



Food Webs and Life Cycles

How Ecosystems Function and Change

Stage 3

NSW Stage 3 Outcomes:

ST3-4LW-S · ST3-2DP-T · GE3-1 · GE3-2 · EN3-1A · EN3-6B · MA3-18SP · CA3



SURVIVAL REQUIREMENTS

What do living things need to survive?



All living things require:

- food (energy)
- water
- shelter
- suitable environmental conditions

If one requirement is limited, it can affect survival.

Which factor is most likely to limit survival in an ecosystem? Why?



Complete the table:

Requirement	Impact if limited
Food	
Water	
Shelter	

Explain how drought conditions impact survival.



FOOD CHAINS



Energy Transfer in Food Chains

A food chain shows how energy flows from one organism to another. Energy begins with producers (plants) and moves through consumers.

Why are producers essential in all ecosystems?

Create a food chain using a plant, herbivore and predator

Explain how energy decreases as it moves through a food chain.



FOOD WEBS

Interconnected Food Webs

Food webs show how multiple food chains are linked.

Most organisms are part of complex feeding networks.

Why are food webs more stable than simple food chains?

Sketch a small food web using at least 4 organisms.

Explain what would happen if one organism were removed.

ROLES IN ECOSYSTEMS

Ecological Roles in Ecosystems

Organisms have different roles in ecosystems, including:

- producers
- primary consumers
- secondary consumers
- apex predators

How do these roles maintain balance?



Choose one animal and explain its role, what it eats and what might eat it:



LIFE CYCLES

Growth & development

All living things go through life cycles involving growth, development and reproduction. These stages are essential for survival of the species.



Why is reproduction important in ecosystems?

Draw and label:

Draw and label a life cycle including:

- juvenile stage
- adult stage
- reproduction

A large, empty rectangular box with a thin black border, intended for a student to draw and label a life cycle.

Extension

Compare life cycles of two different animals.

LIFE CYCLES & SURVIVAL

Survival through life stages

Not all organisms survive to adulthood.

Survival rates affect population size and ecosystem balance.



What factors affect survival at different life stages?

Explain:

What might happen if most young do not survive? Think 'bigger picture!'



INTERDEPENDENCE

Interdependence in ecosystems

Living things depend on each other for food, shelter and survival. Changes to one part of a system affect many organisms.



How are organisms connected in an ecosystem?

Complete:

Explain one example of interdependence between two organisms.



HUMAN IMPACT

Human impact on ecosystems

Human activities can disrupt food webs and life cycles.

Examples include:

- habitat destruction
- pollution
- climate change

Which human impact has the greatest effect on ecosystems? Why?



Complete:

List an example of a human activity → ecosystem change → Impact on organisms

Explain one example of interdependence between two organisms.



AT THE ZOO

Observe real animals and their behaviours

Choose one animal. Record:

- Habitat: _____
- Food source: _____
- Behaviour: _____
- Role in the food web: _____

Explain how these observations show adaptation.

ZONE: TRICKY TONGUES & TREETOPS

FOOD RELATIONSHIPS

Feeding relationships link organisms in ecosystems.

THINK...

What happens when a food source decreases?

ACTIVITY...

Explain how one change can affect multiple food organisms

ZONE: DAINTREE RAINFOREST

RAINFOREST ECOSYSTEMS

Rainforests contain complex and highly interconnected food webs.

THINK...

Why are rainforests highly biodiverse?

ACTIVITY

Explain how plants and animals depend on each other in this ecosystem.



ZONE: KANGAROO WALKABOUT

KANGAROO

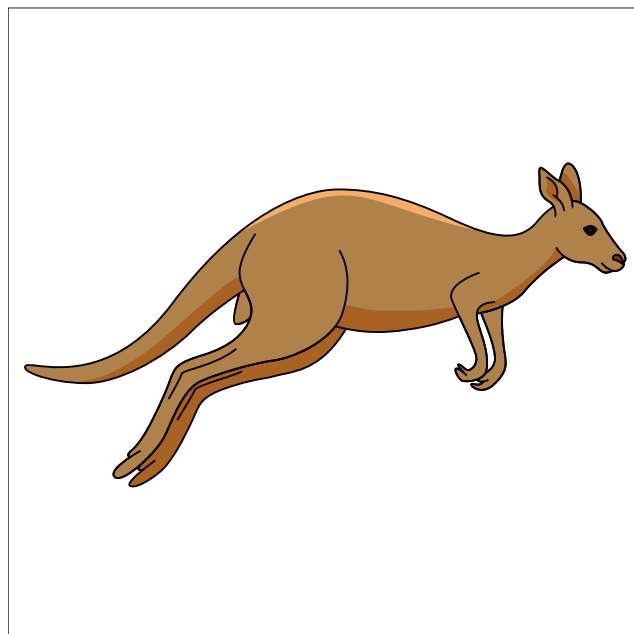
Kangaroos are primary consumers in grassland ecosystems.

THINK...

How does energy flow through this animal in a food chain?

ACTIVITY...

Explain how the kangaroo transfers energy within a food web.



ZONE: NIGHTFALL

NOCTURNAL ANIMALS

Sugar gliders are omnivores active at night.

THINK...

What advantages does nocturnal behaviour provide?

ACTIVITY...

Explain how this behaviour improves survival and feeding.



ZONE: CROCODILE BILLABONG

CROCODILE

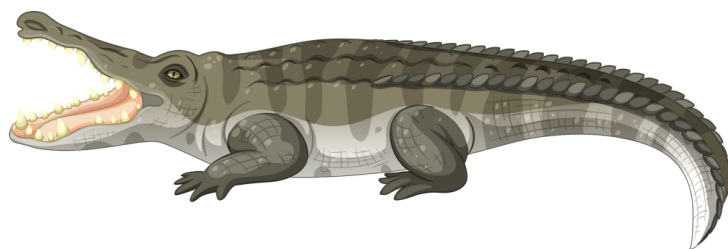
Crocodiles are apex predators in aquatic ecosystems.

THINK...

How do apex predators influence ecosystems?

Activity

Explain how removing this predator would affect the food web.



AFTER OUR VISIT TO THE ZOO

Reflection

Describe one animal and explain:

its role in the food web

its life cycle

how it survives

DATA AND ANALYSIS

Class Data

Collect and analyse:

- Which animal was most observed?
- Why might this be?

PROTECTING ECOSYSTEMS

Write:

Write a paragraph: "How can humans protect food webs and life cycles?"

Include:

- one issue
- one solution
- one expected outcome
