

TURTLES IN SCHOOLS

TERM 1 WORKBOOK



Photo credit: Ricky Spencer

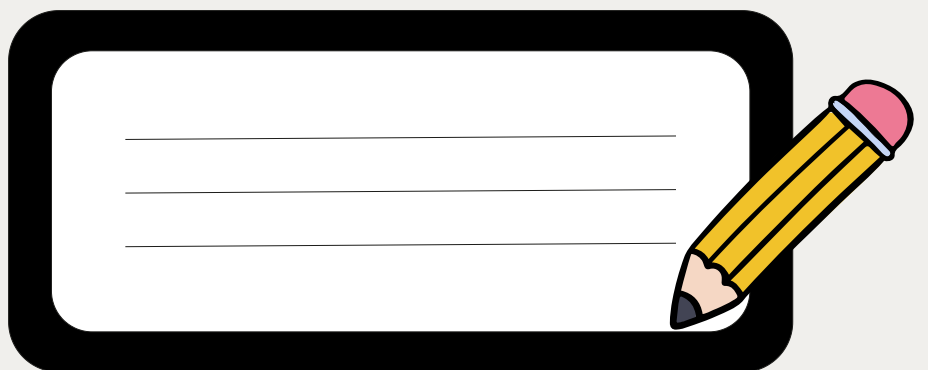




Photo credit: Dr James Van Dyke

TURTLES IN SCHOOLS

Produced by the
1 Million Turtles Community
Conservation Program
and funded by
The Foundation for National
Parks and Wildlife.

In the pages that follow, you will find a comprehensive set of lesson plans.

Our initiative is not just about imparting knowledge but fostering a deep connection between students and their natural environment and instilling a sense of responsibility and awareness of freshwater turtles and their conservation.

As we embark on this educational venture, we extend our gratitude to educators, students, and all those who champion the cause of conservation. The Turtles in Schools Program is not just a curriculum; it is a movement to inspire the next generation of environmental custodians.

Thank you,

**1 Million Turtles Community
Conservation Program**

5 LESSONS

TERM ONE

FRESHWATER TURTLES

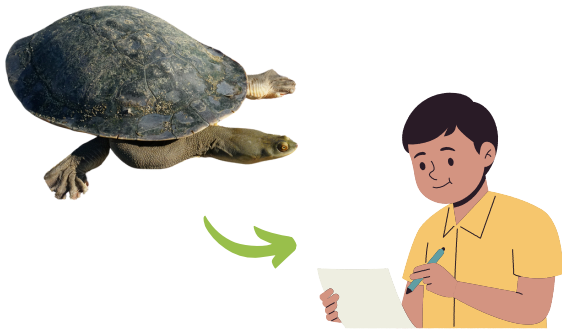
- Learning Intentions
- Background
- Activities
- Curriculum Mapping

Photo credit: Dr Donald McKnight



Learning Intentions

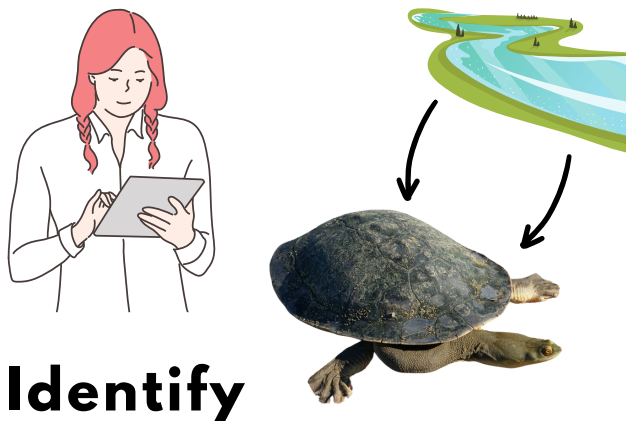
- (1) Describe a freshwater turtle;
- (2) Identify morphological features of a freshwater turtle;
- (3) Identify freshwater turtle habitats and explain how freshwater turtles use these habitats throughout their life.
- (4) Recognise the role freshwater turtles play in the ecosystem.



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 approximately 26 species of freshwater turtle, with all but one belonging to the Chelidae family. Chelids, withdraw their necks sideways into their shell for protection.

List of Australian freshwater turtles in the family Chelidae:

Chelodina:

- *Chelodina canni*
- *Chelodina burrungangjii*
- *Chelodina expansa*
- *Chelodina longicollis*
- *Chelodina kuchlingi*
- *Chelodina oblonga*
- *Chelodina rugosa*
- *Chelodina steindachneri*

Elseya:

- *Elseya albagula*
- *Elseya dentata*
- *Elseya flaviventralis*
- *Elseya irwini*
- *Elseya lavarackorum*

Elusor macrurus

Emydura:

- *Emydura macquarii*
- *Emydura tanybaraga*
- *Emydura victoriae*
- *Emydura subglobosa subglobosa*
- *Emydura subglobosa worrelli*

Myuchelys:

- *Myuchelys belli*
- *Myuchelys georgesi*
- *Myuchelys latisternum*
- *Myuchelys purvisi*

Pseudemydura umbrina

Rheodytes leukops

Australian freshwater turtle in the family Carettochelyidae:

Carettochelys insculpta

Examples of Australian Freshwater Turtles



Oblong turtle, *Chelodina oblonga*
Photo credit: Dr. Anthony Santoro



Macquarie River turtle, *Emydura macquarii*
Photo credit: Dr. James Van Dyke



Bellinger River turtle, *Myuchelys georgesii*
Photo credit: Dr Kristen Petrov



Mary River turtle, *Elusor macrurus*
Photo credit: Marilyn Connell



Pig-nose turtle, *Carettochelys insculpta*
Photo credit: John Cann



Eastern long-neck turtle, *Chelodina longicollis*
Photo credit: Prof. Arthur Georges

Background Information

Australian freshwater turtles

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 and contribute to the identification and classification of different species. The size of the turtle shell also 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.



Freshwater turtle habitat use

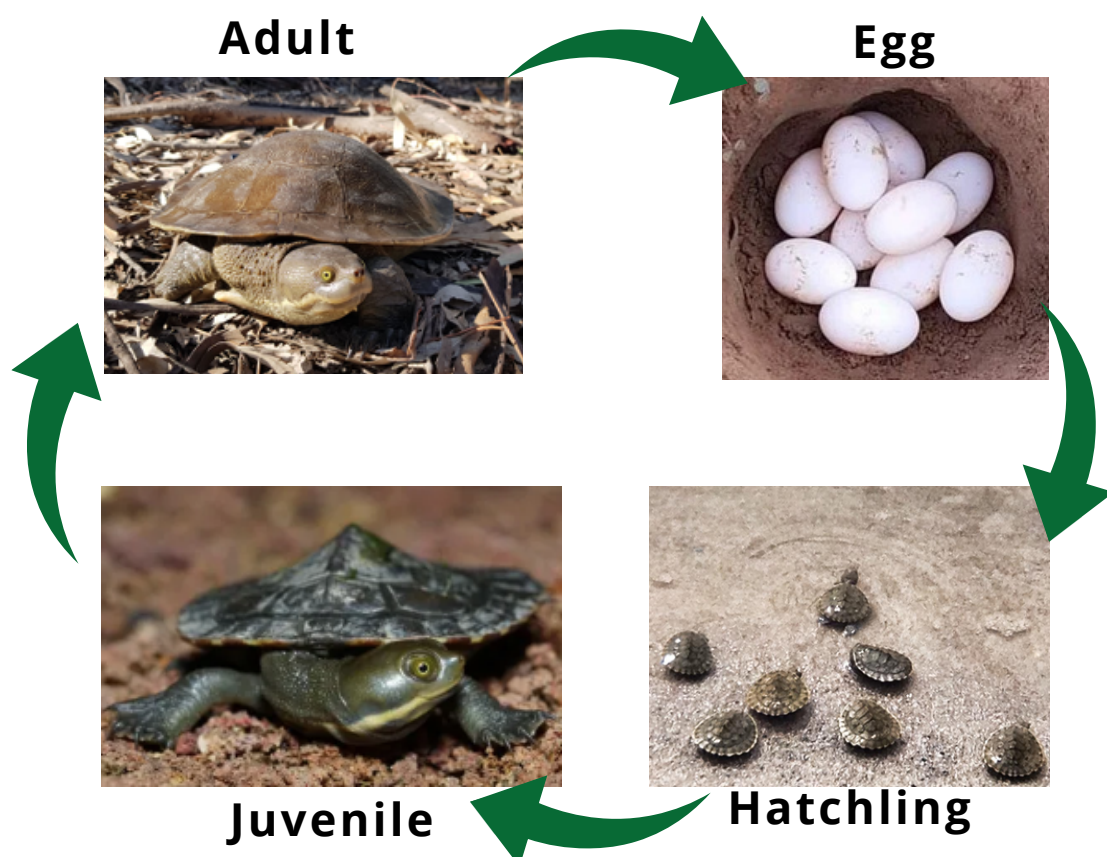
Freshwater turtles rely on both aquatic and riparian habitats for different aspects of their lives. Freshwater turtles use the aquatic habitat for swimming, feeding, shelter and basking. Freshwater turtles use their webbed feet and streamlined bodies to move through the water. Turtles search for and 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 turtle habitat use

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.

Lifecycle of freshwater turtles

Female turtles leave the water to lay their eggs. Females often select areas with loose, sandy soil and minimal vegetation cover. Females will dig a nest chamber with their hind legs and deposit their eggs inside. They then bury their eggs, leaving them to incubate underground. The incubation period varies among species but usually lasts 2-3 months. After nesting, females return back to the water. When incubation is complete, the eggs hatch and hatchlings emerge from the nest and make their way 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.

Invasive freshwater turtles

The Red-eared slider (*Trachemys scripta elegans*)

The red-eared slider is a species of freshwater turtle native to the midwestern states of the USA and northeastern Mexico. The red-eared slider is widely kept as a pet around the world and has been introduced to many countries outside its native range, including Australia.

Red-eared sliders have a distinctive red or orange stripe behind each eye and yellow-cream coloured stripes on their head, neck and legs. The carapace is dark green to brown in colour and may have yellow and black blotch markings.

Impact of Red-eared sliders:

The Red-eared slider is listed by the IUCN (International Union for Conservation of Nature) as one of the ‘world’s worst invasive alien species’.

The Red-eared slider is a threat to native freshwater turtle species. It is an aggressive species and competes with native species for food, basking habitats and nesting sites.



Who to contact if you see a Red-eared slider:

It is important to report sightings of Red-eared sliders to prevent their spread and minimise their impact on native ecosystems. You can report sightings to FeralScan (feralscan.org.au) or report the sighting to your local authority.

Classroom Activities

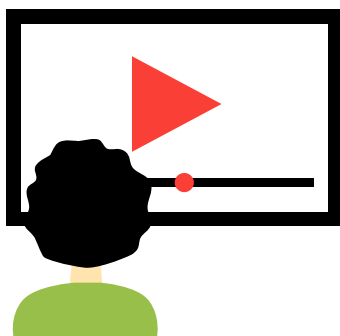
ACTIVITY 1

(1A) As a class discuss what you know about freshwater turtles.

(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)

(1C) Complete the Video Reflection worksheet below.



Video

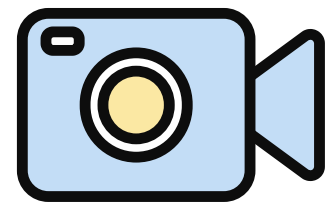


Discuss

Video Reflection

Three things I learnt while watching

3



Two questions I have from the video

2



One fact I found most interesting

1



Classroom Activities

ACTIVITY 2

(2A) In groups, research an Australian freshwater turtle species.

(2B) Search for information using various forms of literature (i.e. articles, books or printouts).

(2C) Collate information relating to the species morphology, distribution, habitat preferences and reproduction. Include references and/or a bibliography.

(2D) Present your findings as a poster and share the information with the class.



Collate



Present

ACTIVITY 3

(3A) Look at images of Australian freshwater turtles.

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

(3C) Label key morphological features in the Turtle Morphology Handout.

Discuss



Australian Freshwater Turtles

Fill in the information below about your assigned freshwater turtle species.

Assigned freshwater turtle:

Scientific name:

Description:

Distribution:

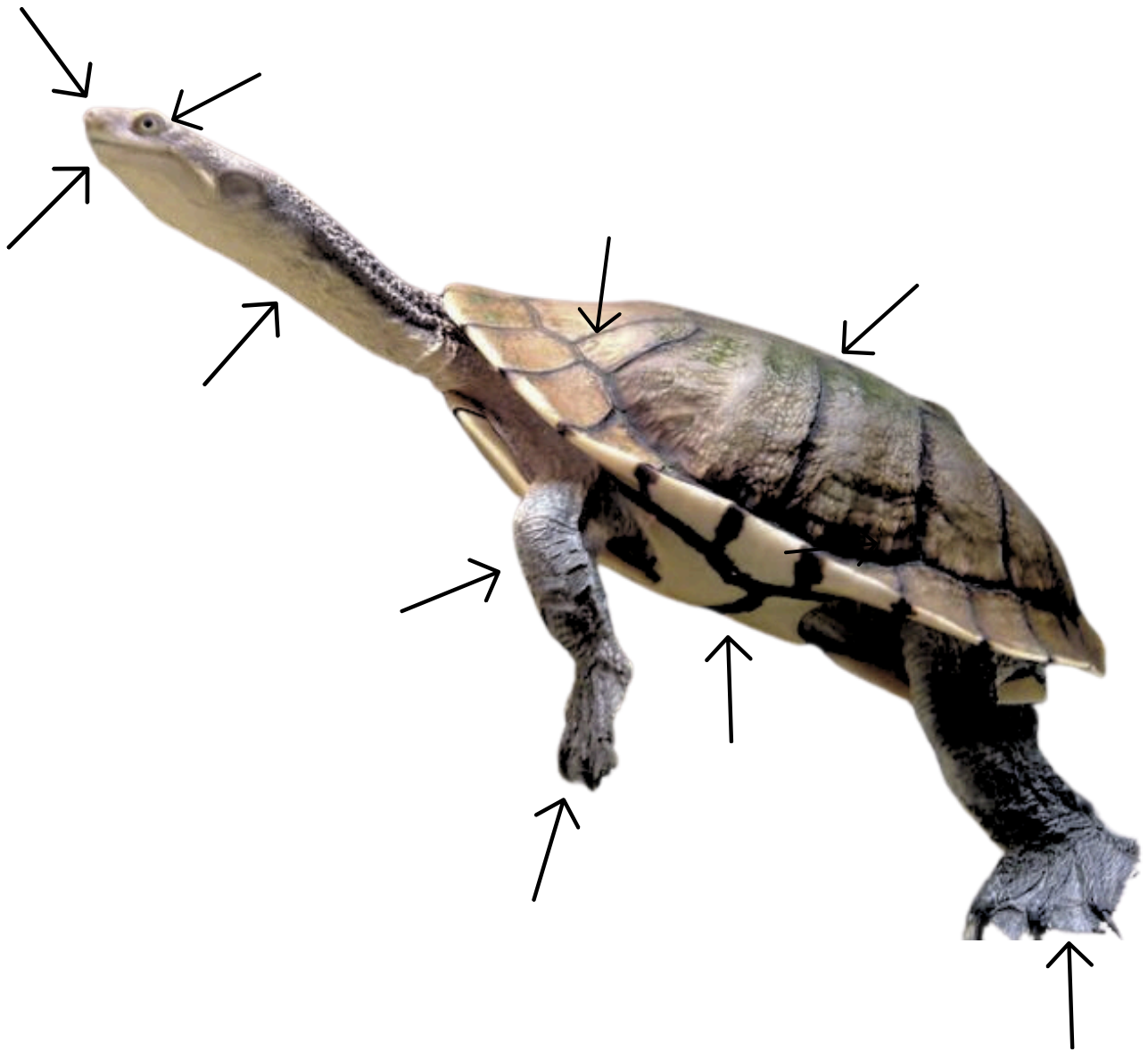
Habitat preferences:

Reproduction:



Freshwater Turtle Morphology

Label the morphological characteristics of the Eastern long-neck turtle



Classroom Activities

ACTIVITY 4

(4A) Create your own freshwater turtle using paper mache.

(4B) Incorporate the morphological features of freshwater turtles that you 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.