal waste. • Follow school sun-safety, footwear and supervision requirements. • Check school/CARA requirements for outdoor habitat observations and local environmental hazards.
Key Vocabulary	habitat • organism • living • non-living • producer • consumer • decomposer • food chain • feeding relationship • energy • predator • prey • population • data • graph • pattern • relationship • prediction • evidence • invasive species • biodiversity • conservation • recommendation • conclusion
Resources to support knowing and engaging your learners	• Unit visuals: Habitat Explorers; Who Eats What?; Food Chain Builders; Save Our Grassland; Grassland Conservation Expo. • Student worksheets for Lessons 1-7, including Lesson 4 graphing pages and Council Evidence Brief. • Grassland organism and issue cards/pictures. • Clipboards, pencils, rulers and highlighters. • School habitat investigation area. • Previous food chains, population graph and Mouse Mystery data reused as evidence. • Optional digital slide/infographic tools and presentation materials.

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 Habitat Explorers	Habitats contain organisms and non-living features that provide survival needs.	Visual hook; explicit vocabulary; guided outdoor observation; evidence discussion.	AC9S4U01 AC9S4I03	We are learning to identify organisms in habitats and explain what they need to survive.	I can identify organisms. I can record where they are found. I can suggest survival needs. I can explain what makes an area a habitat.	Support: picture/word bank and modelled example. Extension: compare two microhabitats. Adjustments: paired observation/scrubbing.	Investigate a school habitat; locate organisms and living/non-living features.	Habitat Explorers table: organism, location, survival need; habitat explanation.	Formative: observation records and evidence-based habitat sentence.	Habitat Explorers visual/worksheet; clipboards; pencils; school habitat area.
Lesson 2 Who Eats What?	Organisms have different roles: producers, consumers and decomposers.	Explicit role teaching; card sort; justification; compare classifications.	AC9S4U01	We are learning to identify and explain the roles of producers, consumers and decomposers in a grassland habitat.	I can identify and sort the three roles. I can explain what each role does.	Support: labelled examples and sentence stems. Extension: justify ambiguous examples. Adjustments: reduced card set/pair work.	Sort grassland organism cards into producers, consumers and decomposers and justify choices.	Role classification table and three concise role explanations.	Formative: identifies and explains producer, consumer and decomposer roles.	Who Eats What? visual/worksheet; organism cards; pencils/highlighters.
Lesson 3 Food Chain Builders	Food chains show feeding relationships; arrows show direction of energy transfer.	Teacher modelling; physical card chains; partner checking; independent construction.	AC9S4U01 AC9S4I04	We are learning to construct food chains and explain how arrows show feeding relationships and energy transfer.	I can construct three grassland food chains. I can use arrows correctly. I can explain an arrow and feeding relationship.	Support: pre-selected organism sets and arrow prompt. Extension: longer/alternative chains. Adjustments: manipulate cards before writing.	Build and justify food chains using organism and arrow cards.	Three food chains; one arrow explanation; one feeding-relationship explanation.	Formative: range of food chains and explanation of energy arrows.	Food Chain Builders visual/worksheet; organism cards; arrow cards; pencils.
Lesson 4 Grassland Scientist	Graphs organise population data so patterns and feeding relationships can be identified.	Explicit graph modelling; guided data comparison; independent graphing and analysis.	AC9S4U01 AC9S4I04	We are learning to organise grassland population data in a graph and explain patterns in feeding relationships.	I can construct an accurate column graph. I can identify a population pattern. I can explain the pattern using feeding relationships.	Support: graph scaffold/scale prompts. Extension: cite exact values in explanation. Adjustments: enlarged graph or partially labelled axes.	Graph simulated survey data: Grass 34, Grasshopper 19, Mouse 12, Snake 5, Eagle 2.	Column graph; pattern statement; feeding-relationship explanation.	Formative/marking evidence: graph construction, pattern identification and relationship explanation.	Grassland Scientist worksheet Parts A/B; survey data; rulers; previous food chains.
Lesson 5 The Mouse Mystery	Patterns and feeding relationships can be used to make evidence-based population predictions.	Mystery hook; model evidence vs guess; cause-and-effect reasoning; independent prediction.	AC9S4U01 AC9S4I01 AC9S4I04	We are learning to use patterns and feeding relationships to make evidence-based predictions about populations.	I can identify changes in data. I can predict the mouse population. I can justify my prediction with data and a feeding relationship.	Support: highlight changed values and sentence stems. Extension: explain likely effect on snakes. Adjustments: oral rehearsal before writing.	Analyse two-year grass/mice/snake data with the mouse value missing.	Pattern identified; mouse prediction; data evidence; feeding-relationship justification.	Formative/marking evidence: uses pattern to make and justify a mouse-population prediction.	Mouse Mystery worksheet; previous graph; Grass → Mouse → Snake model; pencils/highlighters.
Lesson 6 Save Our Grassland	Scientific evidence can be applied to predict impacts and justify conservation action.	Issue visual; cause-and-effect modelling; evidence selection; persuasive science stems; peer feedback.	AC9S4H02 AC9S4U01 AC9S4I06	We are learning to use scientific evidence to predict impacts on a grassland and recommend a conservation action.	I can explain an impact on organisms/feeding relationships. I can use evidence. I can recommend and justify a solution to the Local Council.	Support: issue cards and recommendation scaffold. Extension: trace impacts across multiple organisms. Adjustments: teacher-selected issue and evidence source.	Investigate invasive foxes, rabbits, drought, bushfire, overgrazing or pollution; prepare council advice.	Predicted impact; scientific evidence; recommendation; persuasive prediction.	Formative: evidence-based recommendation for an identified audience; preparation for final task.	Save Our Grassland visual/worksheet Parts A/B; issue cards; previous food chains, graph and Mouse Mystery.
Lesson 7 Grassland Conservation Expo	Scientists select and communicate relevant evidence for an audience and purpose.	Assessment visual; model council statement; evidence selection; individual brief; small-group presentation.	AC9S4H01 AC9S4H02 AC9S4U01 AC9S4I04 AC9S4I06	We are learning to communicate scientific findings and recommendations to an identified audience using evidence and scientific vocabulary.	I can communicate data and findings. I can explain a feeding relationship. I can communicate a supported prediction. I can persuade the Local Council with a justified recommendation.	Support: Council Evidence Brief and presentation stems. Extension: respond to council questions with multiple evidence sources. Adjustments: oral/recorded presentation or supported conference.	Complete Council Evidence Brief and present: PROBLEM → DATA → FINDING → PREDICTION → RECOMMENDATION.	Council Evidence Brief using previous role, food-chain, graph, prediction and conservation evidence.	Summative: roles/food chains; graph/pattern/prediction evidence; communication to Local Council using scientific vocabulary and persuasive techniques.	Assessment visual; Council Evidence Brief; Lessons 2-6 evidence; marking guide/checklist; presentation materials.