Teacher Notes

Themes

- Animal classification (taxonomy)
- Food webs
- Animal conservation

Key learning outcomes

- Frogs are a type of amphibian that are well adapted to living both on land and in water.
- Frogs play important roles in their ecosystem, consuming other animals and serving as food for larger predators.
- Frogs are sensitive to changes in the environment, putting their populations at risk around the world.

Key curriculum areas

- **Science:** Science Understanding (Biological sciences, Physical sciences)
- **English:** Language
- **Cross-curriculum priority:** Sustainability

Publication details

Fabulous Frogs

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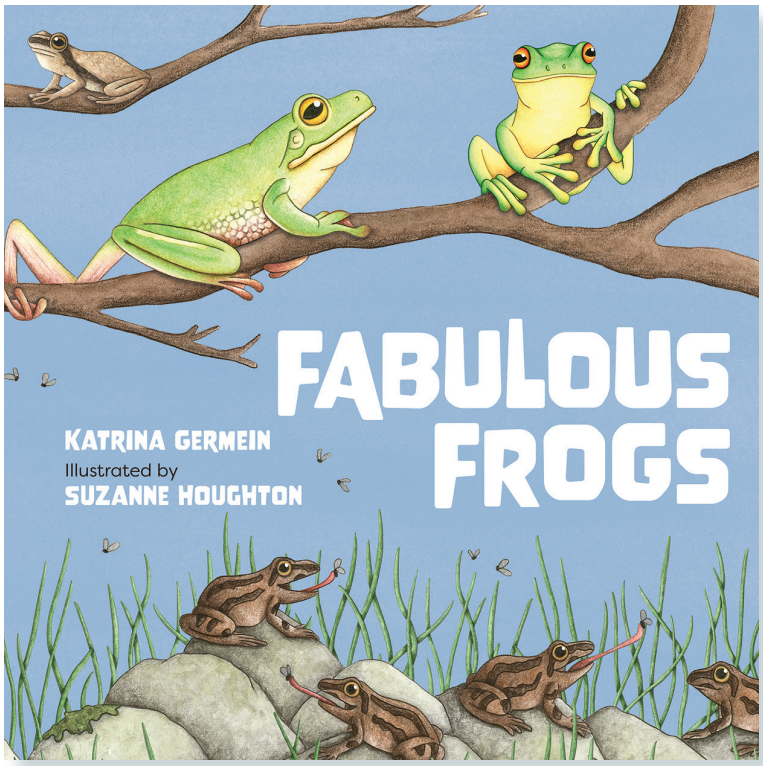
Teacher notes prepared by Mike McRae.

CSIRO Publishing
Private Bag 10
Clayton South, VIC 3169, Australia

Website: www.publish.csiro.au
Tel: 1300 788 000 (local call in Australia)
Email: publishing.sales@csiro.au



Fabulous Frogs

Katrina Germein and Suzanne Houghton

About the book

Australian frogs are fabulous frogs! Did you know that there are frogs who change colour? Or that there are frogs who would rather walk than jump, or can use their eyes to swallow food? And that some tadpoles can control when they turn into a frog?

Fabulous Frogs is a celebration of Australian native frogs, and their fascinating features and behaviours.

Recommended for

Readers aged 5 to 9 (Years 1 to 4)

CSIRO PUBLISHING

Teacher Notes

About the author and illustrator

Katrina Germein is a bestselling children's author. She lives on Kaurna Land in Adelaide where she also works as a teacher. Katrina's award-winning books have been published around the world.

Suzanne Houghton is an award-winning author and illustrator of several books, including *Wonderful Wasps* and *Life in a Hollow*. She loves nothing more than to splash colour on a page and bring joy to readers.

Pre-reading activities

Ask the students to make frog noises. Many may repeat the typical 'ribbit' sounds, so encourage them to think of the kinds of frogs they've heard around their own home. Invite them to discuss what the frogs might be saying to one another. Do they hear the frogs more often at certain times or in certain conditions?

Working alongside the students and guiding their web search skills, use the internet to find examples of Australian frog sounds. Encourage them to learn a few facts about the frogs and then practise their call. Put on a 'frog choir' with the class, where they all make their frog calls in one group.

Discussion questions

Science

1. Frogs belong to a class of animal called amphibians. Ask students to describe features of a frog, such as its shape, colours and covering. Make comparisons with other animals, such as a cat, a bird and a turtle. Which is it most like? Which is it least like? Invite them to look at different frogs in the book and explain what makes them all so similar.
2. While many frogs are green, they come in a variety of other colours, including brown, yellow and even grey. Ask the students why they think frogs come in different colours. Where might a green frog hide? What about a brown frog? Instruct them to count the number of great barred frogs hiding in the leaves in the book. Ask them if it would be easier or harder if those frogs were green.
3. Ask the class what kinds of things they think frogs eat, then compare their answers with examples in the book. Ask them what might happen to the frogs in their garden if there were no insects, grubs or snails. What might happen to the insects if there were no frogs to eat them?

4. Describe the life cycle of the frog as outlined in the book. Invite students to recreate it on the whiteboard with illustrations of tadpoles and frogs. How are they alike? How are they different? How are tadpoles suited to life in the water? How are grown frogs suited to a life living out of water on dry land?
5. Many species of frog have long tongues that are stuck to the front of their mouth (unlike our tongue, which is stuck towards the back). Why might a long, sticky tongue help frogs? What do we humans use our tongues for? In what ways would life be more difficult if our tongues were more like those of frogs?

English

1. The word metamorphosis comes from words in ancient Greek that mean change (meta) and shape (morph). Amphibian comes from words that mean both (amphi) and life (bios), describing a need for both water and dry land environments. Show students a map of the world, pointing out where Greece is. Discuss how people who lived there thousands of years ago wrote about nature, and their language lives on in words today. Search for other words in the glossary that also come from ancient languages like Greek and Latin, such as ectothermic, extinction and hydrated.
2. Using the list of frog common names on the endpapers, ask each student to decide on a favourite, but not to say it out loud just yet. In pairs, one student is to describe features of their frog in detail, while their partner has to guess the common name of their favourite frog.

Sustainability

1. Ask the students what features they might need to add to the school's gardens if they wanted frogs to happily live there. Encourage them to think about what frogs and their tadpoles eat, what might attract their food to the garden, as well as ways frogs might want to reproduce and hide from the animals that eat them.
2. Frogs can drink and take in oxygen through their skin. Invite the class to describe different ways we might pollute waterways and make them 'dirty'. List these on the whiteboard. Discuss how rubbish, oils, pesticides and large amounts of sediment might make it hard for frogs to drink, breathe and raise young. What are some ways we can improve waterways for frogs to remain healthy?

Activities

Science

Pick a pond

You will need:

- Colour photocopy of the 18 different kinds of Australian frogs (as shown on the book's endpapers)
- Scissors
- Laminator (optional)
- 2 × A3 sheets of card (preferably blue)

What to do:

1. Laminate the colour photocopy of the 18 different kinds of Australian frogs (optional). Cut each frog from the sheet and trim off any sharp edges.
2. Spread the frogs in front of a student, keeping one aside, hidden from their view.
3. Ask the student to explain features that make the frogs look different to one another. Ask them what makes them look the same.
4. Invite each student to sort the frogs into their two 'ponds' (one for similarities, one for differences), using the A3 sheets. Tell them it doesn't matter how many frogs are in each pond.
5. Introduce the hidden frog and ask them to place this into one of the ponds, explaining why it belongs there.

What's happening?

Explain to the students that scientists use similarities and differences between living things to classify them into different categories. Today, we can study how each frog is related to other frogs, and use this to put them into categories that look like a big family tree.

Invite students to look up the scientific names of the frogs on the internet. Do any of the frogs share the same kinds of scientific names? Do they look similar?

Teacher Notes

Croaking cups

Safety: Be careful when using the sharp instruments in this activity, or ask an adult for help.

You will need:

- Plastic cups
- Cotton string
- Scissors
- Sharp pencil or nail
- Small piece of kitchen wipe/cloth
- Water
- Paperclips
- Sticky tape
- Art materials (optional)

What to do:

Teachers can prepare the activity for younger students by doing steps 1 to 3 prior to class.

1. Use the nail or sharp pencil to push a small hole through the bottom of a plastic cup.
2. Cut a 20 centimetre length of cotton string.
3. Tie one end of the cotton string to a paperclip.
4. Push the other end of the string through the hole in the bottom of the cup and pull it through so the paperclip sits outside of the cup and the string dangles inside of it.
5. Use sticky tape to secure the paperclip to the bottom of the cup.
6. Invite students to decorate their 'frogs' using art supplies.
7. To make the cup 'croak', moisten the small piece of kitchen wipe/cloth. Loosely hold onto the plastic cup in one hand, and use the free hand to hold the string using the moistened wipe, stroking it down in one, long pull.

What's happening?

The cup makes a croaking sound as the moistened cloth slides down the string. Friction between the cloth and the string makes the string pull down in tiny jumps, which in turn makes the plastic cup vibrate.

Frogs don't have plastic inside them, but they do have thin body parts that vibrate as air passes across them. These vibrations are heard as croaking sounds, which many frogs use to find mates while they hide from predators.

Frog hunt

You will need:

- Different colours of plasticine
- An outdoor garden environment

What to do:

1. Portion out small, similar sized lumps of plasticine on a table. Each ought to be about the size of a cotton ball.
2. Instruct students to pick three lumps of plasticine. They can all be the same colour, or different colours.
3. Invite students to make their own frogs from their colours of plasticine. They can mix colours, create stripes and be creative.
4. Take students out into an area on the school grounds in small groups, where they can hide their frogs. Tell them they can't bury their frog – they must be visible from at least one big step away. Ask them how they might ensure their frog is still hard to see?
5. Ask students to now see if they can spot other frogs. Which ones are easier to spot? Does their colour make a difference? How about their size?

What's happening?
Frogs come in many different colours, all suited to the environment they live in. Usually, their colour helps them blend into their background to make them less visible to animals that want to eat them. Some frogs, however, are brightly coloured as a warning sign, telling predators they are poisonous or taste bad. The bright colour makes it less likely that a predator will mistakenly take a bite.

English

Favourite frog facts
Read 'More about Australian frogs' in the back of the book, and come up with a list of facts on frogs.

Rewrite these facts on small pieces of card or note paper, using the following colours to describe different words in the sentences.

- Red = nouns
- Orange = adjectives
- Green = verbs

Sustainability

Create a frog-friendly garden

Read 'Creating a frog-friendly garden' in the back of the book to determine what features an environment should have to be inviting to frogs and make them feel safe.

Use a catalogue from a hardware store, or look one up online, to find examples of materials you might need and to calculate the costs for a budget.

Discuss with the class an environment on the school grounds or in the community that might be suited for frogs. Invite the principal or a member of the local council to join in the conversations. Share maps of the area to make it easier for the class to visualise how they might construct the garden, how long it might take and what important steps they'd need to plan it.

Australian curriculum links (Version 9.0)

Year level	Learning area: Science	Other learning areas
1	**Science Understanding: Biological sciences** • Identify the basic needs of plants and animals, including air, water, food or shelter, and describe how the places they live meet those needs (AC9S1U01)	**English: Language** • Understand that words can represent people, places and things (nouns, including pronouns), happenings and states (verbs), qualities (adjectives) and details such as when, where and how (adverbs) (AC9E1LA07)
2	**Science Understanding: Physical sciences** • Explore different actions to make sounds and how to make a variety of sounds, and recognise that sound energy causes objects to vibrate (AC9S2U02)	**English: Language** • Experiment with and begin to make conscious choices of vocabulary to suit the topic (AC9E2LA09) • Understand that images add to or multiply the meanings of a text (AC9E2LA08)
3	**Science Understanding: Biological sciences** • Compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals (AC9S3U01)	**English: Language** • Identify how images extend the meaning of a text (AC9E3LA09) • Extend topic-specific and technical vocabulary and know that words can have different meanings in different contexts (AC9E3LA10)
4	**Science Understanding: Biological sciences** • Explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships (AC9S4U01)	**English: Language** • Explore the effect of choices when framing an image, placement of elements in the image and salience on composition of still and moving images in texts (AC9E4LA10)
All	**Cross-curriculum Priority: Sustainability** • All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival (SS1)	

Related books from CSIRO Publishing

By the same author/illustrator team:

- *Wonderful Wasps* (https://www.publish.csiro.au/book/8057)

For younger readers:

- *Life in a Hollow* (https://www.publish.csiro.au/book/8076)

For older readers:

- *Animal Migrations: Flying, Walking, Swimming* (https://www.publish.csiro.au/book/8044)
- *Poo, Spew and Other Gross Things Animals Do!* (https://www.publish.csiro.au/book/8021)
- *Sensational Australian Animals* (https://www.publish.csiro.au/book/8094)

For adults:

- *Field Guide to the Frogs of Australia* (https://www.publish.csiro.au/book/7897/)
- *Photographic Field Guide to Australian Frogs* (https://www.publish.csiro.au/book/7951/)

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