

TURTLES IN SCHOOLS

TERM 4 WORKBOOK



Photo credit: TurtleSAT User

A graphic element consisting of a large, rounded rectangular box with a thick black border. Inside the box are three horizontal lines for writing. To the right of the box is a stylized yellow pencil with a pink eraser and a sharpened lead tip.



ACKNOWLEDGEMENT OF COUNTRY

1 Million Turtles Community Conservation Program acknowledges the Traditional Custodians of the lands, waterways, and skies across Australia, where we live, learn, and work.

We pay our deepest respects to Elders past, present and emerging and extend our respect to all Aboriginal and Torres Strait Islander peoples.

We recognise the deep knowledge and continuing connection First Nations peoples have to the land, waters and culture, and we are grateful for their ongoing care of Country.



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**

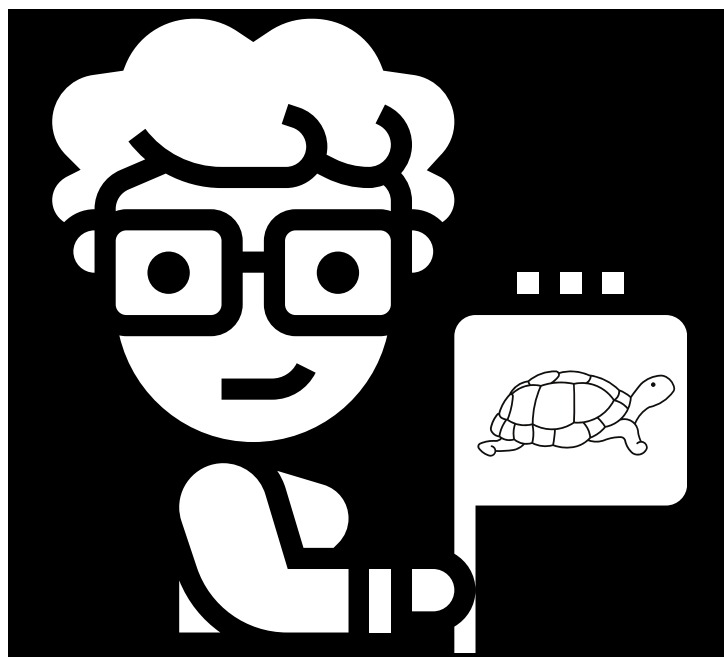
Test your Understanding

Read the following passage and answer the questions on the following page:

Civic literacy encompasses the knowledge, skills, and attitudes necessary for individuals to participate effectively in civic life and contribute to positive social change. In the context of freshwater turtle conservation in Australia, civic literacy plays a crucial role in empowering people to become citizen scientists and ambassadors for freshwater turtles. You can use the knowledge and skills you have gained to raise awareness about freshwater turtle conservation issues within your community and advocate for policy changes to protect freshwater turtle habitats and address conservation challenges.



As ambassadors for freshwater turtles, you have the opportunity to inspire others to care about these fascinating creatures. By leading by example and demonstrating your commitment to freshwater turtle conservation through volunteer work, fundraising efforts, and advocacy campaigns, you can inspire others to join the movement and work together to safeguard the future of Australian freshwater turtle species.



Test your Understanding

Questions:

Q1: What is civic literacy and what role can it play in freshwater turtle conservation?

Q2: How can you use your knowledge and skills to raise awareness about freshwater turtle conservation in their communities?

Q3: Describe the importance of inspiring others to take action for freshwater turtle conservation.

Test your Knowledge

Questions:

Q1: During which season do freshwater turtles in Australia nest?

- (a) Autumn
- (b) Spring
- (c) Summer
- (d) Winter

Q2: What triggers freshwater turtles to nest?

- (a) Cold weather
- (b) Shortage of food
- (c) Rainfall
- (d) Change in day length

Q3: Where do female freshwater turtles typically choose to create their nests?

- (a) In deep water
- (b) In dense vegetation
- (c) In sandy or gravelly substrates near water bodies
- (d) On rocky cliffs

Q4: What role do community conservation groups play in freshwater turtle nest protection?

- (a) They raise awareness about freshwater turtle nesting
- (b) They implement freshwater turtle nest protection
- (c) They monitor nesting sites
- (d) All of the above

Q5: What does the term "clutch" mean?

- (a) The act of digging a nest hole by the female turtle
- (b) The number of eggs in a nest
- (c) The protective covering placed over the turtle nest
- (d) The period of time between nest construction and egg laying by the female turtle

Test your Knowledge

Questions:

Q5: Discuss the role of education and outreach programs in raising awareness about the importance of freshwater turtle nesting and conservation.

Q6: Explain the significance of involving First Nations People in freshwater turtle conservation efforts and how their traditional knowledge can contribute to conservation strategies.

Classroom Activities

ACTIVITY

What I Know (K), What I Want to Know (W), What I Learnt (L)

Materials:

- Large chart paper divided into 3 sections labeled "K" (Know), "W" (Want to Know), and "L" (Learnt).
- Markers or pens

Instructions:

(1A) Brainstorm what you Know (K) about wetlands and freshwater turtles. Write them in the "What I Know" column.

(1B) Write questions of "What I Want to Know" in the Want to Know (W) column.

What I Know
(K)

Want to Know
(W)

What I Learnt
(L)



TURTLES

LESSON

TERM FOUR

FRESHWATER TURTLE NESTING

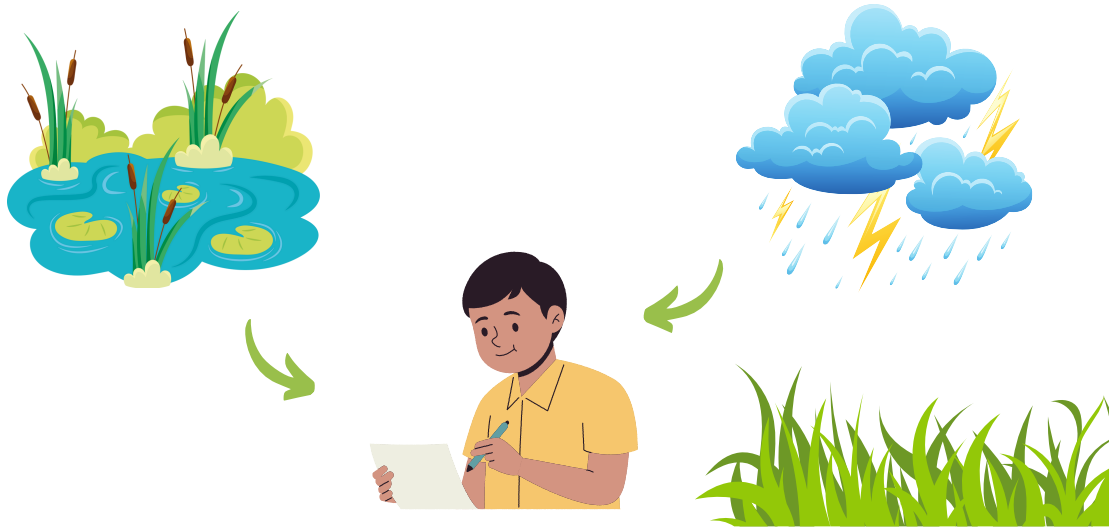
- Learning Intentions
- Background
- Activities
- Curriculum Mapping

Photo credit: Dr Donald McKnight



Learning Intentions

- (1) Identify suitable turtle nesting habitat within the wetland environment and describe nest site characteristics;
- (2) Describe turtle nesting behaviour (time of year, egg chamber).



Identify



Describe

Background Information

Freshwater turtle nesting

Nesting season:

The nesting season for freshwater turtles in Australia varies among species and regions. Generally, it occurs during the warmer months, typically from September to March.

Environmental triggers for nesting:

Females turtles typically emerge from the water during or after spring/summer rainfall as the soil is softer making nest construction easier.



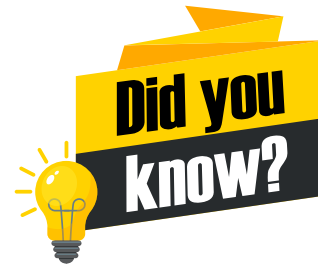
Nest site selection:

Freshwater turtles typically choose sandy or loose soil for nesting, in open areas with minimal vegetation cover. The nesting site is often located close to the waters edge, however some species may travel up to 50 metres from the waters edge.



Nest excavation and egg deposition:

The female will use her hind legs to dig a hole (known as the nest chamber) and will deposit her eggs into the chamber. The female will then use her hind legs to fill in the nest with loose dirt and will compact the soil on top using the force of her body. Nesting may take between 2 to 3 hours to complete. Clutch size varies among species, with females generally laying between 10 - 25 eggs.



Northern long-necked turtles create their nests underwater at the end of the wet season in northern Australia. Embryonic development remains arrested until floodwaters recede in the dry season and the ground dries.

Egg incubation and hatchling emergence:

The eggs will incubate in the nest chamber (underground) for 2 to 3 months (depending on the species). Incubation in some species can be up to 12 months. Hatchlings will begin to emerge from the nest in early autumn. Once emerged they will make their way back to the waterbody.



Classroom Activities

ACTIVITY 1

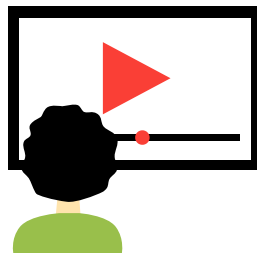
(1A) Watch the following video from the MidCoast Council. The video provides an overview of nest site selection and general characteristics of freshwater turtle nests.

Link to video: [<https://www.youtube.com/watch?v=JL3uMzcJiWQ>] (Copy and paste into browser).

(1B) Complete the Video Reflection worksheet.



Discuss



Video



Reflect

ACTIVITY 2

(2A) Watch the following video which shows a female turtle constructing a nest and depositing eggs.

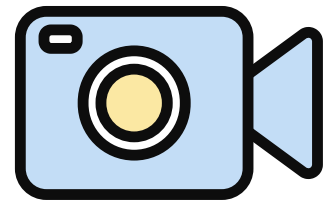
Link to video: [<https://www.youtube.com/watch?v=NTYvFR7jVNE>] (Copy and paste into browser).

(2B) Complete the Video Reflection worksheet.

Video Reflection

Three things I learnt while watching

3



Two questions I have from the video

2



One fact I found most interesting

1



ACTIVITY 3

(3A) In groups research an Australian freshwater turtle species.

(3B) Search for information using various forms of literature (i.e. articles, books, or printouts).

(3C) Collate information relating to reproduction, including nesting habitat, time of year and clutch size in the provided worksheet.

(3D) Create a diorama representing turtle nesting. Include elements like the turtle, nesting site, eggs, and the surrounding habitat.

(3E) Create small information cards or labels to accompany your diorama. Each card should include key facts about the turtle species including nesting behaviour and habitat.



Freshwater Turtle Nesting

Fill in the information below about your freshwater turtle species.

Freshwater turtle common name:

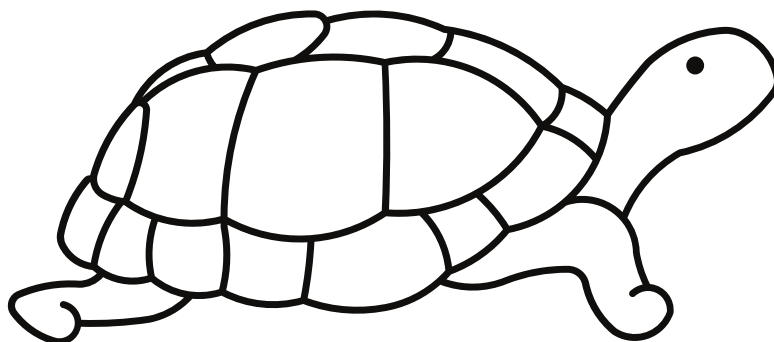
Scientific name:

Where does the species nest?

When does the species nest?

How many eggs does a female typically lay?

When do hatchlings emerge from the nest?



22 LESSONS

TERM FOUR

COLLABORATION WITH FIRST NATIONS PEOPLE

- Learning Intentions
- Background
- Activities
- Curriculum Mapping



Learning Intentions

(1) Recognise the importance of collaboration with First Nations People when developing and implementing conservation strategies for freshwater turtle species.



Collaboration

Background Information:

Collaboration with First Nations People is crucial for the conservation of native species, including freshwater turtles, due to the profound connection Indigenous communities often have with the land, its biodiversity, and their traditional ecological knowledge.

Cultural Knowledge and Traditional Practices:

Indigenous communities often possess rich and unique knowledge about local ecosystems, including the behaviour, habitats, and significance of native species. This traditional ecological knowledge (TEK) is invaluable for understanding the ecological intricacies of a region.

Sustainable Resource Management:

First Nations People have historically practiced sustainable resource management, including the conservation of wildlife. Their traditional land management practices, such as controlled burning and selective harvesting, contribute to the maintenance of healthy ecosystems, benefiting native species.

Stewardship Values:

Indigenous cultures often emphasise a deep sense of stewardship and responsibility toward the land and its inhabitants. Collaboration with First Nations People brings a holistic perspective that goes beyond scientific data and considers the spiritual and cultural dimensions of conservation.

Conserving Biodiversity:

The conservation of native species is interconnected with the broader goal of preserving biodiversity. Indigenous communities play a critical role in maintaining the balance of ecosystems, contributing to the overall health and resilience of the environment.

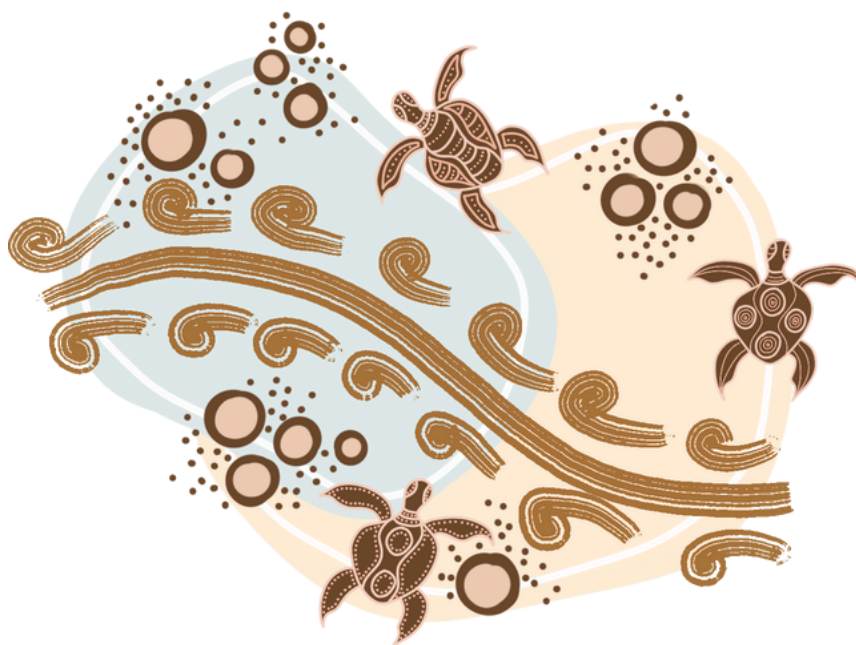


Preserving Cultural Heritage:

Many Indigenous cultures have stories, traditions, and ceremonies linked to native species, including freshwater turtles. Collaborating with First Nations People ensures that these cultural connections are acknowledged and respected, contributing to the preservation of cultural heritage.

Effective Conservation Strategies:

Incorporating traditional knowledge into conservation strategies enhances the effectiveness and sustainability of initiatives. Indigenous communities can provide insights into the specific needs and threats faced by native species, helping to tailor conservation plans to the local context. Providing equitable access to decision-making processes regarding conservation initiatives is an essential component of collaboration.



Classroom Activities

ACTIVITY 1

(1A) In small groups brainstorm ideas for a collaborative approach to researching and conserving freshwater turtles, with a focus on your local wetland. Write your ideas on chart paper using markers. Be creative in your approach and incorporate both Indigenous and scientific perspectives.

(1B) Design a visual representation of your collaborative approach. This could be in the form of a poster, diagram, or concept map. Consider the roles of both scientists and First Nations People in your approach.

(1C) Present your designs to the class, explaining the roles of scientists and First Nations People in the conservation of freshwater turtles.



CULLESSON

TERM FOUR

TURTLE NEST PREDICTOR MAPPING TOOL

- Learning Intentions
- Background
- Activities
- Curriculum Mapping

Photo credit: Dr Donald McKnight



Learning Intentions

- (1) Predict potential turtle nesting sites around your local wetland, using the Turtle Nest Predictor Mapping Tool.
- (2) Understand the role of technology in scientific data collection and the importance of digital tools and databases.
- (3) Understand the significance of Turtle Month and develop persuasive communication skills to promote awareness and participation in conservation activities.
- (4) Foster a sense of responsibility and stewardship towards turtles by actively participating in conservation efforts and advocating for their protection and habitat preservation.



Background Information

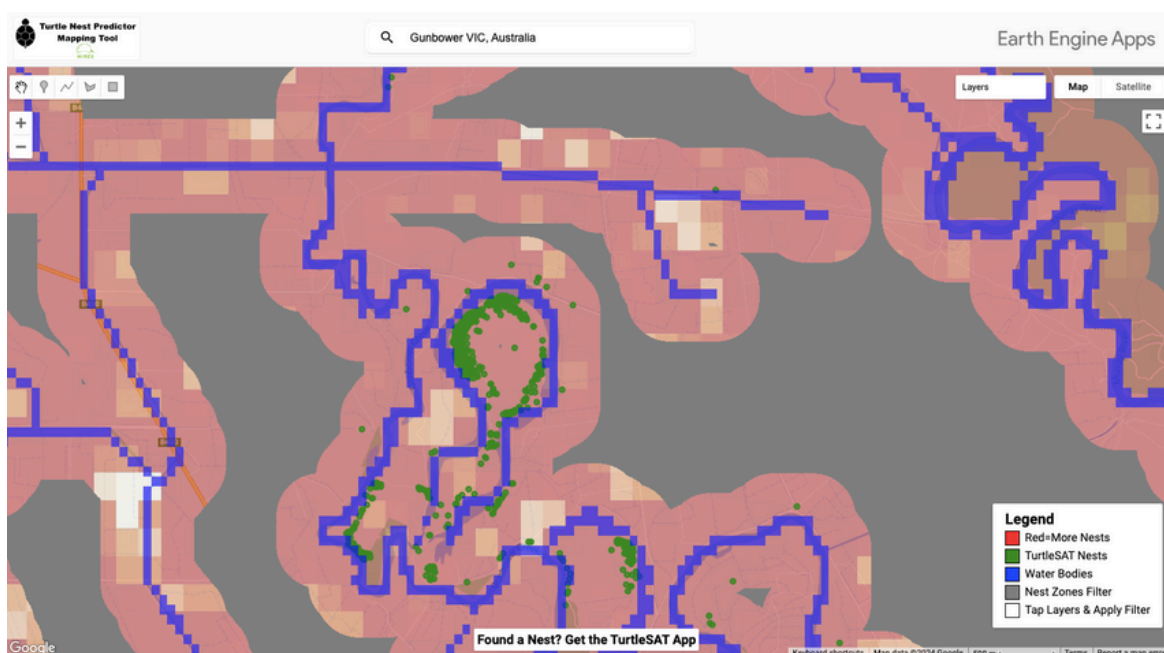
Turtle Nest Predictor Mapping Tool

The Turtle Nest Predictor Mapping Tool, developed by the 1 Million Turtles Community Conservation Program enables anyone to locate turtles in their local area. The tool uses advanced mapping techniques to predict potential nesting sites for turtles around wetlands.

The tool is powered by Google Maps, and allows you to search an area using an address or point of interest. The map will display predictive hotspots. The predictive hotspots are colour-coded ranging from white to yellow, orange and red. Areas that are red indicate a high probability (> 85%) of containing preferred turtle nesting habitat.

You can also,

- Add additional layers including:
 - Waterbodies (blue areas in the image below).
 - Known nest locations recorded in TurtleSAT (green points in the image below).
- Filter out areas where turtle nests are unlikely to be (grey areas in the image below)



Example of the Turtle Nest Predictor Mapping Tool Interface.

Background Information

November is Turtle Month!

November marks the peak nesting season for turtles across much of southern Australia, spanning Victoria, New South Wales, and South Australia. In Western Australia, nesting season begins as early as September and extends through November. During this critical period, female turtles venture onto land to lay their eggs, making them and their nests vulnerable to predation.

Turtle Month serves to raise awareness about the dangers turtles face during the breeding season and emphasises the need for conservation efforts to protect nesting sites. Citizen scientists play a crucial role during Turtle Month by recording turtle sightings, monitoring nesting activity, and actively participating in nest protection programs.

**It's Turtle
Month!**



Get Involved and Save Turtles

Classroom Activity

ACTIVITY 1

(1A) Use the “Turtle Nest Predictor Mapping Tool” to predict potential nesting sites for turtles around your local wetland.

The Turtle Nest Predictor Mapping Tool can be accessed at: <https://1millionturtles.com/predicting-turtle-nesting> (Copy and paste into browser).



ACTIVITY 2

(2A) As a class, brainstorm ideas for a Turtle Month logo. Think about symbols and imagery that represent turtles, wetlands, and conservation and how these could be included in your logo.

(2B) In small groups, design your logo. Use art supplies to create your logo on a poster or large paper. Remember to include the date of Turtle Month (November).

(2C) Present your design to the class and explain the symbolism behind your logo.

(2D) Vote on the top design (or combine elements of each) to create the logo that will be used in the following activities.

Classroom Activity

ACTIVITY 3

(3A) Write a speech to present at assembly about Turtle Month.

(3B) In your speech include:

- the importance of freshwater turtle conservation efforts.
- why November is marked as Turtle Month.
- a “call to action” inviting your peers to become part of Turtle Patrols around your local wetland in November.

(3C) Focus on clear and persuasive communication. Be creative in how you present and deliver the information - you want to engage your audience. Your speech should be 3 minutes long.



ACTIVITY 4

(4A) Write a short blurb promoting Turtle Month. In your blurb include ways people can become involved in turtle conservation efforts in November (i.e. download TurtleSAT).

(4B) The blurb should address your peers, their parents, guardians and the wider community.

(4C) Submit 1 or 2 blurbs to be included in the school newsletter.



4 LESSONS

TERM FOUR

APPLICATION OF CITIZEN SCIENCE SKILLS

- Learning Intentions
- Background
- Activities
- Curriculum Mapping

Photo credit: Dr Donald McKnight



Learning Intentions

(1) Demonstrate their skills as a citizen scientist by instigating social change at their local wetland and promoting conservation.



Background Information: Instigating Social Change for Conservation

Instigating social change for conservation means taking positive actions to protect our environment and the living creatures that share our planet. It involves raising awareness about environmental issues, promoting sustainable practices, and inspiring others to join efforts in preserving our natural world.

Instigating social change for conservation is about actively participating in activities that help safeguard the Earth. It includes making choices that benefit the environment, encouraging others to do the same, and working together to address environmental challenges.

How you can be involved -

- **Learn About Conservation:** Understand the importance of protecting the environment. Learn about endangered species, ecosystems, and the impact of human activities on nature.
- **Raise Environmental Awareness:** Share what you've learned with friends, family, and classmates. Create posters or presentations to inform others about the importance of conservation and how they can contribute.
- **Practice Sustainable Habits:** Adopt eco-friendly practices in your daily life. Reduce, reuse, and recycle. Conserve water and energy. These small actions collectively contribute to a healthier planet.

- **Advocate for Nature:** Use your voice to advocate for the protection of natural spaces. Speak up in class discussions, write letters to local leaders, and encourage others to support conservation efforts.



- **Connect with Conservation Organisations:** Research and connect with local or global conservation organisations. Understand their goals and find out how you can support their initiatives or even volunteer your time.



- **Educate Others:** Share information about endangered species, ecosystems, and conservation issues. Educate your peers about the importance of preserving biodiversity and the role each person plays in conservation.

Why is it important?

By actively participating in conservation efforts, individuals contribute to the preservation of biodiversity, the protection of ecosystems, and the overall well-being of our environment. Every action taken to conserve nature, no matter how small, helps build a sustainable and resilient future for our planet.

Classroom Activity

ACTIVITY

(1A) Research local policies which relate to your local wetland.

(1B) Create an idea to make a change that supports the conservation of turtles and their habitat at your local wetland.

(1C) Write a letter to your local council, advising them of your findings across the year (water quality, water bugs, NNPS, turtle sightings/nesting and suitable habitat). Propose ideas to council that could benefit turtle species and their local wetland.



57 LESSONS

TERM FOUR

TURTLE PATROLS - NESTING SEASON

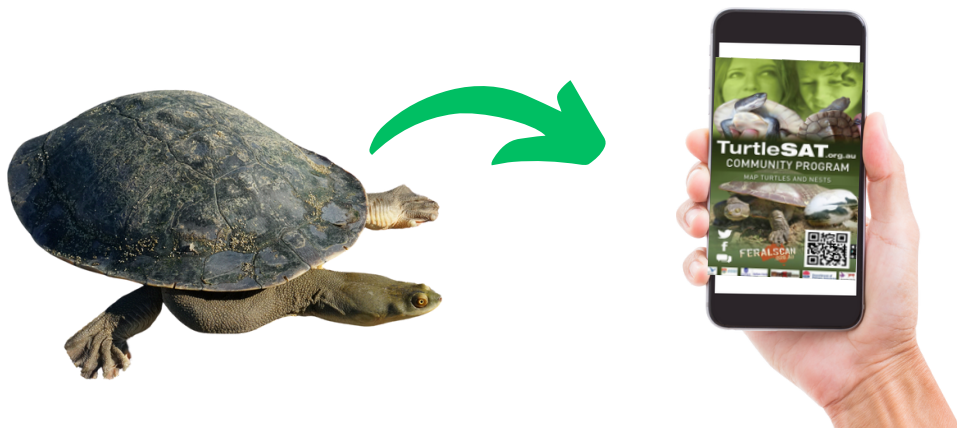
- Learning Intentions
- Background
- Activities
- Curriculum Mapping

Photo credit: Dr Donald McKnight



Learning Intentions

- (1) Facilitate your own “Turtle Patrol” at your local wetland and communicate the importance of regular patrols during turtle nesting months;
- (2) Implement nest protection over turtle nests;
- (3) Collect scientific data around turtle nesting for input into TurtleSAT, demonstrating their role as citizen scientists;
- (4) Advocate for the health of your local wetland and conservation of freshwater turtles.



Background Information

Turtle Patrols - Nesting Season

During the turtle nesting season (this may differ slightly depending on the location and the species), walk around your local wetland quietly looking for females nesting. It is best to commence your "Turtle Patrol" during or after rainstorms and heavy rain showers (especially on days where it drizzles for hours), so watch the weather carefully.

How to know if a turtle is nesting

A nesting turtle will have its rear pointed into the dirt, and its front half will be noticeably propped up. Once you have spotted a nesting turtle, it is important that you maintain a distance of a minimum of 20 metres. The nesting process can take between 2 to 3 hours.

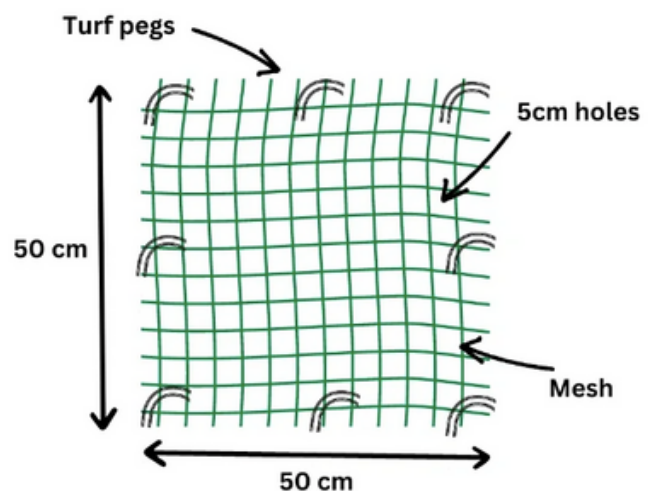
Protecting turtle nests:

Please wait until the female turtle has completely left the nesting site before heading towards the location. Place the mesh over the nest, and peg it tightly to the ground using 6 to 8 turf pegs. Use a hammer to ensure the turf pegs are firmly secured to the ground. The pegs should be secured along the outer edges of the mesh .

For more information visit: <https://1millionturtles.com/nest-protection>
(Copy and paste into browser.)



Record your sighting and nest into TurtleSAT!



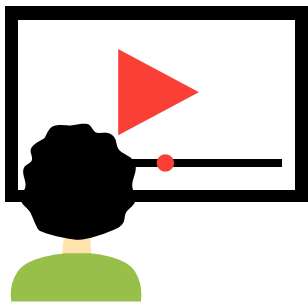
Classroom Activities

ACTIVITY 1

(1A) Watch the following video on how to implement turtle nest protection.

Link to video: <https://www.youtube.com/watch?v=dyExj3hHA-A>
(Copy and paste into browser).

(1B) Complete the Video Reflection worksheet.



Video



Risk assessment

ACTIVITY 2

(2A) Before commencing any nest protection activity, you must complete a risk assessment. This helps to keep you and the turtles safe when carrying out nest protection.

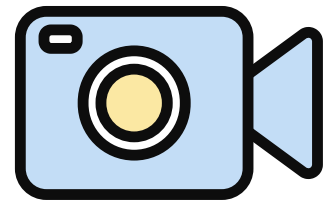
(2B) You can access a risk assessment form from the 1 Million Turtles Community Conservation Program website:

Link: <https://1millionturtles.com/nest-protection#:~:text=To%20protect%20the%20turtle%20nests,can%20be%20circular%20or%20square> (Copy and paste into browser)

Video Reflection

Three things I learnt while watching

3



Two questions I have from the video

2



One fact I found most interesting

1



Wetland Activity

ACTIVITY

Given turtle nesting usually occurs after spring/summer afternoon rains, this lesson plan is best placed as an extracurricular activity.

(1) Participate in "Turtle Patrols" at your local wetland. You can involve your friends and family in the Turtle Patrols.

(2) Walk around your local wetland and locate turtles nesting.

(3) Record the location and characteristics of the nest into TurtleSAT.

(4) Implement turtle nest protection as per the 1Million Turtles Community Conservation page.

Equipment:

- Turtle nest protection kits (mesh, pegs, hammer).
- GPS
- Record keeping sheet (i.e. with information to be entered into TurtleSAT) or alternatively phone with the TurtleSAT app installed.



Classroom Activities

ACTIVITY

What I Know (K), What I Want to Know (W), What I Learnt (L)

Materials:

- Large chart paper divided into 3 sections labeled "K" (Know), "W" (Want to Know), and "L" (Learnt).
- Markers or pens

Instructions:

(1A) Revisit your Know, Want to Know and Learnt chart and complete the Learnt (L) column.

What I Know
(K)



Want to Know
(W)



What I Learnt
(L)

