

5 LESSONS

TERM ONE

FRESHWATER TURTLES

- Learning Objectives
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Photo credit: Dr Donald McKnight





Photo credit: Marilyn Connell

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LEARNING OBJECTIVES

Here you will find the learning objectives for this lesson

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CLASSROOM ACTIVITIES

There are four activities for this lesson.

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BACKGROUND INFORMATION

Learn about Australian freshwater turtles. Content includes turtle morphology, habitat use and ecological role.

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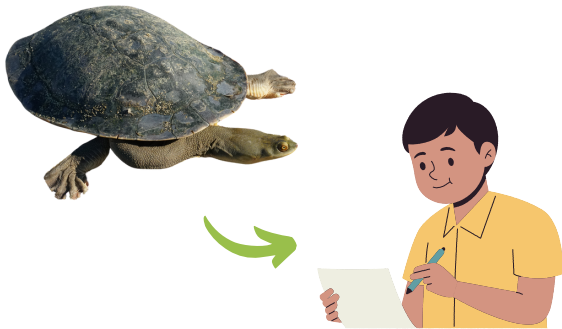
CURRICULUM

See how this lesson maps with the Australian curriculum

Learning Objectives

At the end of the lesson, students will be able to:

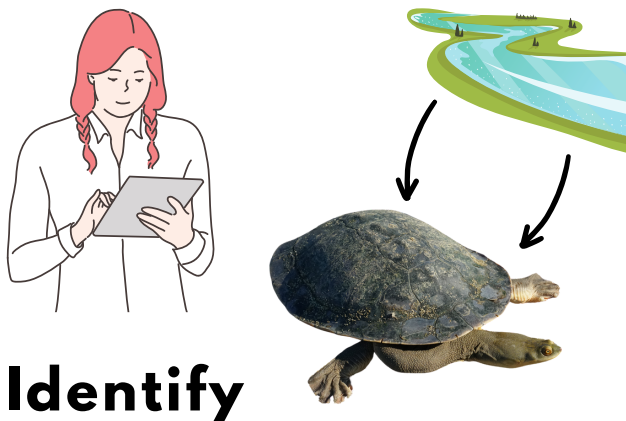
- (1) Describe a freshwater turtle;
- (2) Identify morphological features of a freshwater turtle;
- (3) Identify freshwater turtle habitats and explain how freshwater turtles use these habitats throughout their life.
- (4) Recognise the role freshwater turtles play in the ecosystem.



Describe



Recognise



Identify

Background Information

Australian freshwater turtles

Freshwater turtles are a diverse group of reptiles that are adapted to aquatic habitats, including ponds, lakes, rivers and wetlands. Australia is home to 25 species of freshwater turtle, with all but one belonging to the Chelidae family. Chelids, withdraw their necks sideways into their shell for protection.

Freshwater turtle morphology

(1) Shell

Freshwater turtles are characterised by a protective shell that consists of two main parts: the carapace (top of the shell) and the plastron (underside of the shell). The outer surface of the carapace and plastron are covered with bony plates called scutes. Scutes are made of keratin (similar to that of fingernails and hair) and they protect the underlying bone.

The arrangement and number of scutes vary among species, contributing to the identification and classification of different species. The colour and patterns on the turtle shell vary among species. The size of the turtle shell varies among species. In some turtle species, there may be differences in shell size between males and females, known as sexual dimorphism.



(2) Limbs

Freshwater turtles typically have four limbs, each equipped with webbed feet. The limbs are well-suited for the turtle's semi-aquatic life, providing both swimming ability and mobility on land. Freshwater turtles can retract their limbs partially or fully into their shells.

(3) Head and Neck

The length of the neck varies among species. Some freshwater turtles have relatively short necks, while others, like snake-necked turtles, possess exceptionally long necks that can extend sideways. The flexibility of the neck allows turtles to reach food sources, bask in the sun, and retract it for protection.

The structure of the mouth and jaw reflects the turtle's diet. Carnivorous species typically have sharp, pointed jaws for gripping and consuming prey, while herbivorous turtles may have beak-like mouths for cutting and chewing vegetation. Turtles lack teeth but have powerful jaw muscles that aid in grasping and processing food.

(4) Eyes and Nostrils:

Freshwater turtles have eyes positioned on the side of their head, providing a wide field of view. Nostrils are located on the top of the snout and allow the turtle to breathe while mostly submerged.

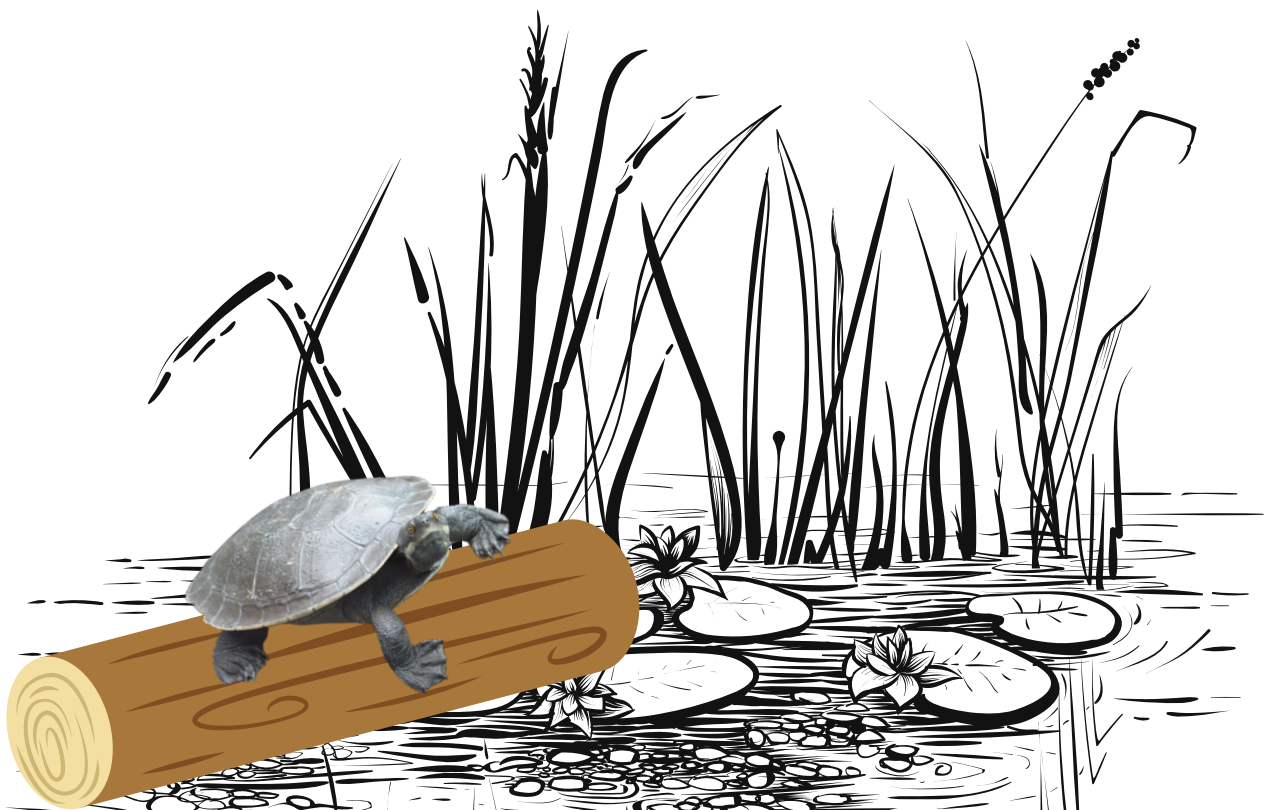


Habitat use of freshwater turtles

Freshwater turtles rely on both aquatic and riparian habitats for different aspects of their lives. Freshwater turtles use the aquatic habitat for swimming, feeding, shelter and basking. Freshwater turtles use their webbed feet and streamlined bodies to move through the water. Turtles search for and consume food within the aquatic habitat, such as aquatic plants, invertebrates, fish and carrion (dead animal matter). The riparian habitat offers a variety of food sources for freshwater turtles, including wind-blown leaf matter and terrestrial invertebrates.

Freshwater turtles are ectothermic which means they rely on external sources of heat to regulate their body temperature. Freshwater turtles will bask on rocks and logs which protrude from the water. The riparian habitat often provides basking locations in the form of fallen trees and branches.

Freshwater turtles nest in the riparian habitat. Females leave the water to lay their eggs and often select areas with loose, sandy soil and minimal vegetation cover. Females dig a nest chamber with their hind legs and deposit their eggs inside. The eggs are carefully covered with soil and the females return back to the water.



Ecological role of freshwater turtles

Turtles are highly generalist consumers and fill multiple ecological roles in the food web including top predators, herbivores, mesocarnivores and scavengers. Freshwater turtles are often referred to as “vacuum cleaners” of the river, as they feed on carrion (dead animal matter) and mitigate the effect of animal decomposition.

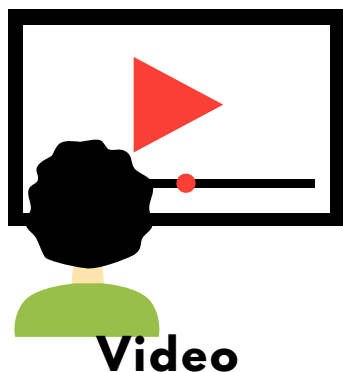
Classroom Activities

ACTIVITY 1

1A) Begin with a class discussion about what students know about turtles. Write their ideas on the whiteboard.

1B) Watch the following video which provides an overview of freshwater turtles in Australia.

Link to video: [<https://www.youtube.com/watch?v=-w6KueWTR-8>] (Copy and paste into browser)



Classroom Activities

ACTIVITY 2

(2A) Place students into groups and assign each group an Australian freshwater turtle species to research.

(2B) Encourage students to search for information using various forms of literature (i.e. articles, books or printouts).

(2C) Students should collate information relating to the species morphology, distribution, habitat preferences and reproduction.

(2D) Students present their findings as a poster and share the information with the class.



Collate



Present

ACTIVITY 3

(3A) Display images or diagrams of Australian freshwater turtles.

(3B) Discuss key morphological features, including shell, limbs, head, neck.

(3C) Provide students with the Turtle Morphology Handout and ask them to label key morphological features.

Discuss



Classroom Activities

ACTIVITY 4

(4A) Ask students to create their own freshwater turtle using paper mache.

(4B) Encourage students to incorporate the morphological features of freshwater turtles that they have learnt about in the prior activities (i.e. webbed feet, scutes etc).

Steps for making a paper mache turtle:

Materials:

- Newspapers
- Cardboard (for the base)
- Masking tape
- Flour
- Water
- Mixing bowl
- Plastic wrap
- Acrylic paint and paintbrushes



Instructions:

1. Create the base: Cut a piece of cardboard into the desired shape of your turtle's shell. This will be the base of your paper mache turtle.
2. Form the turtle shell: Crumple newspapers into balls and tape them onto the cardboard base to create the basic shape of the turtle's shell. Use masking tape to secure the newspaper balls in place.
3. Build the body and limbs: Extend the body and limbs using more crumpled newspaper and masking tape. Shape the limbs and tail.
4. Prepare the paper mache paste: In a mixing bowl, mix equal parts of flour and water to create a paste. Stir until smooth.
5. Apply the paper mache layers: tear newspaper into strips. Dip each strip into the paste, ensuring it's fully coated, and then place it onto the turtle's structure. Smooth out the strips to remove excess paste and create a uniform layer. Continue layering until the entire turtle is covered. Allow each layer to dry before applying the next. Apply several layers of paper mache to ensure the turtle is strong and durable. Aim for at least 3-4 layers.
6. Paint your turtle: Once the paper mache is completely dry, paint your turtle using acrylic paint. Get creative with colours and patterns to make your turtle unique.

Australian Curriculum addressed in this Lesson



Science

Strand: Science understanding (Year 5)

Sub-strand: Biological Sciences

AC9S5U01: examine how particular structural features and behaviours of living things enable their survival in specific habitats.

Strand: Science understanding (Year 6)

Sub-strand: Biological Sciences

AC9S6U01: investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions.



English

Strand: Literacy (Year 5)

Sub-strand: Analysing, interpreting and evaluating

AC9E5LY04: navigate and read texts for specific purposes, monitoring meaning using strategies such as skimming, scanning and confirming.

AC9E5LY05: use comprehension strategies such as visualising, predicting, connecting, summarising, monitoring and questioning to build literal and inferred meaning to evaluate information and ideas.

Sub-strand: Creating texts

AC9E5LY07: plan, create, rehearse and deliver spoken and multimodal presentations that include relevant, elaborated ideas, sequencing ideas and using complex sentences, specialist and technical vocabulary, pitch, tone, pace, volume, and visual and digital features.

Australian Curriculum addressed in this Lesson

 **English - continued****Strand: Literacy (Year 6)****Sub-strand: Analysing, interpreting and evaluating**

AC9E6LY04: select, navigate and read texts for a range of purposes, monitoring meaning and evaluating the use of structural features; for example, table of contents, glossary, chapters, headings and subheadings.

AC9E6LY05: use comprehension strategies such as visualising, predicting, connecting, summarising, monitoring and questioning to build literal and inferred meaning and to connect and compare content from a variety of sources.

Sub-strand: Creating texts

AC9E6LY07: plan, create, rehearse and deliver spoken and multimodal presentations that include information, arguments and details that develop a theme or idea, organising ideas using precise topic-specific and technical vocabulary, pitch, tone, pace, volume and visual and digital features.

**Visual Arts****Strand: Creating and Making (Years 5 and 6)**

AC9AVA6C01: use visual conventions, visual arts processes and materials to plan and create artworks that communicate ideas, perspectives and/or meaning