Museum & Art Gallery of the Northern Territory
Discovery Centre
Conacher Street, Bullocky Point, Darwin NT 0820 • www.magnt.nt.gov.au• Tel: (08) 8999 8263 Fax: (08) 8999 8270

Frogs Alive!

An Education Kit for Primary Students

This kit has been designed to assist visiting teachers and students to the Frog Display at the Museum and Art Gallery of NT.

Northern Territory Government
Department of Natural Resources, Environment and the Arts

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FROGS OF THE NORTHERN TERRITORY

The Territory is home to a number of frogs. Even in the harshest desert regions, frogs can be found, resting and ready to repopulate when the short-lived rains bring puddles to the arid zone.

The Wet Season in the Top End of the Northern Territory is a time of plenty and a time of frogs. Each of us have heard the distinctive sounds of the various frogs that abound at this time of the year. The Large Green Tree Frog (*Litoria caerulea*) is common in Top End gardens and toilet bowls.

The most amazing of Territory frogs must be the water-holding frogs (*Cyclorana spp.*) of the desert region. As the claypans dry up they dig under the mud with their body full of water.

Recently, there has been world-wide concern as reports of declining frog numbers have been recorded. In Australia, at least four species of frogs have disappeared from the east coast rainforests, while populations of others have dwindled. This sudden process of extinction has mystified scientists.

Here in the Territory, the picture is less clear, but we believe our frog populations are still intact. The arrival of the Cane Toad (an introduced species to Australia) to the Northern Territory presents an unknown as to how it will affect our native frogs.

It is important to recognise the Cane Toad and not to confuse it with with some of our harmless species such as the Ornate Burrowing Frog, the Marble Frog, the Northern Spade Foot Frog and the Giant Frog.

The Frogs displayed at the Museum and Art Gallery of the Northern Territory will hopefully educate, enthuse and entertain students.

Pre-visit Activities

What are frogs?

Frogs are amphibians, meaning that they have two ways of living. They can live on the land and in the water. They are the only group of amphibians native to Australia. The salamander and the toad are also amphibians. Australia does not have native toads, but it does have the introduced Cane Toad.

Frogs are vertebrates, that is they have a backbone. Some people think that frogs are 'cold-blooded' but in actual fact they are **ectothermic**. This means that a frog's body temperature is influenced by the temperature of their surroundings.

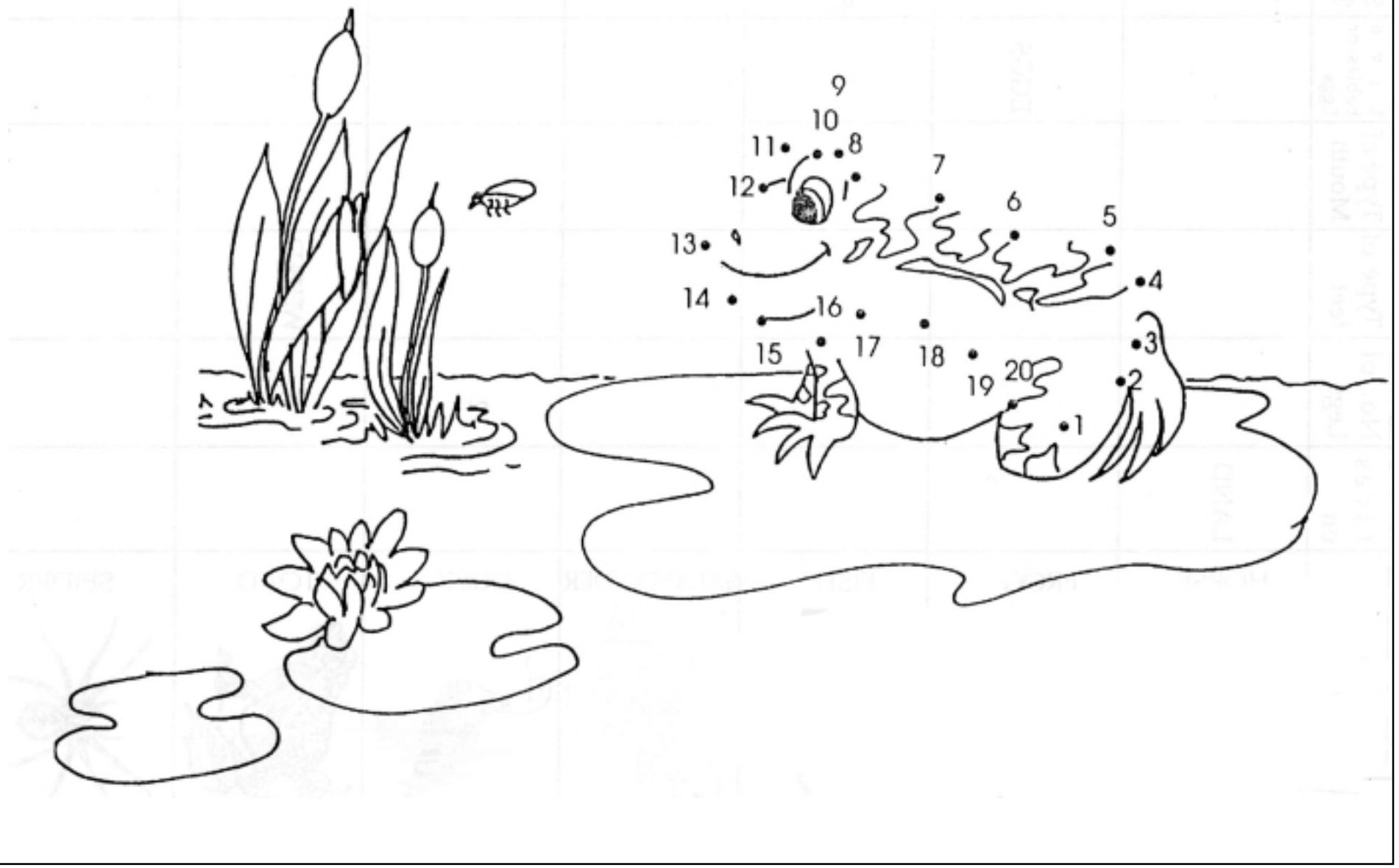
Frogs have four limbs. A frog's skin has no protective scales, feathers or fur. It has many glands that produce substances of various kinds. Oxygen can pass into a frog's blood vessels through its skin. Waste substances also pass out through the skin. Frog's also have lungs and an intestinal tract.

The fertilised eggs of frogs hatch into tadpoles. These have tails, gills and no limbs. They eat plants. Once they mature, they lose their tails and gills, grow limbs and develop lungs. They breathe air, have the ability to live on land and eat insects and small animals.

Complete the table on the following page.

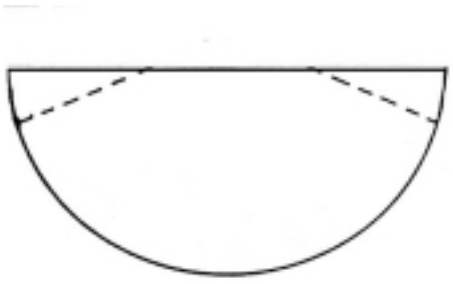
ANIMALS	Lives on	No of Legs	Type of Feet	Live Babies or Eggs	Outer Covering
 HORSE	land				
 FROG				eggs	
 FISH					scales
 SALAMANDER					
 DUCK		two			
 TOAD			webbed		
 SPIDER					

Join the dots to find a special friend

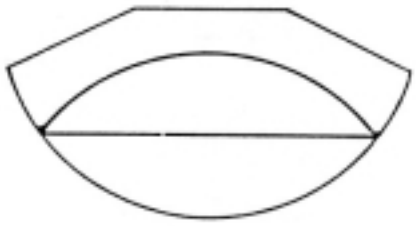


Make your own rainy day frog chorus.

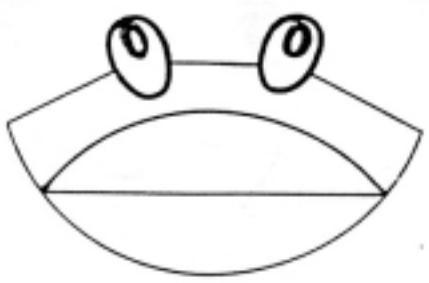
HEAD: Start with a circle folded on a diameter then...



Fold corners of semicircle to the back surface. Glue.

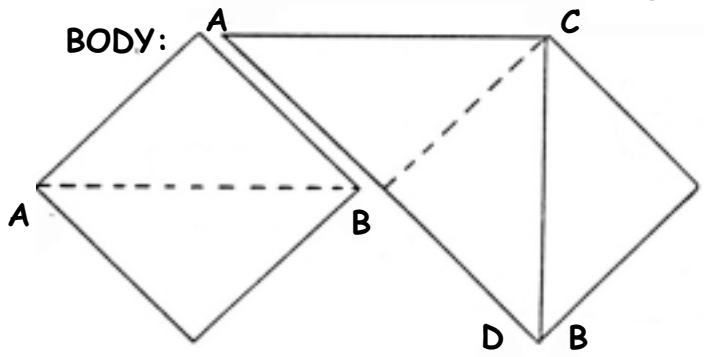


Fold one thickness of paper up to form Frog's mouth.



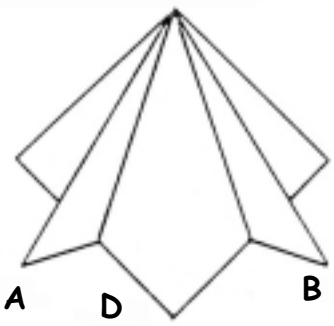
Cut eyes and glue to head.

BODY:

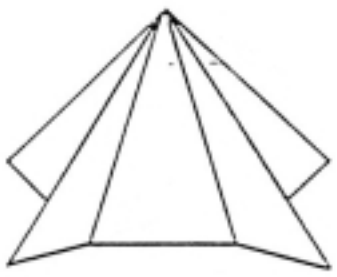


Fold on diagonal AB.

Fold A and B down to D.

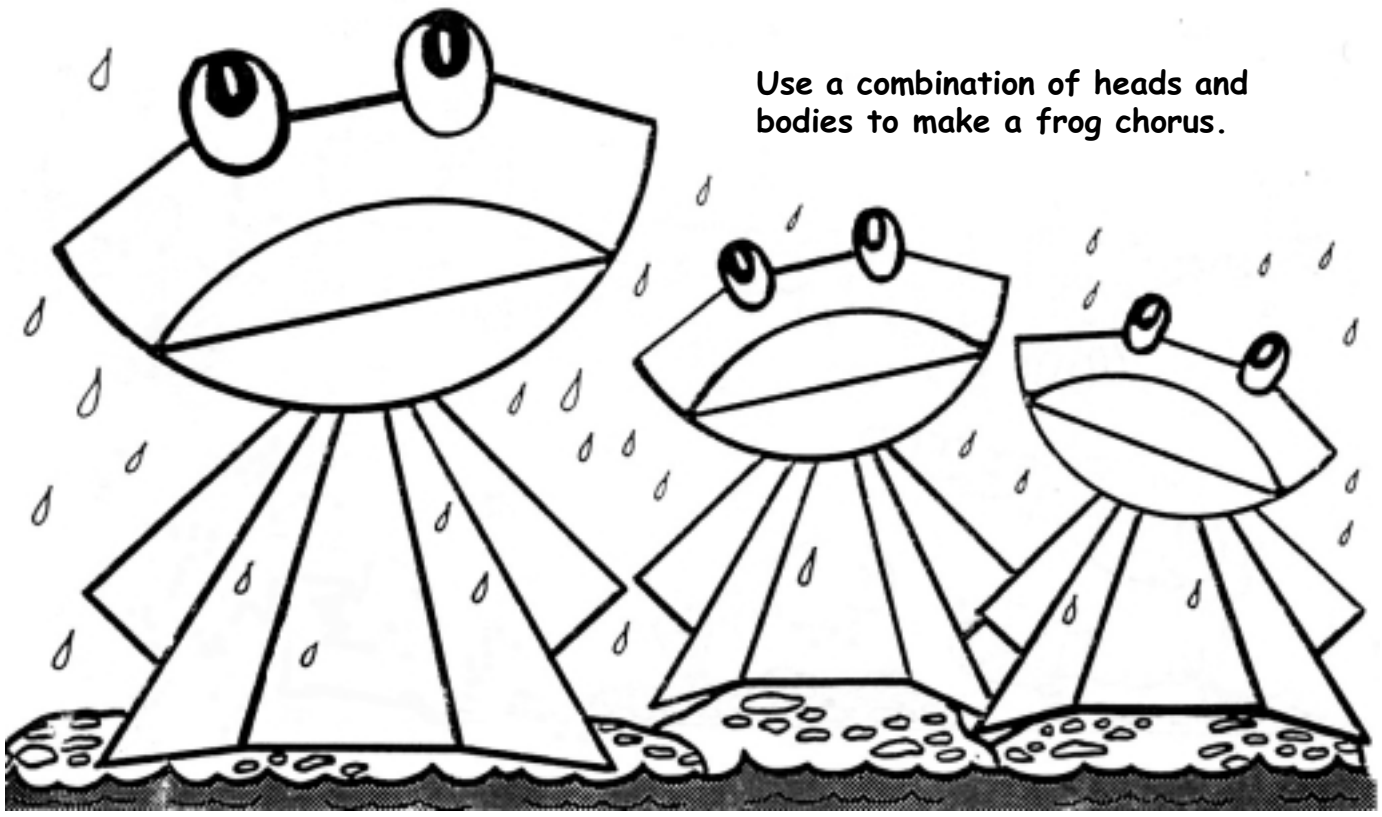


Using a tapered fold from C, fold A and B out.



Fold D to back surface and glue down.

Use a combination of heads and bodies to make a frog chorus.



Life Cycles of Frogs

Frogs are amphibians which means that they can live in fresh water and on land.

Frogs begin life as a tadpole which swims with its strong tail and breathes by mean of gills, which take in oxygen from the water. As it grows, limbs gradually develop, the gills disappear, and lungs form. The tadpole come to the surface to gulp air. It then loses its tail and leaves the water altogether. Most adult forms remain near water. They are meat eaters. They love insects.

Can you describe the life cycle of a human?

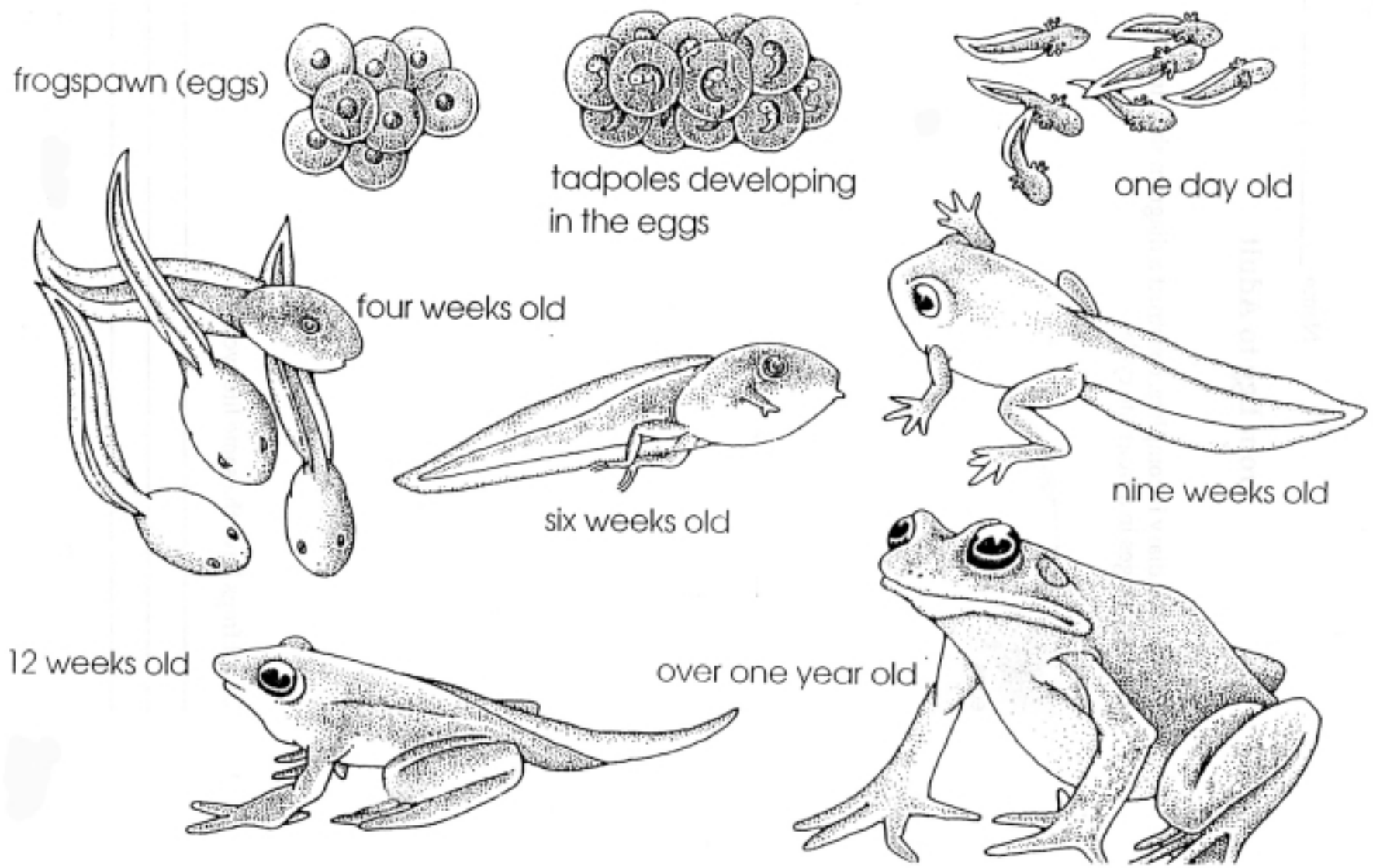
Make a life cycle.

Look at the pictures on the following page to complete a life cycle. Cut the pictures out and place each on a sheet of paper. Colour or paint an environment for each stage of the life cycle eg eggs and tadpoles can be found in a pond and frogs can live in a pond or on land.

Make a mobile of the life cycle of a frog.

Cut lily pad shapes from some green card for each stage of the life cycle. Colour and decorate the lily. Cut out the pictures from the following page and paste on each lily pad. Thread a piece of string or wool through each of the lily pads and place them in an appropriate order from a stick to form the mobile.

The life cycle of the common frog



At the Museum

Carefully observe the frogs in the Discovery Centre and fill in the chart.

Action	Body parts used	Drawing of Frog
Moving on land 		
Moving in water 		
Eating 		
Burrowing 		

Frog Looks

Look carefully at a frog at the Discovery Centre.

Circle the words that describe its skin.

furry	smooth	with a shell
feathery		hard
scaly	soft	

Draw the frog's body patterns on the frog above.

Draw the frog's front and back legs, its ears and nostrils.

How many fingers do frogs have? _____

How many toes do frogs have? _____

CANE TOADS – the invader

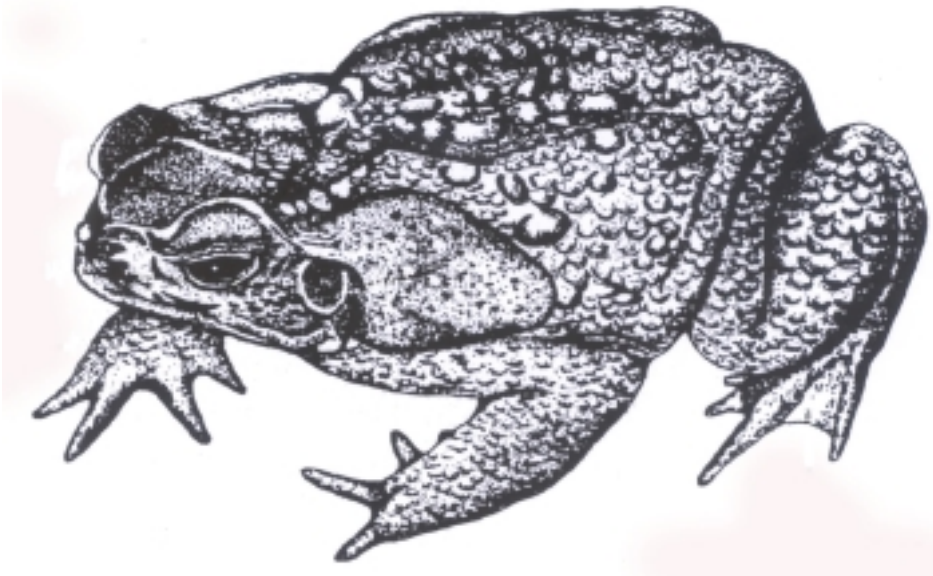
Cane toads are feral animals that were introduced into Australia. They originally came from South America, where they are native animals. There are no native toads in Australia.

Cane toads were introduced to eastern Queensland to help the sugar cane farmers combat cane-eating beetles, 101 toads arrived in 1935 for the job. Unfortunately the cane toads did not eat the beetles and instead started their march across the Australian Tropics. The Australian bush must have been a lot more appealing to the cane toads than a sugar cane farm.

Today the cane toad has invaded much of northern and eastern Australia and Darwin will soon be its next home. It is anticipated that the toads will also continue marching west into the Kimberley region of Western Australia. Cane toads reproduce at an amazing rate (over 20,000 eggs per spawning), and they have increased from the original 101 toads to now number umpteen millions in Ausrtralia.

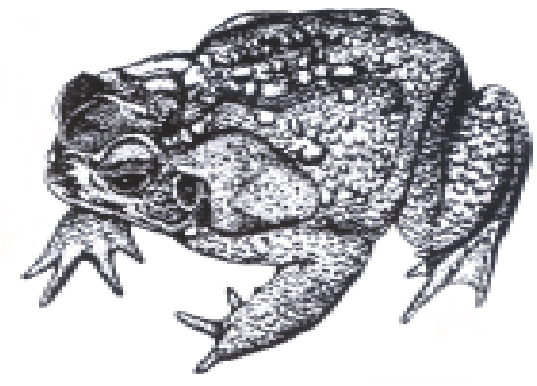
Cane toads are a major problem for native animals and the environment. The poison in the glands on the back of the toads' head can be fatal to anything that eats it, and their eggs and tadpoles are also poisonous. Many of our native animals love eating frogs and a cane toad looks just as yummy. In the Northern Territory goannas, snakes, fresh water crocodiles, dingoes, quolls, birds and even fish can all become victims if they eat toads or their tadpoles. Cane toads have huge appetites and eat lots of native insects and other small animals, they also compete with native frogs for places to live and things to eat. For Indigenous Australians cane toads might lead to a lack of favourite bush tucker, like goannas.

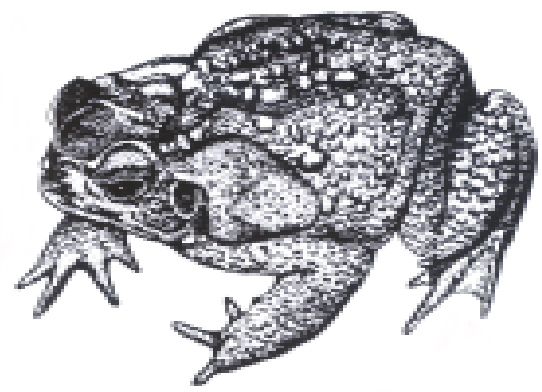
There is not much we can do about cane toads, except to humanely kill them by freezing (and throwing them out with the rubbish). Toads must not be confused with our native frogs, some of which can look like young toads. Exploring the frog displays at the Discovery Centre will help you learn the differences between toads and frogs.



Where to next?

Cane toads are on the move! It has taken them 70 years to cover the area shaded on the map. Where do you think the cane toad might be in another 70 years?



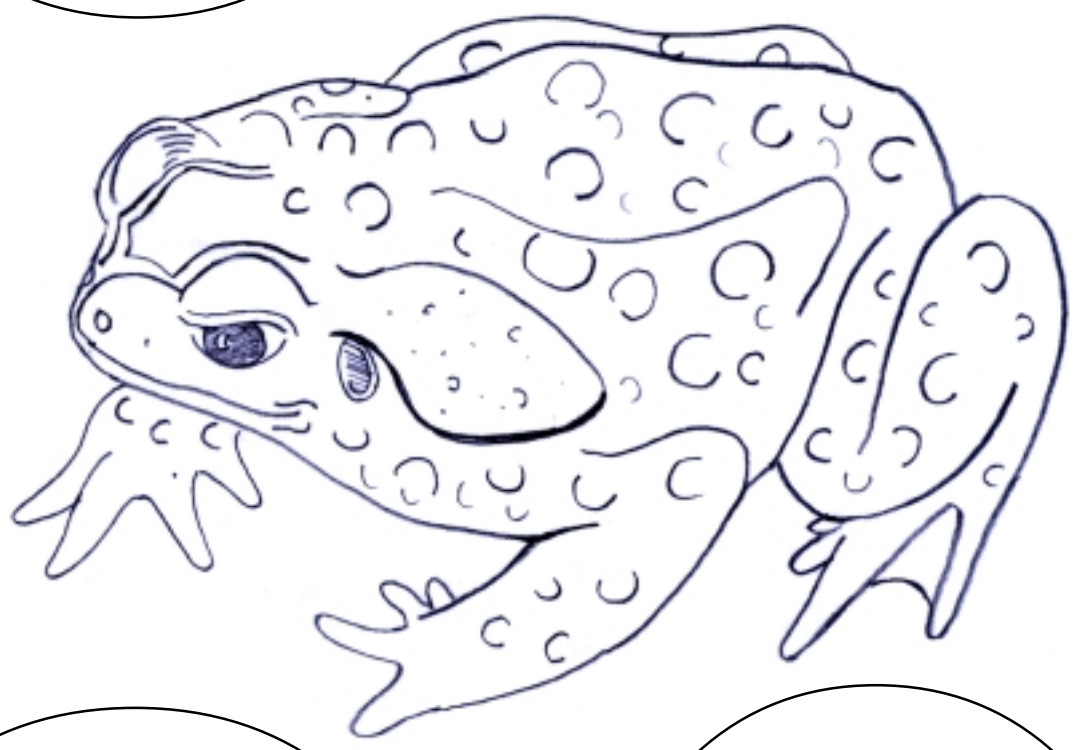


Colour in the map of Australia to show where you think the cane toad might invade next.
Remember cane toads like hot tropical environments best.

Who likes eating Cane Toads?

Colour in the Cane Toad.

Look at the Cane Toad display and write down or draw some of the native animals that might like eating Cane Toads.

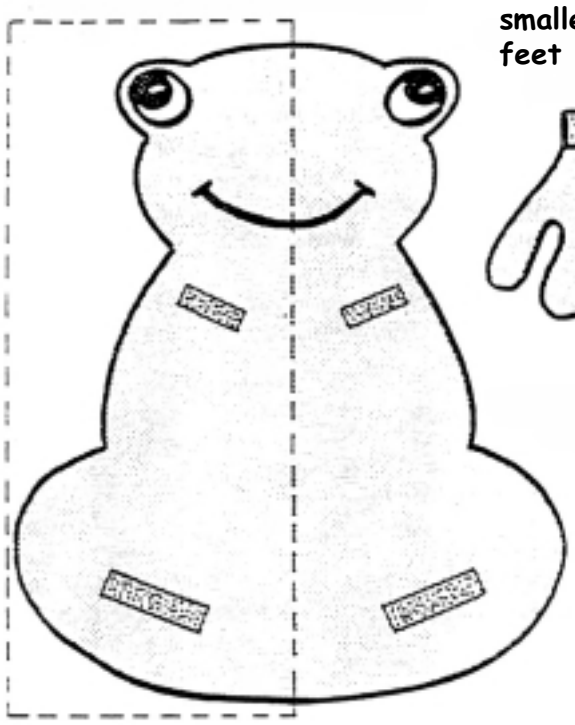


Post-visit Activities

A Frog's Life

Make a mural. Enlarge scale to suit display.

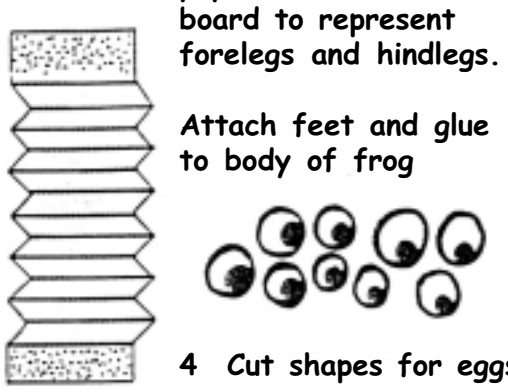
1 Fold-cut symmetrical body



2 Cut shapes for feet. Make smaller for fore-feet

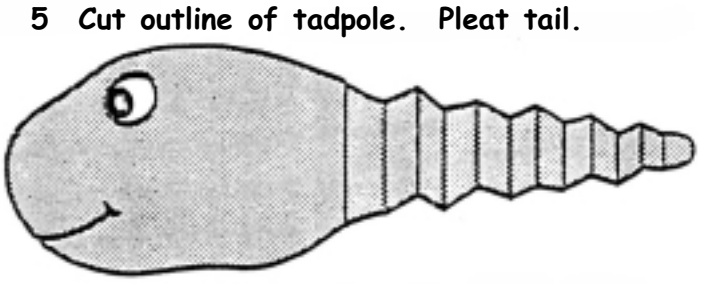
3 Pleat strips of paper or thin card-board to represent forelegs and hindlegs.

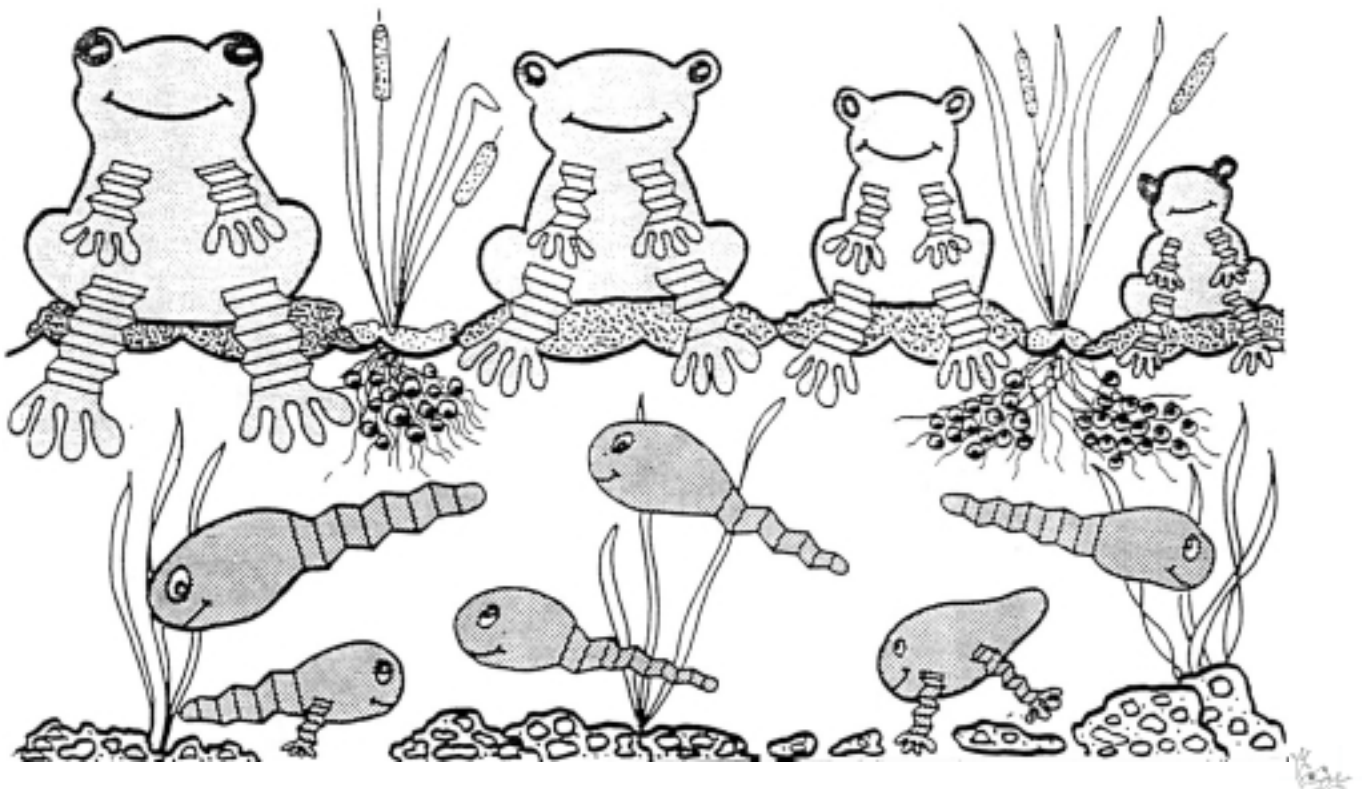
Attach feet and glue to body of frog



4 Cut shapes for eggs.

5 Cut outline of tadpole. Pleat tail.





Watching Tadpoles Grow!

Build your own tadpole nursery.

Collect some frog's eggs in a jar. Also collect some pond water for your aquarium, some mud or sand, leaves and stones.

Place the mud in the bottom of the aquarium. Place the stones on one side, and leave a few stones above the water line for the growing tadpoles to crawl out and rest.

Pour the pond water in carefully - (try not to stir up the mud too much).

Place a small amount of eggs in the aquarium.

Some Hints:

Don't keep fish in the aquarium - they might eat the tadpoles.

Don't keep the aquarium in the sun. The water will become too warm for the tadpoles.

After a few days you may need to top up the aquarium with water. Try to use pond water. If this is difficult, let tap water stand for several days before pouring it into the aquarium.

Watching Frogs Grow!

Create your frog enclosure.

You can use your aquarium for a frog enclosure. When the tadpoles have grown into frogs, empty the mud, water and leaves from the aquarium.

Find a small pie dish. Place it on one side of the aquarium. Fill it with pond water.

Place gravel or sand (with lots of pebbles) on the bottom of the aquarium. Make a small hill on one side of the aquarium. Place some rocks on the hill. Add a few twigs to give the frog somewhere to hide.

Place some flywire screening over the top of the aquarium - (frogs can jump!).

Have a spray bottle with water that you can use to spray the frogs every now and then.

After you have observed your frogs return them to a creek. That's where they belong.

You could have several aquaria in the classroom to observe the different stages of the frogs' development.

Use the following chart to record the frog's development from egg to frog.

Frog Diary

Prepare a diary using this sheet to record the frog's development.

Your name: **Date:**

Observations: Physical

Behavioural

Comment:

Sketch:

Frog Profile

Fill in this sheet while watching your frog's development.

The Eggs

1. What size are the eggs?_____
2. What shape are the eggs?_____
3. What colour are the eggs? _____
4. What is the black spot in the centre of the eggs?_____

The Tadpole

1. What colour is the baby tadpole?_____
2. Watch how the tadpole breathes.
3. What does the tadpole eat?_____
4. How does the tadpole swim?_____
5. Which legs appear first?_____

The Frog

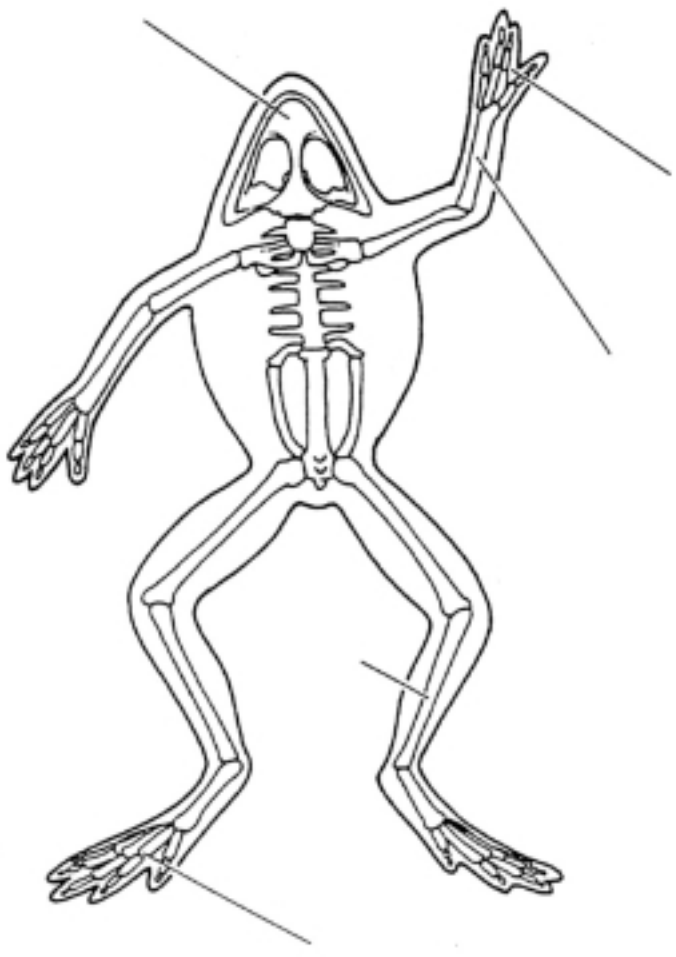
1. Does the frog have eyelids?_____
2. Can you find the frog's ears?_____
3. How many toes on the front leg and hind leg?_____
4. Does the frog's skin ever get dry?_____
5. What does the frog eat?_____
6. Watch how the frog catches its food._____
7. Can you see the frog's tongue? Is it long or short?_____

Parts of the Body

Most frogs have webbed feet to help them swim and move in the water. Some frogs have special suction pads on their toes to help them cling to things. Their back legs are very strong and long so it is easier for them to move about by hopping.

Frogs drink through their skin, therefore the skin must always be kept moist. They catch their food with their long sticky tongue. Their eyes and nostrils are on top of their head so they can see and breathe while most of their body is under the water.

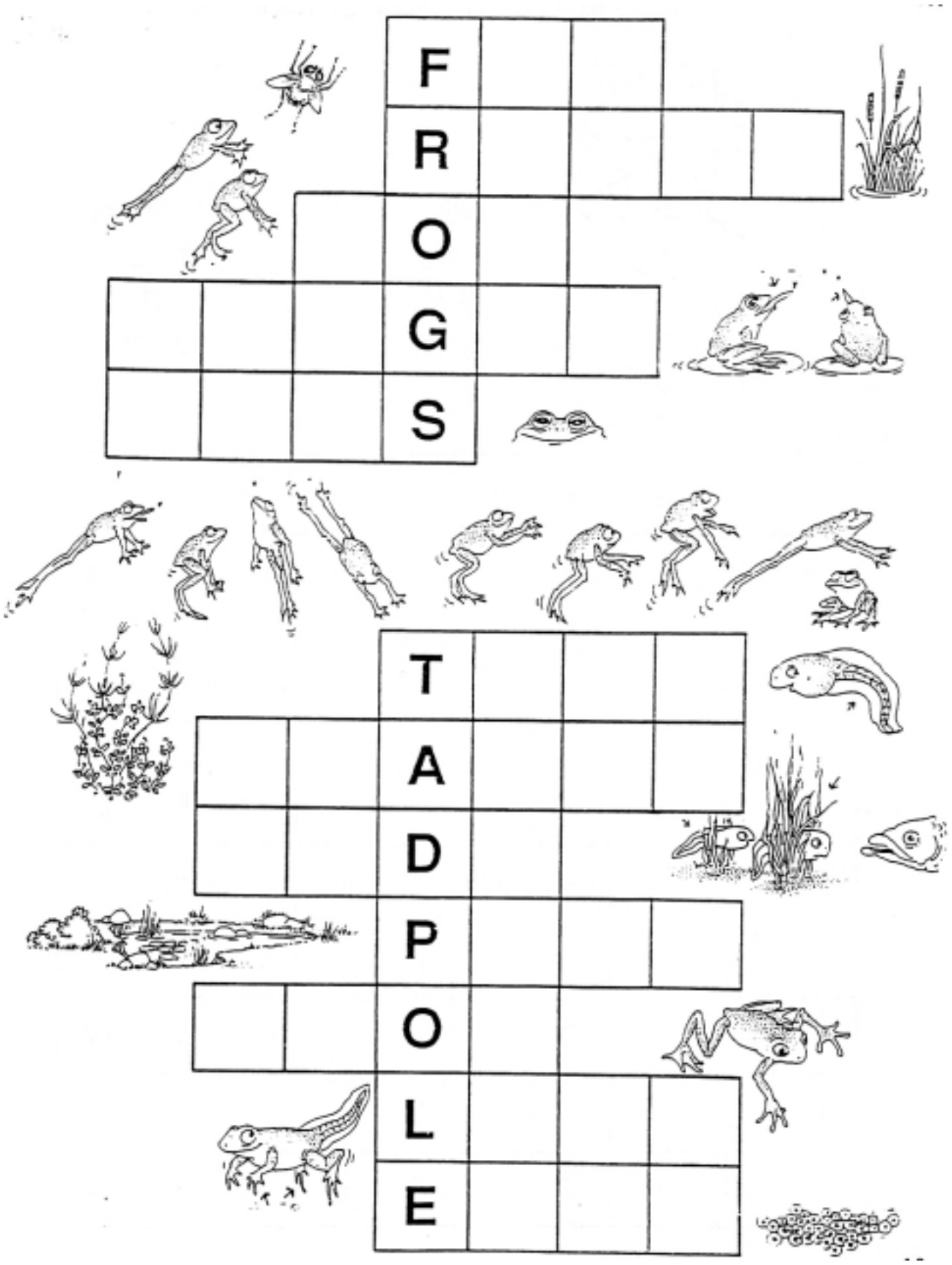
Look at the picture of the frog. Down the side of the page is a list of the main parts of the frog's body. Match the names with the parts of the body.



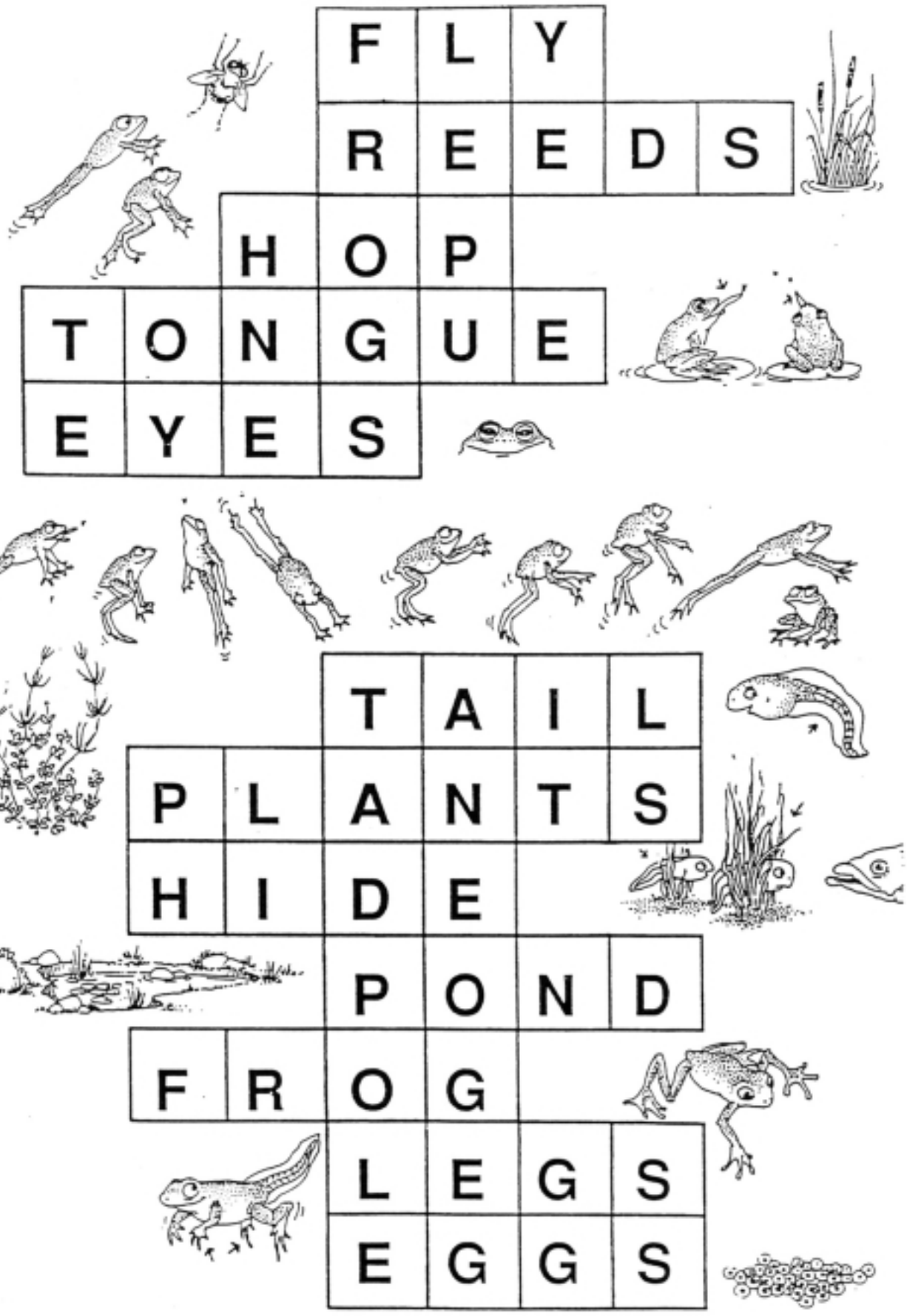
skull
fingers (4)
toes (5)
leg
arm
skin

Picture Crossword

Fill in the crossword to make the words fit across the the puzzle.



Crossword Solution



True or False Quiz

Find information to complete the following quiz.

1. Frogs belong to the class of animals called amphibians. ☐
2. Frogs are warm-blooded animals. ☐
3. Frogs lay eggs. ☐
4. All frogs need water in which to breed. ☐
5. Frogs have lungs and gills. ☐
6. Frogs have four fingers and five toes. ☐
7. Tadpoles are born with legs. ☐
8. Frogs use the sticky pads on their toes to catch insects. ☐
9. Some frogs will eat small mammals. ☐
10. Camouflage protects frogs from danger ☐
11. Some frogs live in trees. ☐
12. Tadpoles grow four legs before becoming frogs. ☐

True or False Quiz Answers

1. True

2. False

3. True

4. False. Tree frogs make a frothy nest in a tree and the tadpoles hatch in the middle of it.

5. False. Tadpoles have gills which disappear as they become frogs. Frogs have lungs.

6. True

7. False

8. False. They use their sticky tongues to catch insects.

9. True. Large frogs can and will.

10. True

11. True

12. True