



YEAR 4

BIOLOGICAL SCIENCE



Exploring Life. Understanding Connections.

Investigating living things,
their habitats,
and the relationships that keep
our world in balance.



HABITATS



ORGANISMS



RELATIONSHIPS



DECOMPOSERS



ENERGY



NAME: _____



CLASS: _____

Discover. Investigate. Understand.
Care for our world.





HABITAT EXPLORERS



LESSON 1: HABITAT INVESTIGATION

Investigate a habitat around your school.



ORGANISM I FOUND



WHERE I FOUND IT

WHAT MIGHT IT NEED TO SURVIVE?

 WATER	 SUNLIGHT	 SHELTER / OTHER

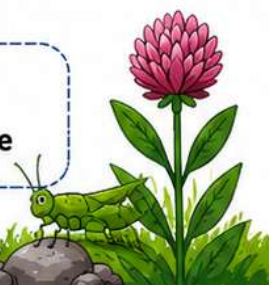
WHAT MAKES THIS AREA A HABITAT?





SCIENCE WORDS

habitat • organism • living • non-living • survive



LESSON 2

WHO EATS WHAT?



Living things have different roles in a grassland habitat.



1 IDENTIFY THE ROLES

Sort the grassland organisms into the correct groups.

Every living thing plays a part!

 PRODUCERS	 CONSUMERS	 DECOMPOSERS

2 EXPLAIN THEIR ROLES



A **producer's** role in a grassland habitat is to...



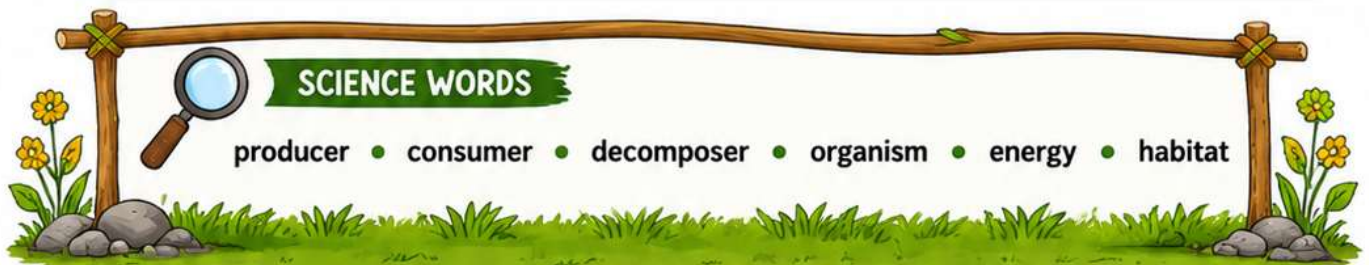
A **consumer's** role in a grassland habitat is to...



A **decomposer's** role in a grassland habitat is to...

SCIENCE WORDS

producer • consumer • decomposer • organism • energy • habitat



LESSON 3

FOOD CHAIN BUILDERS



CONSTRUCT A RANGE OF GRASSLAND FOOD CHAINS

Construct three different food chains.



Remember:
Arrows show
the direction that
energy is transferred.

FOOD CHAIN 1

 → → →

FOOD CHAIN 2

 → → →

FOOD CHAIN 3

 → → →

EXPLAIN THE ARROWS

Choose one arrow from one of your food chains.

 →

What does this arrow show?

The arrow shows that energy is transferred from...



Explain the feeding relationship.

SCIENCE WORDS

producer • consumer • food chain • feeding relationship • energy • predator • prey



LESSON 4

PART A

GRASSLAND SCIENTIST



You are a scientist! Use the data below to construct a column graph.



GRASSLAND SURVEY DATA

Organism	Number Found
 Grass	34
 Grasshopper	19
 Mouse	12
 Snake	5
 Eagle	2

1 CONSTRUCT A COLUMN GRAPH

Use the data to construct a column graph.

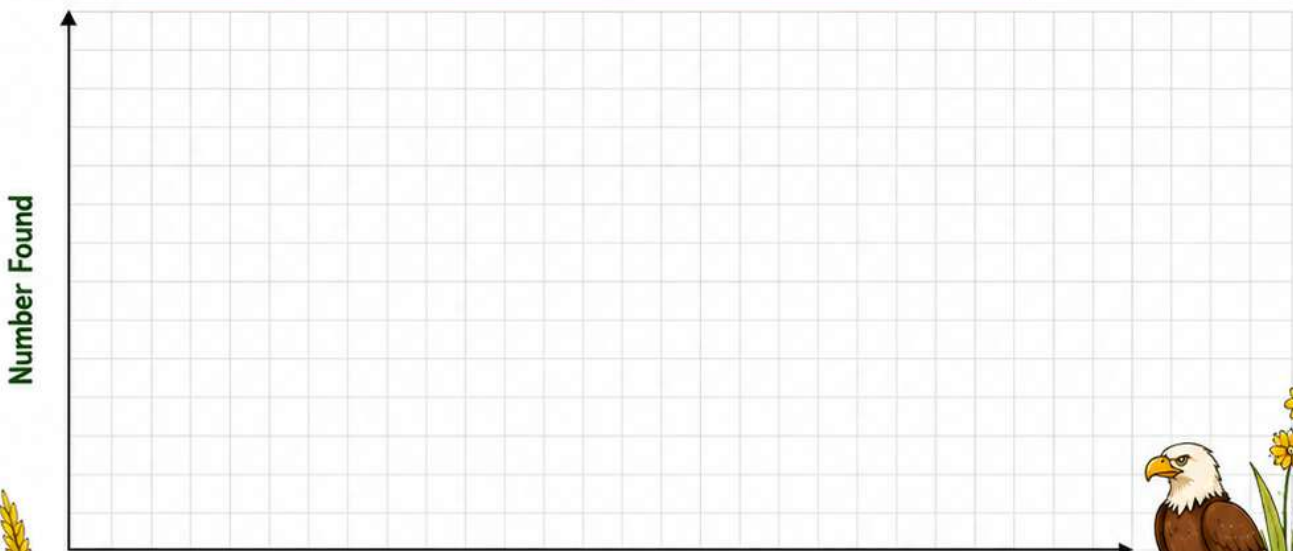
Remember to include:

- ✓ A title
- ✓ Labelled axes
- ✓ An even scale
- ✓ Accurate data

Graphs help scientists see patterns and relationships in data!

MY GRASSLAND POPULATION GRAPH

Title: _____



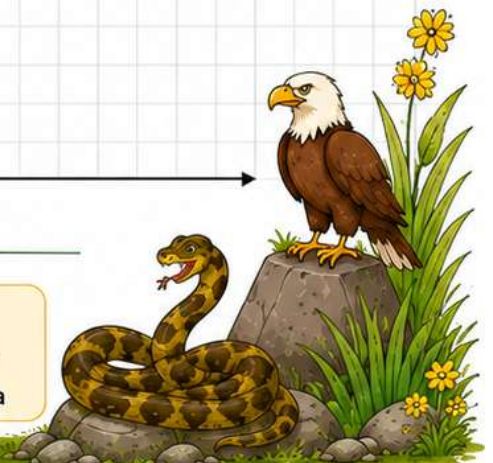
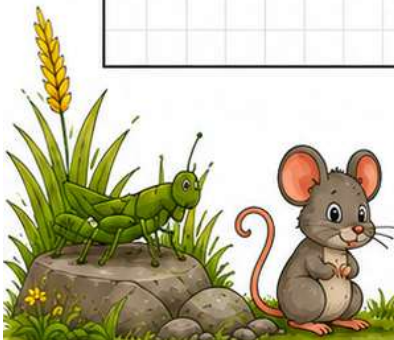
Number Found

Organisms



Make sure your graph has:

- a title
- an even scale
- labelled axes
- accurate data



LESSON 4

PART B

GRASSLAND SCIENTIST



Now that you have your graph, let's analyse the results!

2. IDENTIFY THE PATTERN



What pattern do you notice in the population data?

Look for changes, increases, decreases or differences!



3. EXPLAIN THE RELATIONSHIP



Use feeding relationships to explain why this pattern might occur.



- population • data • graph • pattern • relationship •
- feeding relationship • evidence





THE MOUSE MYSTERY



SOMETHING HAS CHANGED!

Scientists collected data from the same grassland over two years.

Year	 Grass	 Mice	 Snakes
Year 1	35	15	4
Year 2	20	?	2

Think about this feeding relationship:



GRASS



MOUSE



SNAKE

1 IDENTIFY THE PATTERN

What changes or patterns do you notice in the data?



2 USE THE PATTERN TO MAKE A PREDICTION

What do you predict will happen to the mouse population?

☐

Increase

☐

Decrease

☐

Stay about the same



3 USE EVIDENCE TO EXPLAIN YOUR PREDICTION

I predict this because the data shows...

The feeding relationship supports my prediction because...



population • pattern • prediction • evidence •
feeding relationship • producer • consumer



LESSON 6 PART A

SAVE OUR GRASSLAND



You are a scientist! Use evidence to help protect our grassland.



YOUR MISSION

The Local Council needs scientific advice about protecting the grassland.

Choose one issue:

☐


Invasive foxes

☐


Rabbits

☐


Drought

☐


Bushfire

☐


Overgrazing

☐


Pollution

My issue: _____

1 PREDICT THE IMPACT

How could this issue affect organisms and feeding relationships in the grassland?

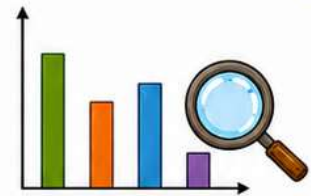


2 USE SCIENTIFIC EVIDENCE



Use evidence from your food chains, population data, graph or Mouse Mystery.

The scientific evidence shows...





SCIENCE WORDS

population • pattern • prediction • evidence •
feeding relationship • producer • consumer



SAVE OUR GRASSLAND



You are a scientist! Give the Local Council your advice.

3 RECOMMEND A SOLUTION



I recommend that the Local Council...

The council should do this because...



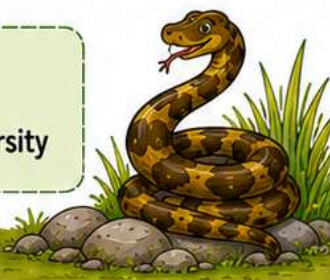
★ PERSUADE THE COUNCIL



If the council acts, I predict...



habitat • population • feeding relationship
evidence • prediction • conservation • biodiversity



LESSON 7 PART A

GRASSLAND CONSERVATION EXPO



COUNCIL EVIDENCE BRIEF

Environmental Scientist: _____



YOUR MISSION

Use your scientific findings from this unit to convince the Local Council to take action to protect the grassland.



1 EXPLAIN THE PROBLEM

My grassland issue is:



This is a problem because...

2 COMMUNICATE YOUR DATA AND FINDINGS

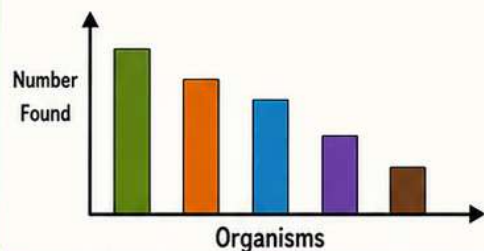


Look at your population graph or population data.

The data shows...

The pattern I identified was...

GRASSLAND POPULATION DATA



LESSON 7 PART B

GRASSLAND CONSERVATION EXPO



COUNCIL EVIDENCE BRIEF



3 USE EVIDENCE FROM FEEDING RELATIONSHIPS



Use one of your food chains.

My food-chain evidence shows...



This feeding relationship is important because...



4 COMMUNICATE YOUR PREDICTION



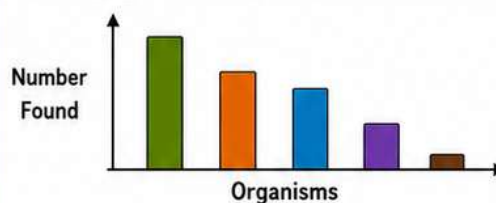
Think about your Mouse Mystery investigation.

Based on the pattern in the data, I predicted that the mouse population would...

My evidence was...

MOUSE MYSTERY DATA

Year	Grass	Mice	Snakes
Year 1	35	15	4
Year 2	20	?	2



5 MAKE YOUR RECOMMENDATION



I recommend that the Local Council...

The council should take action because...

A HEALTHY GRASSLAND
IS A HOME FOR
ALL LIVING THINGS!





PRESENT TO THE LOCAL COUNCIL

Be a
Confident
Science
Communicator!

Use your Council Evidence Brief to present your scientific findings.

TELL THE COUNCIL:



Use scientific vocabulary and persuasive language when you speak.

PERSUASIVE SCIENCE LANGUAGE

- The evidence shows... _____
- The data suggests... _____
- This pattern shows... _____
- We predict... _____
- This could affect... _____
- We recommend... _____
- The council should... because... _____

SCIENTIFIC VOCABULARY

	habitat		energy
	organism		population
	producer		graph
	consumer		pattern
	decomposer		relationship
	food chain		prediction
	feeding relationship		evidence
			conservation

ASSESSMENT CHECK – I HAVE:

- | | |
|---|--|
| ☐ Communicated scientific ideas and findings | ☐ Used evidence |
| ☐ Used data | ☐ Made a recommendation for the Local Council |
| ☐ Explained a feeding relationship | ☐ Used scientific vocabulary |
| ☐ Communicated a prediction | ☐ Used persuasive techniques |



TOGETHER, WE CAN PROTECT
OUR GRASSLANDS FOR THE FUTURE!

Habitat Explorers

Living things and their habitats

A habitat is the natural place where living things live, find food, water and shelter.

Look closely!
Many different organisms live together in a habitat. They depend on each other to survive.

ORGANISMS IN A HABITAT

A habitat is home to many living things. Each has a role to play!

PLANTS

Plants make their own food using sunlight, water and air.

- Provide food and oxygen
- Provide shelter
- Help keep the soil healthy

INSECTS

Insects are small animals with six legs.

- Pollinate flowers
- Break down dead matter
- Food for other animals

BIRDS

Birds have feathers, wings and beaks.

- Eat insects and seeds
- Spread seeds
- Help control populations of other animals

WORMS

Worms live in the soil and are important helpers.

- Break down dead leaves and organic matter
- Improve soil texture
- Help plants grow

FUNGI

Fungi include mushrooms, moulds and yeasts.

- Break down dead organisms
- Return nutrients to the soil
- Some form partnerships with plant roots

SPIDERS

Spiders are not insects. They have eight legs.

- Catch insects in webs
- Help control insect numbers
- Food for birds and other animals

EVERY ORGANISM MATTERS!

All living things in a habitat are connected. If one is affected, others are too.

A healthy habitat supports all living things.

Observe it. Respect it. Protect it. Be a Habitat Explorer!

Who Eats What?

Every living thing is part of a food chain or food web.

All living things need food to survive. Food chains show how energy moves through a habitat.

Energy flows from producers to consumers to decomposers.

PRODUCERS

Make their own food. They are the start of every food chain!

Producers use sunlight, water, air and nutrients to make food.

CONSUMERS

Cannot make their own food. They get energy by eating other living things.

PRIMARY CONSUMERS

Eat plants.

SECONDARY CONSUMERS

Eat primary consumers.

TERTIARY CONSUMERS

Eat other consumers.

DECOMPOSERS

Break down dead plants, animals and waste. They return nutrients to the soil.

Decomposers help to recycle nutrients so producers can grow.

EXAMPLE: A SIMPLE FOOD CHAIN

THINGS TO THINK ABOUT

- What would happen if there were no producers?
- What might happen if frogs disappeared?
- Why are decomposers important?

All living things are connected. We need each other to survive!

FOOD CHAIN BUILDERS

Energy moves from one living thing to another in a food chain.

STUDENTS LABEL:



PRODUCER

Living things that make their own food using sunlight, water and air.
Example: grass, plants, native seeds



CONSUMER

Living things that cannot make their own food. They get energy by eating other living things.
Example: mouse, snake, lizard, eagle



DECOMPOSER

Living things that break down dead plants, animals and waste. They return nutrients to the soil.
Example: fungi, bacteria, worms, insects

DECOMPOSERS AT WORK



Fungi



Worms



Insects

Decomposers recycle nutrients so the food chain can start again.



1 Grass → Mouse → Snake → Wedge-tailed Eagle



Grass

Producer



Mouse

Consumer (Primary)



Snake

Consumer (Secondary)



Wedge-tailed Eagle

Consumer (Tertiary)

2 Grass → Grasshopper → Lizard → Falcon



Grass

Producer



Grasshopper

Consumer (Primary)



Lizard

Consumer (Secondary)



Falcon

Consumer (Tertiary)

3 Native Seeds → Mouse → Owl



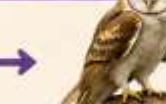
Native Seeds

Producer



Mouse

Consumer (Primary)



Owl

Consumer (Secondary)

All food chains are connected. If one part changes, it can affect everything!

SAVE OUR GRASSLAND

Healthy grasslands. Healthy wildlife. Healthy future.

Grasslands are home to many amazing plants and animals. But they are under threat.

Grasslands need us, and we need grasslands!

ISSUES AFFECTING GRASSLANDS



INVASIVE FOXES



Foxes hunt native animals such as small mammals, birds and reptiles.

WHAT HAPPENS?
Native wildlife numbers drop and ecosystems become unbalanced.



RABBITS



Rabbits eat lots of grass and plants and dig burrows that damage the soil.

WHAT HAPPENS?
Plants are eaten faster than they can grow. Soil is left bare and erosion increases.



DROUGHT



Low rainfall means there is less water for plants, animals and soil.

WHAT HAPPENS?
Plants dry out and die. Animals struggle to find water and food.



BUSHFIRE



Fire can burn large areas of grassland and destroy plant and animal habitat.

WHAT HAPPENS?
Plants and animals can be killed. Recovery takes a long time.



OVERGRAZING



Too many animals eat too much grass and trample the soil.

WHAT HAPPENS?
Grass doesn't have time to grow back. Soil gets damaged and plants die.



POLLUTION



Rubbish, chemicals and waste can harm plants, animals and soil.

WHAT HAPPENS?
Animals can get sick or die. Soil and water become unsafe.



WHAT CAN WE DO?



Protect native plants and animals.



Control invasive foxes and rabbits.



Save water and use it wisely.



Prevent bushfires and be fire ready.



Manage grazing to protect the land.



Keep our grasslands clean.

Healthy grasslands support all living things. Let's work together to protect them for today and tomorrow!

