



ZAP!

Zoo Activity Packet

Australian Adventure

A Teacher's Resource
for Grades 2-8

Australian Adventure

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Learning Objectives

The work sheets and activities in this Zoo Activity Packet are suggested to help students learn that:

1. Australia is a country with unique geographical and cultural features.
2. Because it has been separated from other continents for millions of years, Australia's plant and animal life have developed in unique ways.
3. More than 100 types of marsupial mammals are found in Australia, ranging from the eight-foot-tall red kangaroo to the 12 inch rat kangaroo.
4. Marsupials are a group of mammals whose young are born in a highly underdeveloped state, and complete their development in the pouch of the female.
5. Many well-known birds, including parakeets and cockatiels, are native to Australia.
6. Eucalyptus trees are common in Australia and are the only food eaten by the koala.
7. The Great Barrier Reef is a complex ecosystem made up of millions of tiny coral animals.

Vocabulary

Aborigine	One of the original human inhabitants of Australia.
Eucalyptus	A type of tree with thick, leathery leaves containing a strong-smelling oil. The leaves are retained year-round, and the bark is shed each year.
Joey	The young of a marsupial mammal, such as a kangaroo.
Mammal	A group of animals who have hair or fur, nurse their young with milk, and usually give birth to live young.
Marsupial	A mammal in which the female has a pouch of skin surrounding the nipples. The premature young crawls to the pouch shortly after birth, and completes its development in the pouch.
Monotreme	A mammal that lays eggs, such as the platypus or the echidna.
Placental	Mammals whose babies are nourished by a placenta during pregnancy. At birth, the babies are highly developed. Most mammals are included in this group, including humans, dogs, cats, horses, cows, mice, rabbits, etc.
Pouch	A fold of skin surrounding the nipples on female marsupials.

AUSTRALIA

Background Information for the Teacher

Australia's History

Until 1770, when British explorer James Cook claimed the eastern coast of Australia for King George III, Australia was inhabited by the Aboriginal people. The Aborigines were hunters and gatherers who lived off the land for more than 40,000 years. They had an intricate spiritual and social life, and numbered around 300,000 in the late 1700s.



Australia's Coat of Arms

Colonization of Australia began in 1778, when 11 ships and 1,350 people led by Captain Arthur Phillip and the First Fleet arrived at Botany Bay in January 1788. They soon established a settlement just north of the area, in Port Jackson.

The influx of European settlers displaced the Aboriginal people. Many of those living along the coastal areas were destroyed by disease and violence, while those in the interior, protected by the harsher climate, were able to retain their traditional culture. Today, Aborigines number around 160,000, or about one percent of Australia's population.

Australia achieved independence from Britain in 1901. Today, it boasts one of the highest standards of living in the world.

Geography

Australia is a very old continent. Researchers recently found the oldest known evidence of life on earth in Australia. Several 3.5 billion-year-old fossils were discovered embedded in the rocks of western Australia.

Australia is divided into four geographic regions. The eastern highlands include the Great Dividing Range, which parallels the coast for 2,500 miles. The hills average about 2,000 - 3,000 feet in the north, then increase in elevation to the south in Sydney's Blue Mountains.

The low, broad, Central Plain lies to the west of the highlands, and is noted for loose, sandy deposits. A small area in the south is known as the Faultlands, with steep hills and ravines.

The entire western half of Australia is known as the Western Plateau. This vast dry area includes a few mountain ranges and huge rock monoliths. It is the stereotypical "outback" of Australia.

Wildlife

Because Australia has been separated from the other continents for millions of years, its plant and animal life have developed in unique ways. Many of the plants and animals found in Australia occur nowhere else on earth.

Monotremes are a group of mammals found only in Australia. The duck-billed platypus and the echidna are the only living monotremes. Unlike other mammals, monotremes lay eggs, which are then incubated by the mother.

Marsupials make up the largest group of Australian mammals. Kangaroos, koalas, wombats, and Tasmanian devils are just a few -- more than 100 types of marsupials are found in Australia.

Marsupials are born in a highly underdeveloped state after a short gestation (pregnancy). The tiny, blind baby (about the size of a bean) must travel on its own from the womb to the pouch. This perilous journey takes only a few minutes as the baby pulls itself across the mother's fur to the pouch. Once inside the pouch, the baby attaches to a teat (nipple) and begins to nurse. After a few months, the baby may get its first glimpse of the world by peeking out from the pouch. Gradually, the youngster, called a joey, ventures from the pouch more and more, eventually leaving for good after a year or more.

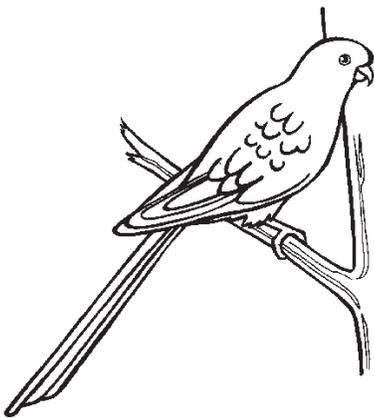
Kangaroos come in many different shapes and sizes. Three examples of kangaroos are Doria's tree kangaroo, the Western gray kangaroo, and the red kangaroo. Inhabiting every niche, they include the wallabies, bettongs, pademelons, wallaroos, and tree kangaroos.

What about other mammals? *Placental* mammals -- the kind whose young are nourished by the placenta as they grow in the womb, and are then born alive in a well-developed state -- are few in Australia. Rats, mice, and bats are the only native placental mammals. Other introduced species, like dingoes, cats, rabbits, sheep, and camels, are also placental.

Aside from marsupials, Australia is best known for its 730 species of birds, many of which are colorful parrots. Green and yellow budgerigars (parakeets) form huge flocks of 10,000 to 20,000 birds. Magnificent cockatoos and galahs are also common. They are well-known as pets and for their ability to talk.

Other well-known birds include the kookaburra, famous for its humanlike laughing chorus. The six-foot-tall, flightless emu, a cousin of the ostrich, can run at speeds up to 40 miles per hour. The male emu incubates the large green eggs.

Australia is home to a wide variety of reptiles and amphibians, including snakes, turtles, lizards, crocodiles, frogs, and toads. Several of the world's most poisonous snakes are found in Australia, including the eastern brown snake and the taipan.



Parakeet

Plants

The eucalyptus is the dominant tree in Australia. More than 600 species of eucalyptus grow in Australia. Although only a small percentage of the country is forested, eucalypts comprise 75 percent of all forest trees. They are found in habitats ranging from 4,000-foot mountaintops to sun-baked regions of central Australia. Known in Australia as gum trees, eucalypts have leathery, blue-

gray leaves, which are retained throughout the year. Instead of shedding its leaves, the eucalyptus tree sheds its bark, leaving a pale trunk. The oil distilled from the leaves is used as an antiseptic and a tonic. Koalas are the most famous consumer of eucalyptus leaves, which comprise their entire diet.

Other significant Australian native plants include the acacia, with 630 species. Known as the wattle by Australians, these trees produce huge, fragrant, golden sprays of flowers in winter.

Great Barrier Reef

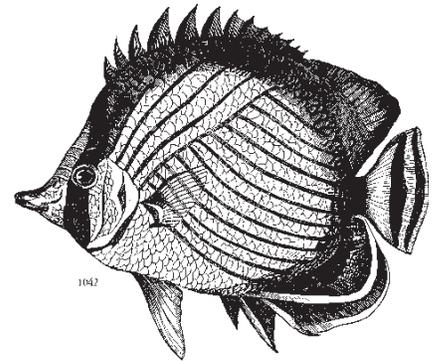
At 1,250 miles long, the Great Barrier Reef is the largest living thing on Earth, and the only living thing that can be seen from outer space. Built with the secretions of millions of tiny coral animals, the reef is jam-packed with living creatures. Fish, sharks, sea snakes, dolphins, jellies, sea stars, urchins, lobsters, snails, worms, eels, crabs, clams, and more make their homes on the reef.

Coral is an animal made up of hundred of tiny polyps. Like a tiny sea anemone, each polyp resides in a small hole or pore in the coral skeleton. To feed, the polyp extends its "arms" or tentacles to nab tiny floating particles from the water. The polyps secrete calcium carbonate, which builds up to make the coral skeleton.

A reef is formed by the accumulated skeletons of millions of corals. Reefs require warm, clear, shallow waters in tropical oceans for optimum growth.

Conservation

The uniqueness of Australia's plants and animals means that they are especially vulnerable to disturbance by humans. Introduced species, for which there are no natural predators, have wreaked havoc in parts of Australia. The cane toad, rabbits, and feral cats have destroyed vegetation, decimated certain native wildlife populations, and become a nuisance.



Butterflyfish

Australia: Basic Facts

Australia is the world's smallest, flattest, and, next to Antarctica, the driest continent. Although it is nearly the same size as the United States, Australia's population is less than one-tenth that of the United States.

Land Area: 7,682,300 square miles

Capital: Canberra (population 300,000)

Climate: Because Australia lies in the southern hemisphere, seasons are the reverse of those in the northern hemisphere. Summer is from December to February; autumn is from March to May; winter is from June to August; and spring is from September to November. Much of northern Australia lies within the tropics. There, you'll find hot dry deserts in the west and central regions, where daytime temperatures can reach 120 degrees, as well as humid tropical rain forests in the east. In the southeast and in Tasmania, the temperate climate brings seasons and temperatures much like the central United States.

Population: 15 million.

Religions: Protestant, Roman Catholic

Language: English

Education: Children must attend school from ages 6 through 15. Many attend public or private schools, but in remote areas, children are home-schooled or take lessons via the radio.

Government: Australia's constitution is modeled after that of the United States.

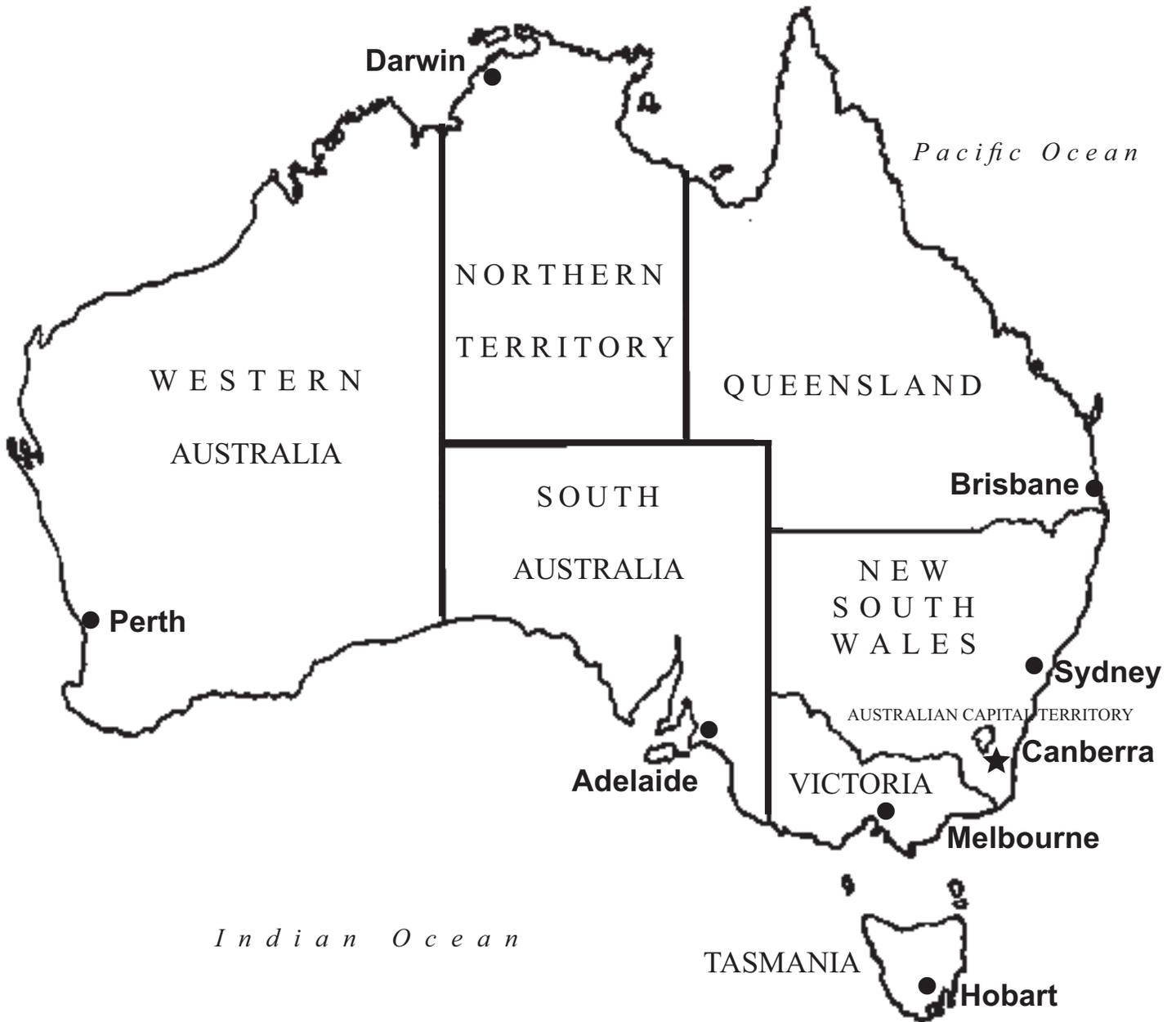
Flag: In the upper left corner, the Union Jack symbolizes Australia's historical ties with Britain. The seven-pointed star represents the seven states and territories in Australia. The Southern Cross is a group of five bright stars that can only be seen in the southern hemisphere and is referred to in Aboriginal legends.

Economy: Leading exports include wool, wheat, and beef. Mineral resources include gold, silver, lead, bauxite, zinc, copper, natural gas, and uranium.

Currency: Australian dollars

For more information, see the Australian Tourist Commission's website www.australia.com.

A u s t r a l i a



A Tour of the Australian Adventure Exhibit at the Fort Wayne Children's Zoo

The Australian Adventure exhibit at the Fort Wayne Children's Zoo is designed to immerse visitors in the sights and sounds of the country of Australia and its unusual wildlife. By arousing interest in the Land Down Under, the Australian Adventure can help develop in zoo visitors a greater appreciation for the world's wildlife and wild places.

Buildings in the Australian Adventure are modeled after authentic Australian dwellings. The first portion of the exhibit is designed to look like an Australian city. The second part of the exhibit brings visitors into the Outback.

Australia Welcome Center

The entrance to the Australian Adventure lies up the hill between the existing penguin and American alligator exhibits. In the Australia Welcome Center, Australia's culture and geography are explored in a variety of interactive displays. Visitors are invited to try some activities and view several live Australian animals.

One of the most popular displays features a giant kangaroo model with a "pouch" into which children may climb.

Great Barrier Reef

The diversity and beauty of Australia's Great Barrier Reef are highlighted in spectacular aquarium exhibits within this building.

A 50,000-gallon aquarium is home to several types of sharks. The sharks swim through deep blue waters of the exhibit tank, with a few mounds of artificial coral to decorate the tank. The tank was designed to simulate the feel of the outer reef, where sharks hunt for their prey.

Jellyfish are displayed in smaller, specially-built aquariums. Their custom-built tanks are equipped with a circular filtration system that keeps the delicate jellies suspended in the water, allowing visitors to appreciate their subtle beauty.

More than 60 fish of about 20 species move through the crystal clear water of the 17,000 gallon reef tank. The walls of the tank are covered with coral formations, much like those seen when snorkeling or diving on the reef. What most zoo visitors don't realize is that the coral in this tank is artificial -- it was constructed of fiberglass, with each coral formation molded from real corals. Artificial coral is used because live coral is extremely difficult to maintain in large quantities; to obtain live coral, living reefs would have to be destroyed.

Australia After Dark

A large colony of bats reside in the Australia After Dark building. These fruit-eating bats eat about 25 pounds of fresh produce every day, including figs, bananas, broccoli, apples, and sweet potato, plus cooked eggs. In the wild, fruit bats are important pollinators of many cash crops, including the bananas we eat.

Other nocturnal Australian animals can be seen in the exhibit tank opposite the bats. Check the identification signs for information.

Attached to the Australia After Dark building is an aviary.

The Outback

Crossing the wooden bridge, the atmosphere changes from that of a city plaza to the Australian Outback. Red dirt and replicas of farmhouses create a rustic look.

Visitors may tour the perimeter of the Australian Adventure in simulated log boats on the River Ride. The kangaroos and dingoes may be seen from the boats.

Walkabout Aviary

Hundreds of colorful birds chirp, chatter, and call in the 1/2-acre Walkabout Aviary. Watch for cockatiels, which may be familiar to students who know these birds as pets. In fact, cockatiels are native to Australia.

Other birds in the aviary include the kookaburra, rosellas, doves, and several rare parrots. A separate enclosure in the aviary houses a group of rainbow lorikeets. These colorful parrots have fuzzy tongues for gathering nectar and pollen from flowers.

Kangaroo Yard

Dozens of eastern grey kangaroos lounge in the lush grass of the kangaroo exhibit, where only a low fence separates animals and visitors. Sometimes, kangaroos will hop right across the path, startling visitors as they stroll through the yard. Look for joeys in the pouches of the females -- several are born at the zoo in a typical year. Occasionally, a kangaroo will lie close enough to the path to allow visitors a rare opportunity to pet a kangaroo!

Dingo Exhibit

The wild dog of Australia, the dingo, is thought to have arrived on the continent about 30,000 years ago. Dingoes were associated with Aborigines, but are not domestic dogs. The zoo exhibits a pair of dingoes. Dingo pups have been born here several times through the years.

Animal Species Exhibited in the Australian Adventure

There are animals displayed all throughout the Australian Adventure. Be sure to check in the following places for animals:

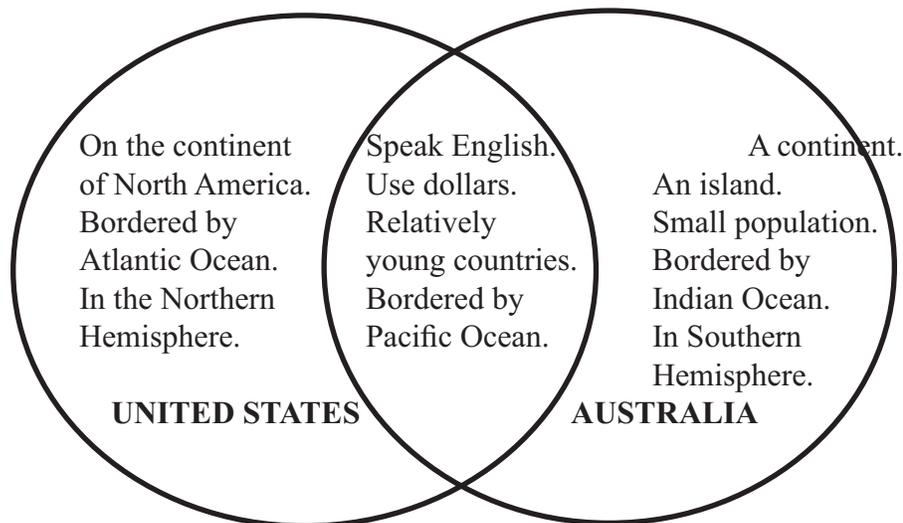
Australia Welcome Center
Great Barrier Reef
Australia After Dark
Walkabout Aviary
Outdoor Exhibits

For information about specific animals, go to our website www.kidszoo.org and click on "Explore the Zoo." Follow the link to "Animal Information" for animal fact sheets on a collection of animals.



Pre-Visit Activities

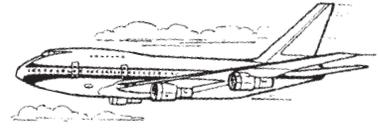
- ★ Plan an imaginary "trip" to Australia using the worksheets on pages 14-17. Have students plan their airplane trip, and apply for and make a "passport." Use the map of the world to plan your travel route. How long will it take to get there? How many miles will they travel? Older students can determine the time difference between the U.S. and Australia.
- ★ Study the Australian flag and its components using the worksheet on page 18. Students can color their own Australian flag on a separate sheet.
- ★ Use a Venn diagram to compare and contrast the United States and Australia. Draw two overlapping circles on the chalkboard. Label one "United States" and the other "Australia." The area where the two circles overlap contains attributes that both countries share. The areas that do not overlap contain attributes unique to each country. Ideas are given below:



- ★ Later, use this technique to compare an opossum and a kangaroo.
- ★ Discuss the history of Australia. Read *How the Sun Was Made* (page 20), then use *Aboriginal Art* (page 19) and *A Boomerang Comeback* (page 21) during your discussion of the Aboriginal people.
- ★ Australians speak a unique form of English, called 'Strine (slang for Australian). Use the work sheet *Speaking 'Strine* (page 22) to translate some common phrases to Australian.
- ★ Discuss Australia's wildlife. Use the worksheets entitled *Aussie Magic Triangle*, *Kangaroos*, *The Kangaroo Hop*, *A Tricky Track*, *Hopping Mad*, and *Koalas* (pages 23-27) to study Australian mammals.

Airplane Ticket

Choose a city in Australia that you wish to visit. Measure the distance from your home to that Australian city. Use a map of the world. Don't forget to use the scale of miles on the map.



Name of the Australian city you will visit: _____

How far is it from your home to that city in miles? _____

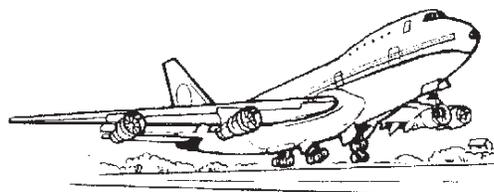
How far is it from your home to that city in inches? _____

Determine the cost of your airplane ticket, based on the information above. Pretend it costs 50 cents to travel one mile.

How much does a one-way ticket cost? _____

How much will a round-trip ticket cost? _____

Australian Adventure Airlines	
Passenger Ticket	
Name _____	Row _____
Destination _____	Seat _____
Departure Time _____	Meal <input type="checkbox"/> Yes <input type="checkbox"/> No
Arrival Time _____	
Distance _____	Ticket Cost _____



Passport Application

When traveling outside of the United States, each U.S. citizen must carry a passport to prove their citizenship. Customs officers will ask to see your passport and stamp it when you arrive in each country.

Fill out the information below. Use it to make your "passport" for your imaginary trip to Australia.

I, _____
 (first name) (middle name) (last name)

do hereby apply to the United States Department of State for a passport.

<input type="checkbox"/> Male	Birthplace	Birth date	
<input type="checkbox"/> Female		Month	Day
Height	Weight	Hair Color	Eye Color
			Year
Street Address		City	State
			ZIP

I solemnly swear that the information given above is true and the picture is a likeness of me.

Signed

Date

Travel Plans

Purpose of your trip	Means of transportation
	<input type="checkbox"/> ship <input type="checkbox"/> air <input type="checkbox"/> other
Length of stay	Have you traveled abroad before? <input type="checkbox"/> yes <input type="checkbox"/> no
Do you expect to take another trip?	Countries to be visited:
<input type="checkbox"/> yes <input type="checkbox"/> no	

Passport Agent (Teacher)

Picture of Applicant

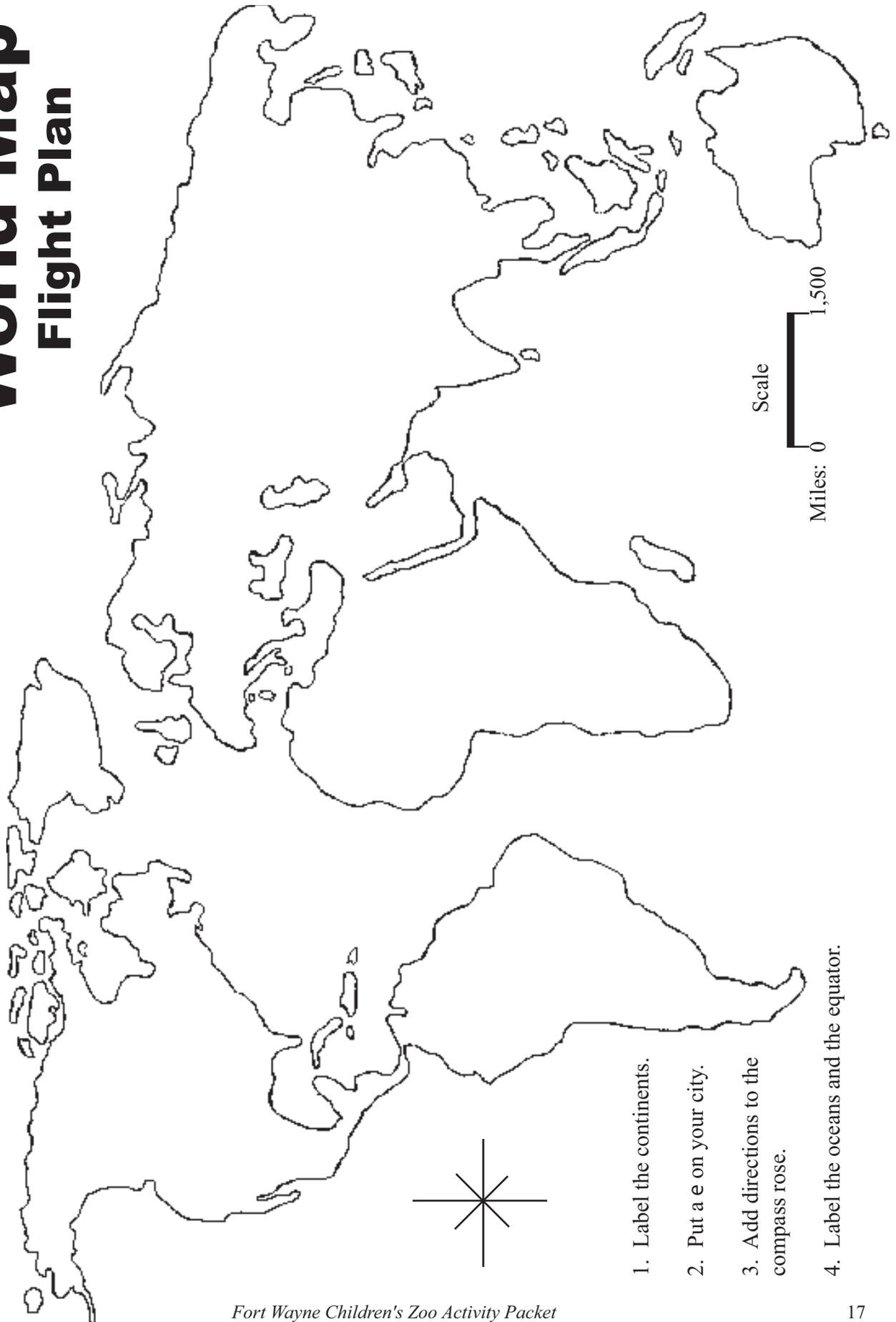
<p>United States of America</p>	<h1>PASSPORT</h1> 
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Cut apart, assemble, and fill in the needed information.

<p>Picture</p> <div data-bbox="315 1194 725 1512" style="border: 1px solid black; height: 150px; width: 250px; margin: 10px auto;"></div> <p>Name _____</p> <p>Street _____</p> <p>City, State _____</p> <p>Height _____ Birth Date _____</p> <p>Hair Color _____ Eye Color _____</p> <p>Signed _____</p>	<p>Official Stamp</p> <p>Country _____</p> <p>Entry Date _____</p> <p>Departure Date _____</p> <p>Grade <input data-bbox="1144 1757 1256 1866" type="checkbox"/></p>
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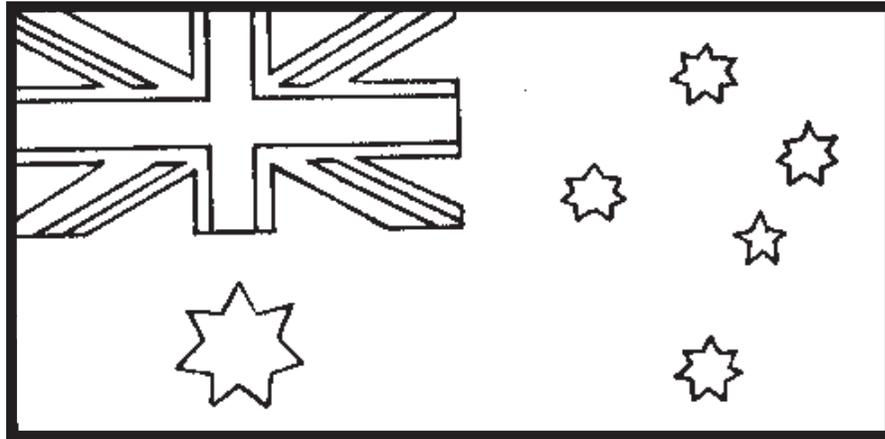
World Map

Flight Plan



1. Label the continents.
2. Put a e on your city.
3. Add directions to the compass rose.
4. Label the oceans and the equator.

Australia



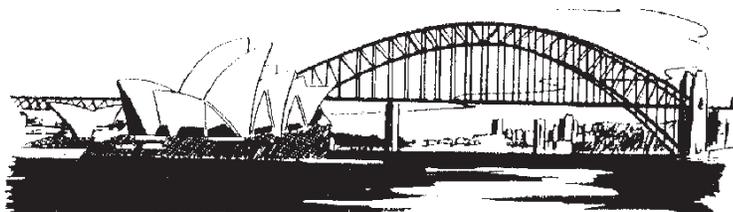
The red and white British flag appears in the upper left hand corner of the Australian flag. Under the miniature British flag is the seven-pointed Commonwealth Star, representing the seven states and territories of Australia. The five white stars on the blue field represent the constellation of the Southern Cross.

Color the flag, then answer these questions:

1. Why does Australia have a small British flag on its country's flag? _____

2. Why is the constellation of the Southern Cross important to the Australians?

3. Australia is located in the Southern Hemisphere, so their seasons are the opposite of ours. List the months when these seasons occur in Australia:



*Sydney Harbor
and Opera House*

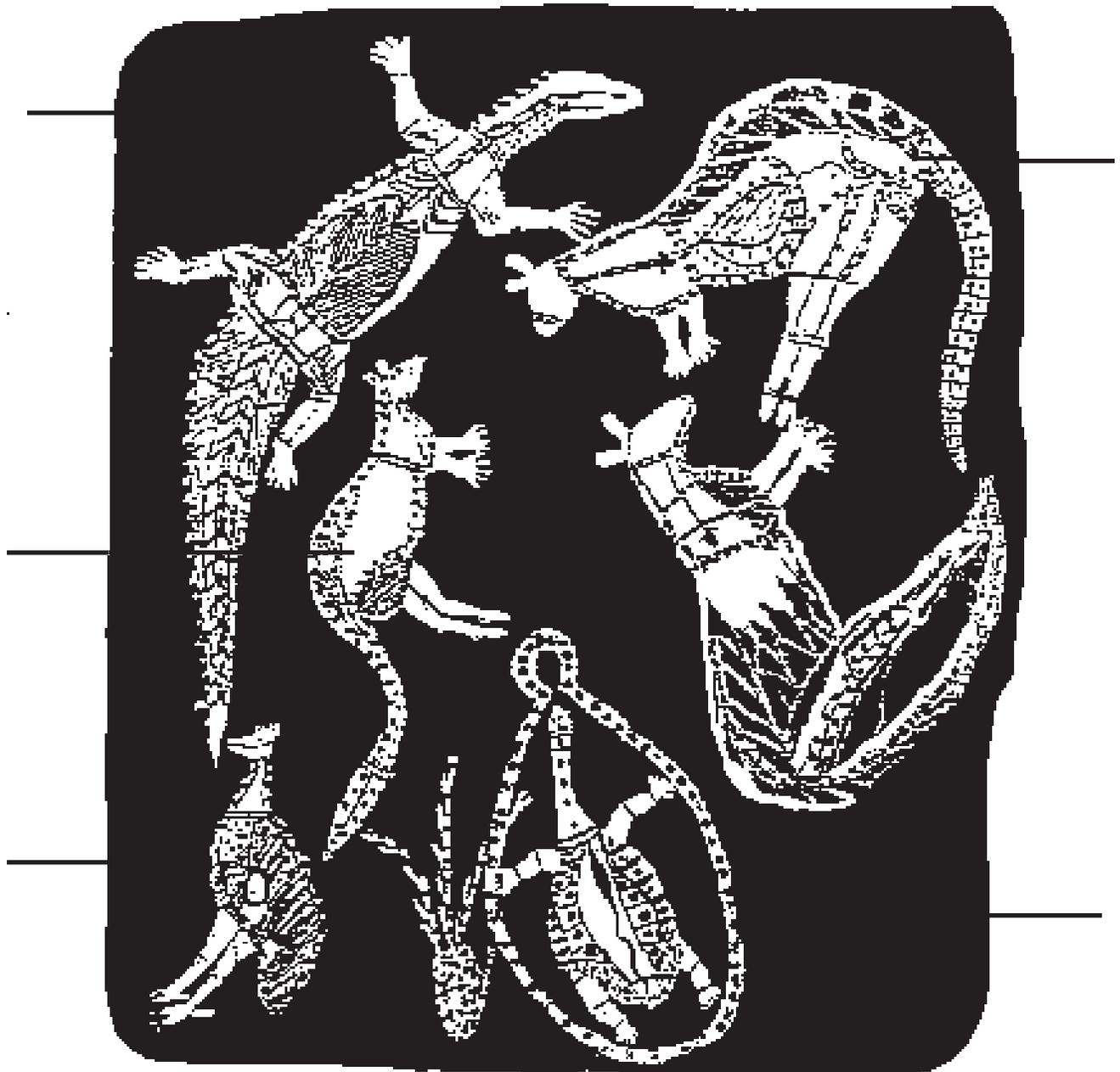
Aboriginal Art

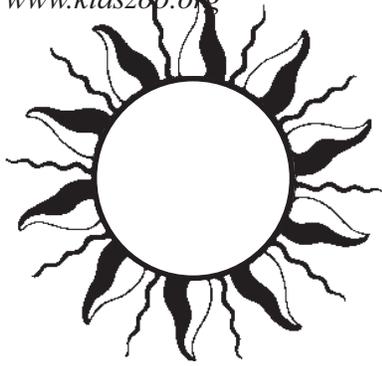
The Aborigines were the first people to live in Australia. Long before Europeans settled in Australia, the Aborigines hunted animals and gathered food. They have a complex social and spiritual life.

Aboriginal artists painted pictures of animals on rocks and eucalyptus tree bark. The style they used in their paintings is called "x-ray" painting. Aborigines believed the paintings would bring good luck.

See if you can match the drawings with the animal names below:

- a. kangaroo b. marsupial rat c. long-necked turtle d. emu e. lizard





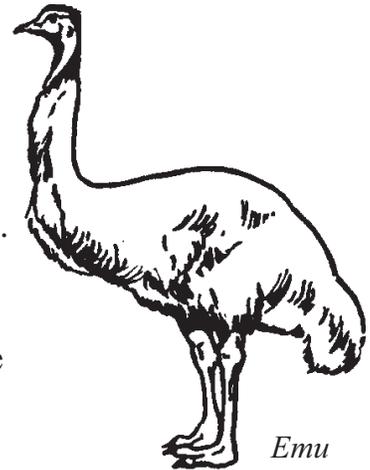
How the Sun Was Made

An Aboriginal Legend

For a long time, there was no sun, only a moon and stars.

One day, Din-e-wan the emu and the Brolga (crane) had an argument and there was a great deal of quarreling and fighting.

In her rage, Brolga rushed to the nest of the emu and, seizing one of the eggs, threw it with all her might into the sky. There the egg broke on a heap of firewood which burst into flame as the yellow yolk spilled all over it.



The flame lit up the world below.

A good spirit, who lived in the sky, saw how bright and beautiful the earth looked when it was lit up by this great blaze.

The spirit thought it would be a good thing to make a fire every day. So this was done.

Every night the good spirit would collect a great heap of firewood. At dawn the fire was lit and so the day would begin.

When the spirit first lights the fire in the morning, it does not give out much heat. But in the middle of the day, when the whole heap of firewood is blazing, it gives out a fierce heat.



After that, the fire begins to gradually die away until only the red coals are left at sunset, and they quickly die

To warn the people of the earth that the fire was about to be built, the good spirit asked the kookaburra to give his loud



A Boomerang Comeback

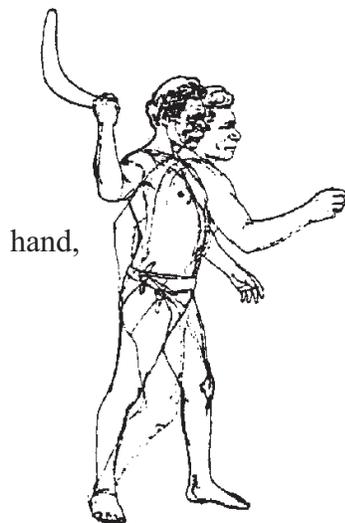
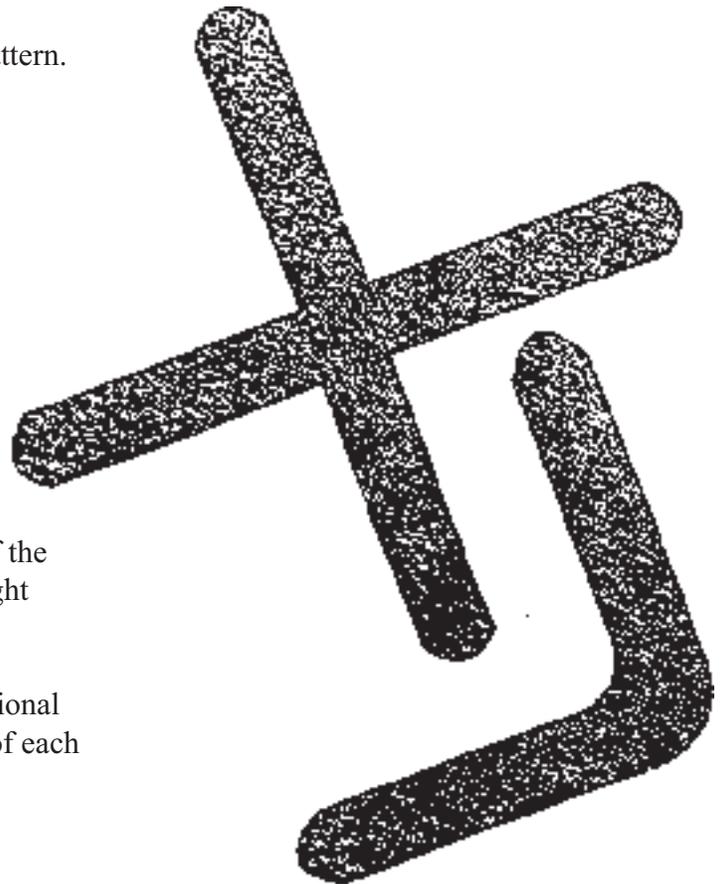
The boomerang is a flat, crescent-shaped stick used by the Aborigines of Australia. When thrown, it whirls through the air in a spiraling arc, then sweeps back toward the thrower. Because they revolve as they fly, the tips of the boomerang travel at high speeds. Boomerangs hit with tremendous force on impact. Boomerangs have many uses: hunting, cutting, skinning, and for entertainment during ceremonial dances.

TO MAKE YOUR OWN FINGER BOOMERANG:

Materials: file card, scissors, pencil, boomerang pattern.

Procedure:

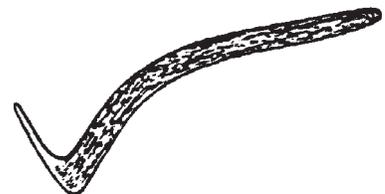
1. Cut out the patterns of the boomerangs and trace them on the file card.
2. Cut out the boomerangs from the file card.
3. Lay the boomerang on the edge of a book and tilt the book slightly upward. The book will serve as a launching pad.
4. Using one of your index fingers, strike the boomerang so it spins rapidly as it shoots off the tilted book. The boomerang should fly straight out, turn, and come back.
5. If necessary, give the boomerang some additional lift by slightly bending the leading edge tip of each wing upward, like a forward-facing flap.



hand,

To throw a returning boomerang, the Aborigine grasps an end, keeping the curved upper surface facing his body. He throws over-

adding a sharp flick of the wrist as he lets go. He must aim into the wind to make the boomerang come back!



Speaking 'Strine

Australians, like Americans, have their own "language" called 'Strine (slang for Australian). An Aussie might say something like this:



"I'm going to take my swag and tucker down to the billabong while my jumbucks are resting."

Use the 'Strine dictionary below to translate what the "bloke" said.

'Strine Dictionary

- billabong* - water hole
- billy* - container for boiling tea
- bloke* - man
- bonzer* - great, terrific
- bush* - country away from the city
- chook* - chicken
- dingo* - Australian wild dog
- dinkum, fair dinkum* - honest, genuine
- dinki-di* - the real thing
- fossick* - to prospect for gold or gems
- grazier* - ranch
- jumbuck* - sheep
- make a good fist* - do a good job
- ocker* - basic down-to-earth Aussie
- outback* - remote bush
- pom* - English person
- roo* - a kangaroo
- station* - sheep or cattle ranch
- Strine* - what Aussies speak
- swag* - bedroll and gear
- tucker* - food
- ute* - pickup or utility truck
- waltz matilda* - carry a swag

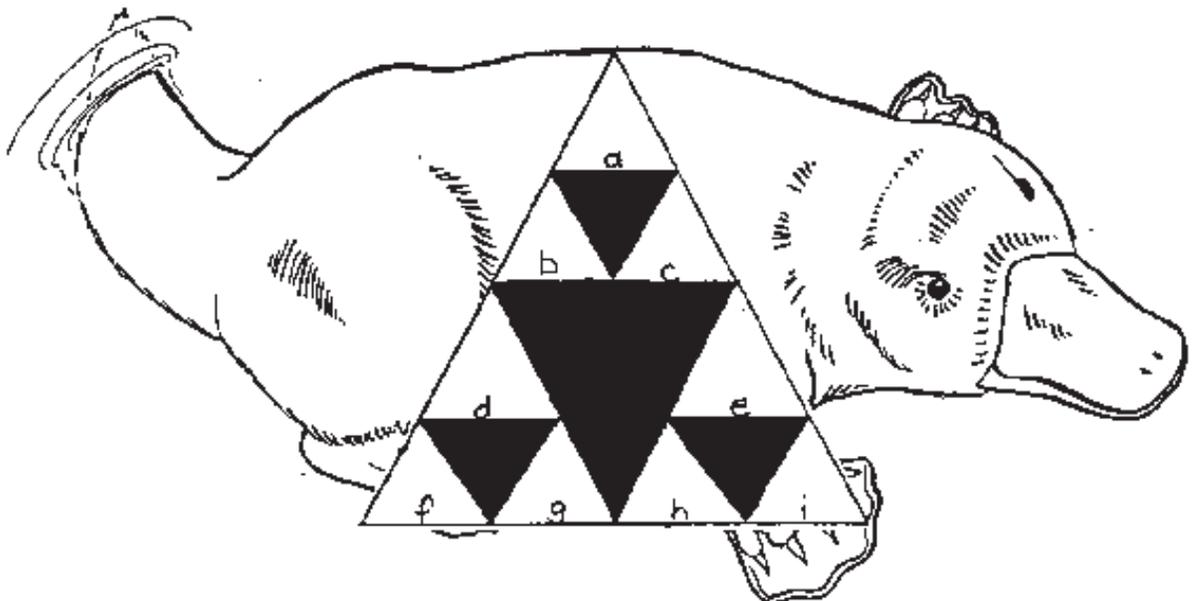
Using the 'Strine dictionary, write and illustrate your own sentence in this box.

Aussie Magic Triangle

Place the number from your answer in the triangle with the same letter as the question. If your answers are correct, the numbers on each side of the triangle will add up to 17. Use each number only once.

- a. A platypus lays eggs, but feeds its babies milk and is covered with fur. Therefore, the platypus is called a _____.
- b. The bill of a platypus looks like the bill of a _____.
- c. Of the 223 types of mammals in Australia, more than half are _____.
- d. Most of Australia is a dry _____.
- e. The northern tip of Australia is near the tropics. The warm, wet forests in this area are called _____.
- f. An Australian mammal that lays eggs like the platypus is the _____.
- g. A group of people who have lived in Australia for more than 40,000 years are the _____.
- h. Another name for the part of Australia covered with bush and dry desert is the _____.
- i. An Australian bird that resembles the African ostrich is the _____.

- | | | |
|------------|-------------------------|-------------|
| 1. mammal | 5. duck | 9. desert |
| 2. echidna | 6. marsupials | 10. reptile |
| 3. emu | 7. tropical rain forest | 11. prairie |
| 4. outback | 8. Aborigines | 12. wombat |



Kangaroos

Kangaroos live only on the continent of Australia. There are many different kinds -- some are up to seven feet tall and weigh 200 pounds, while others are as small as a rabbit.

At birth, a baby kangaroo is called a joey. They are extremely tiny -- a newborn joey is only as big as a bean! The joey nurses and grows in its mother's pouch for up to six months. The joey gradually learns to eat grass and hop around. But it will still jump back into the pouch if danger threatens.

Using long, strong hind legs, a male kangaroo can travel up to 40 feet in one leap!



All mammals with pouches belong to the same group. Follow the directions below to find out the name of this group.

M m G A R
Z S r U B
O P C I n
A Y H X L

1. Cross out all lower case letters.
2. Cross out all letters that come after W in the alphabet.
3. Cross out the second and third letters of the alphabet.
4. Cross out all the letters in the word "HOG."
5. Use the remaining letters to write your answer below.

The _____ family.

The Kangaroo Hop

The hind legs of a kangaroo are very powerful. The kangaroo also has very large hind feet. The legs and feet give kangaroos the ability to jump up to 10 feet high.

Along with the legs, the kangaroo's thick, muscular tail forms a "tripod" to carry the kangaroo's weight. The tail also helps to balance the kangaroo when it jumps.



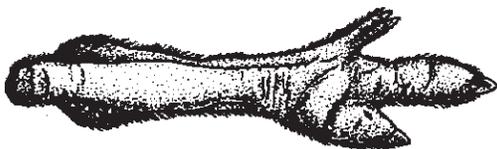
As a kangaroo starts to jump, it tucks its hind legs forward then pushes them back. Both legs move together. Next, it brings its tail and forefeet forward and sets them down to form a tripod. Now it can bring its hind legs forward and start over. They can reach speeds of over 30 mph. Kangaroos can cover 40 feet in one hop when traveling at top speed.

Try this:

Divide the class into two teams. Practice hopping like a kangaroo. Then, give each team a small aquarium net with a ping pong ball inside. Have a relay to see which team can hop a given distance in the shortest time, without dropping their "joey."

A Tricky Track

Examine the drawing of the bottom of a kangaroo's right hind foot. What happened to the kangaroo's third toe? (In kangaroos, two digits on the hind feet are fused to form a "grooming comb," which is used to clean their thick fur.)

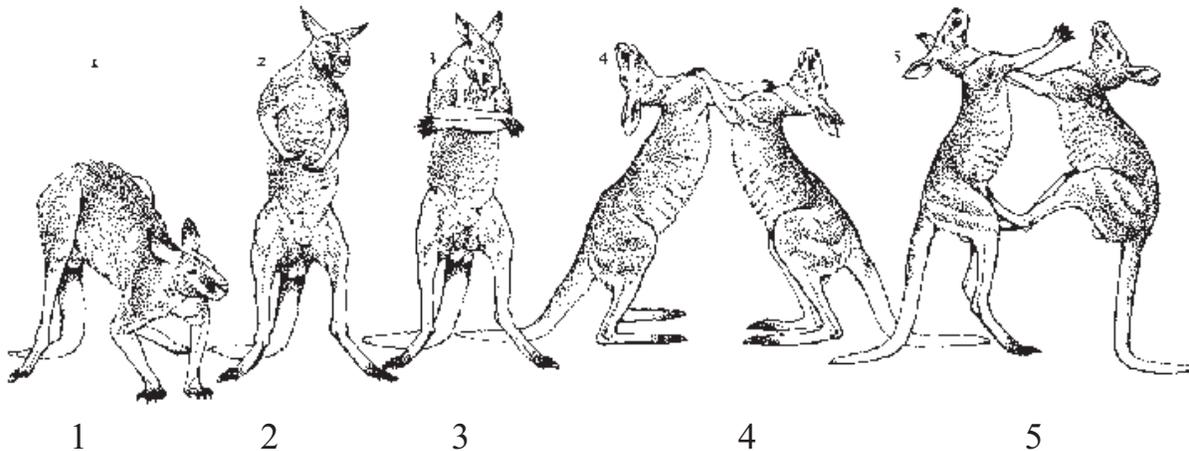


Next, look at the track made by a hopping kangaroo. Label which foot made each track (right and left forefeet, right and left hind feet). What made the line through the middle of the track?



Hopping Mad

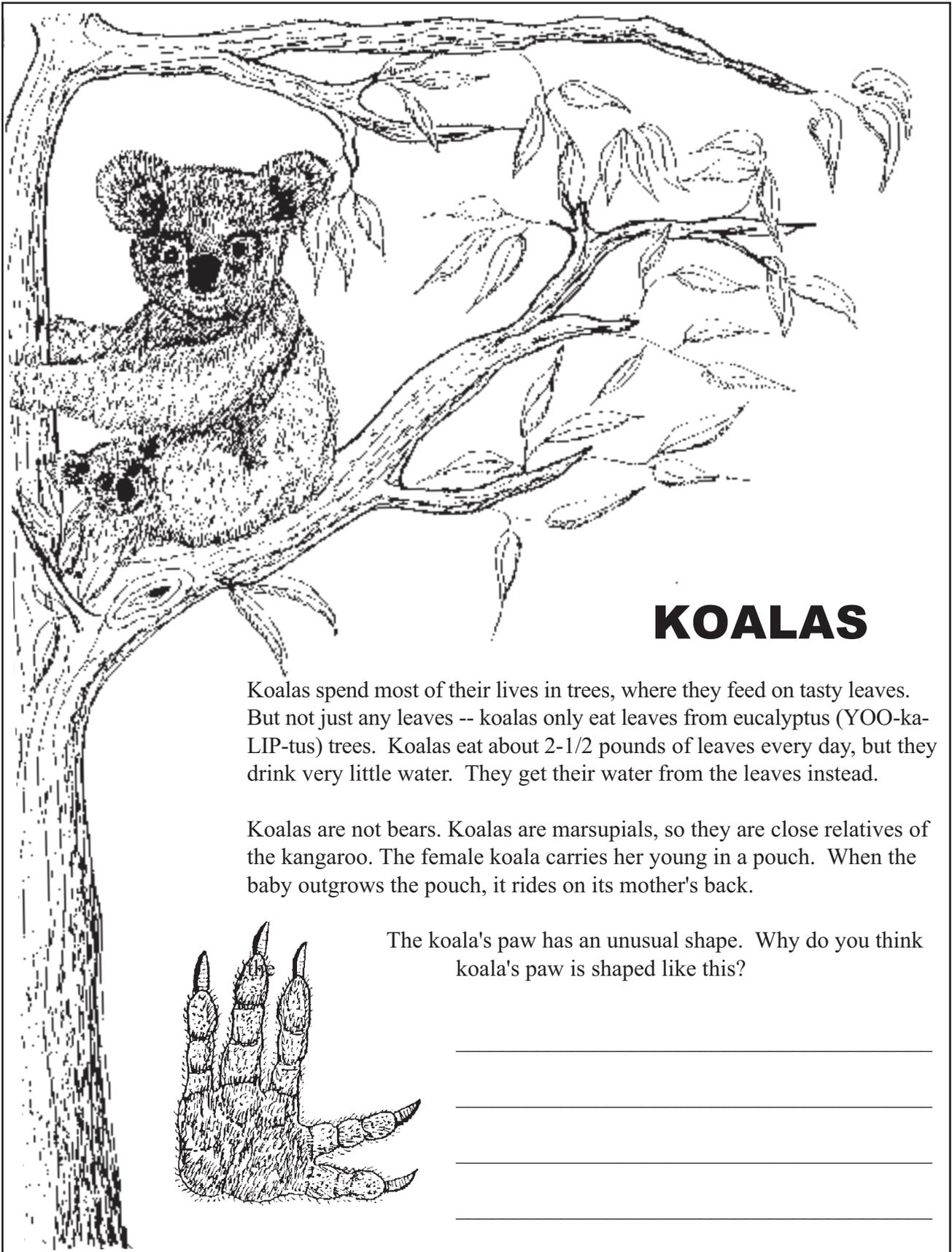
Kangaroos usually live in groups with several females, their joeys, and one adult male, who is called the dominant male. Fights among kangaroos can begin when a male from outside the group challenges the dominant male.



Before a fight, two males may do a "stiff-legged walk" in front of another male (1); They then start scratching and grooming (2 and 3). The males then stand upright on their hind legs and lock forearms (4), then attempt to punch each other to the ground with powerful hind legs (5).

Try This:

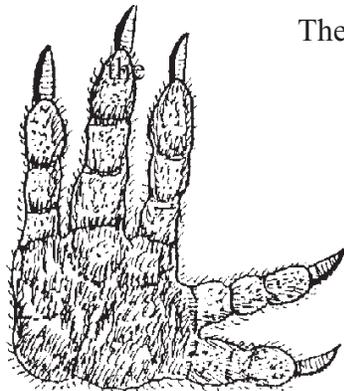
Use a piece of yarn to form a three-foot circle in the middle of the floor. Pick two participants to be the kangaroos. They will need to demonstrate steps 1 - 3 while outside the circle. In step 4, they will lock forearms in the center of the circle and proceed to PUSH ONLY until one of the kangaroos is outside the circle. Because kangaroos may inflict injury to an opponent during a fight, step 5 should not be demonstrated.



KOALAS

Koalas spend most of their lives in trees, where they feed on tasty leaves. But not just any leaves -- koalas only eat leaves from eucalyptus (YOO-ka-LIP-tus) trees. Koalas eat about 2-1/2 pounds of leaves every day, but they drink very little water. They get their water from the leaves instead.

Koalas are not bears. Koalas are marsupials, so they are close relatives of the kangaroo. The female koala carries her young in a pouch. When the baby outgrows the pouch, it rides on its mother's back.



The koala's paw has an unusual shape. Why do you think koala's paw is shaped like this?

Great Barrier Reef

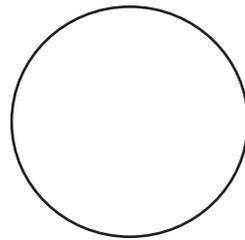
One of Australia's greatest tourist attractions is the Great Barrier Reef. This colorful coral reef stretches 1,250 miles along the northeast coast of Australia. Many species of fish live there because food and shelter are plentiful. The ocean water is warm, and there is lots of sunlight. These conditions are just right for the coral polyps (tiny marine animals) to grow and produce their hard, coral "skeletons."

Many types of unusual fish can be found on the Great Barrier Reef. The queen angelfish is a favorite of tropical fish fanciers and the trumpet fish stalks its prey by patiently standing on its head.

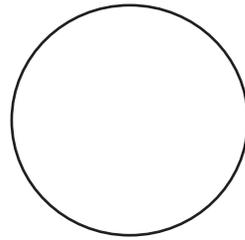
There are many types of coral found on the reef. The parrot fish chews the sharp coral to get the tiny polyps out of it for food. Then the parrot fish spits out the coral sand pebbles. This fish is responsible for producing many miles of coral sand reefs.

See if you can find pictures of these corals. Draw a picture of each one. Can you tell how each got its name?

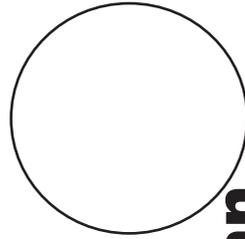
Types of Coral



Brain



Tube



Fan



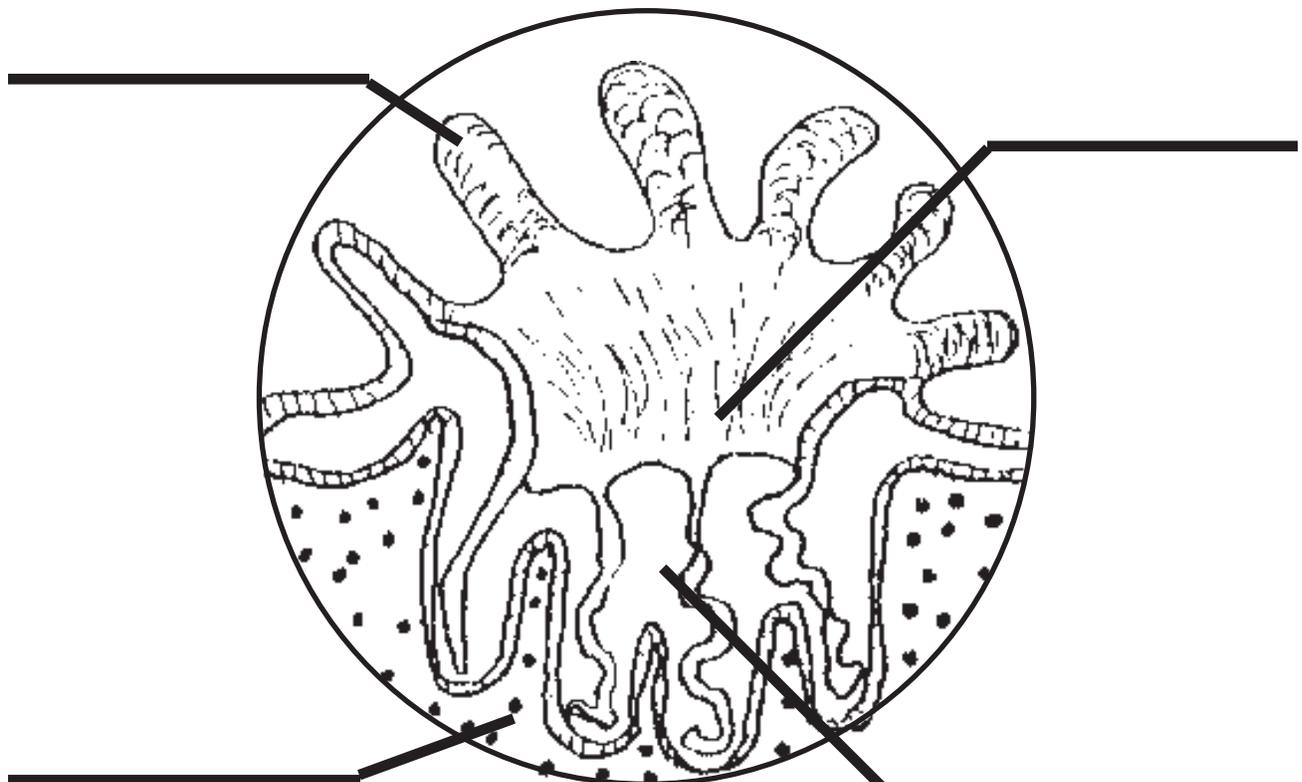
Looking at Coral

Polyps are the tiny, often microscopic marine animals that build the hard coral skeleton for their home. The polyps live together in a colony. One coral colony may contain thousands of individual polyps. Colonies take on many different shapes: fans, tubes, branching, or mushroom-like, to name a few. There can be millions of coral colonies on a coral reef.

The coral polyp extends its **tentacles** to gather tiny bits of floating food, which are called plankton. The food is then digested in the polyp's stomach. When the polyps are frightened or resting, they pull the tentacles inside the hard limestone skeleton.

The stony skeleton is the home of the coral. The polyp uses calcium carbonate found in the sea water to gradually build up its hard skeleton. Just think: these tiny animals have built huge reefs like Australia's Great Barrier Reef.

Label the four main parts of this polyp. It is shown in cross-section, so that you may see the inside of the polyp. Use these words:



Coral Polyp

At-the-Zoo Activities

★ There's a lot to see and do at the zoo. You and your students may be tempted to try and see the entire zoo during your field trip, but your visit can be more effective if you choose to focus on one area or a specific animal.

★ The work sheets included in this section can help your students focus on the zoo's Australian Adventure exhibit. Complete your studies in this area before moving on to other parts of the zoo. For example:

Study fish in the Great Barrier Reef Aquarium exhibit using *Fish Tricks* (page 31).

Students can choose any Australian Adventure animal for detailed study using the *Observing Australian Animals* work sheet (page 32-33).

Visit the Walkabout Aviary and look for specific birds using *The Walkabout* work-sheet (page 34).

Use *Kanga-parts* (page 35) and *Be a Kangaroo Watcher* (page 36) to guide students in their observations of the zoo's kangaroo mob.

★ A visit to the zoo can generate many questions. Teachers and chaperones may not be equipped to answer all the students' questions on the spot, so try these suggestions:

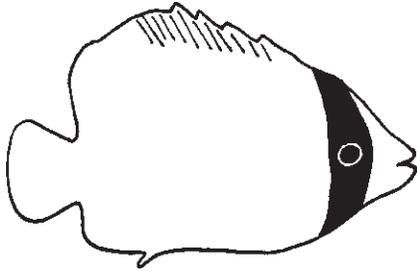
Encourage students and chaperones to make an "educated guess" to answer questions. Use observation skills and prior knowledge to formulate the answer.
 Example: Why does the snake have that pattern on its back? Consider the snake's habitat. Would the colors make it hard to see the snake? Then the colors probably provide camouflage.

Have students write down questions in a notebook. Look up the questions upon returning to school.

Encourage students to approach a zoo staff member with questions. If that staff member cannot answer the questions, he/she may be able to direct them to a person who can.

Fish Tricks

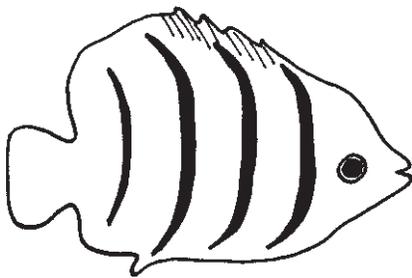
Fish have spots and stripes to confuse other fish and provide camouflage. See how many fish you can find in the Great Barrier Reef aquarium with these markings. Write their names on the lines.



Eye Bar

The dark stripe helps hide the eye, so a predator may not know which end of the fish contains the head.

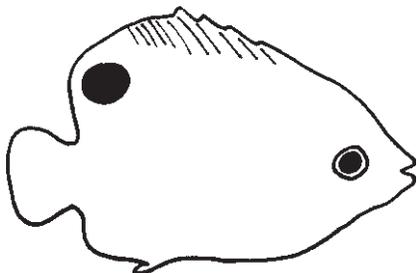
List the fish with eye bars seen in the tank.



Stripes

Stripes break up the outline of the fish's body, making it hard for a predator to see the fish.

List the fish with stripes seen in the tank.



Eye Spot

Eye spots may trick predators into mistaking the fish's tail for its head.

List the fish with eye spots seen in the tank.

The Walkabout

Visit the Walkabout Aviary in the Australian Adventure. Circle the birds that you see in the aviary. Next to each bird's picture, write what colors you see on the bird.



Large parrot



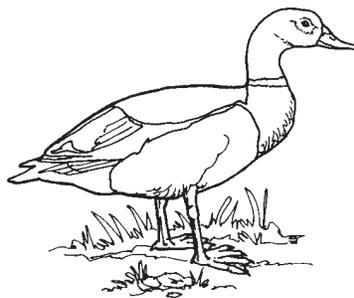
Lorikeet



Rosella



Kookaburra



Duck

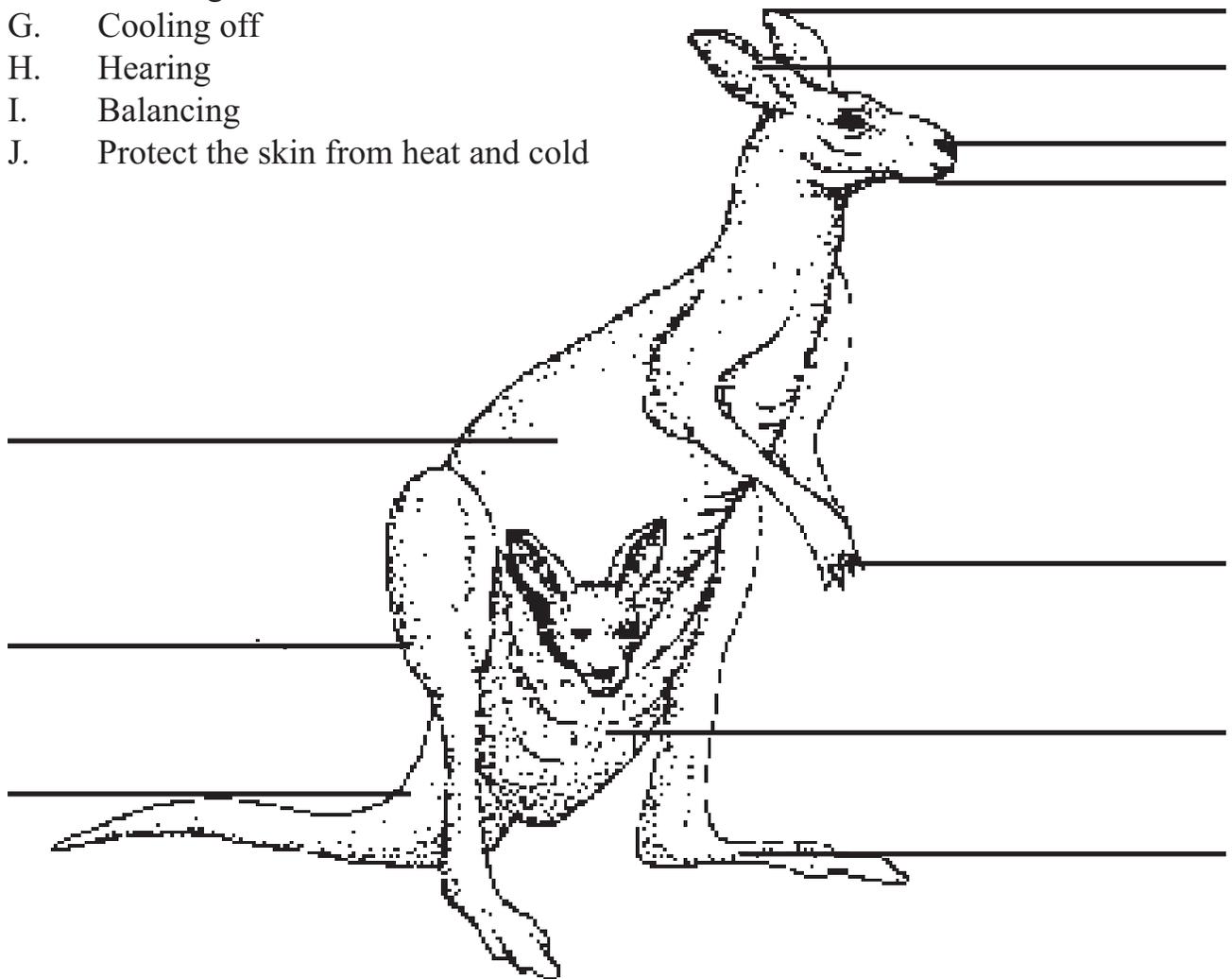
Kanga-parts

Pick a kangaroo to watch. Name your kangaroo _____

Each part of the kangaroo has an important function. Match the kangaroo's parts to the uses listed below. Put the correct letter on the line pointing to a body part.

When your kangaroo does one of the things listed, put an "X" on the line beside the letter.

- A. Smelling
- B. Kicking
- C. Holding baby
- D. Combing hair
- F. Chewing
- G. Cooling off
- H. Hearing
- I. Balancing
- J. Protect the skin from heat and cold



Be a Kangaroo Watcher

Draw a map of the zoo's kangaroo yard on the grid below. Show landmarks like trees, fences, paths, and buildings.

1	2	3
4	5	6

Pick a kangaroo to observe at the zoo. Give your kangaroo a name. _____

Every 2 minutes, record the time. Write down the area of the grid in which your kangaroo is sitting (or standing). Then describe exactly what your kangaroo is doing.

TIME AREA# OBSERVATIONS

TIME	AREA#	OBSERVATIONS

Post-Visit Activities

- ★ Students can reflect on their zoo visit by writing about the trip in a journal, to a pen pal, or a "buddy" from another grade. Encourage students to illustrate their composition.
- ★ Have students complete the sentence "If I ran the zoo..." Read the Dr. Seuss book by the same name after they have completed their story.
- ★ Students may have observed zoo employees at work during their field trip. As a group, discuss the various jobs people do at the zoo. Be sure not to overlook "behind the scenes" workers, such as maintenance workers, office workers, etc.
- ★ Students can construct a shoebox diorama to illustrate an exhibit seen at the zoo. These could be assessed for the inclusion of appropriate habitat, food sources, characteristics of the animal, needs of keepers, and safety concerns.
- ★ Have students research the different types of pouches that marsupials have, then construct three-dimensional models to illustrate each type of pouch. Students will learn that pouches are not "pockets" as they are often portrayed in storybooks.
- ★ Construct a Venn diagram to sort the animals they saw by habitat. For example, aquatic animals, desert animals, rain forest animals, etc.
- ★ Match North American animals to their Australian counterparts. For example, what North American animal grazes in meadows and forests like the kangaroo? (white-tailed deer) What North American bird feeds on seeds like the parakeet? (cardinal) What mammal scavenges for carrion like the Tasmanian devil? (opossum).
- ★ Several work sheets are included in this packet for use as follow-up activities. Choose one that best fits your classroom needs:

Focus on marsupial development by using *The Koala* (page 38).

Study animal footprints by using *Tracking Australian Animals* (page 39).

Learn how animal adaptations aid lifestyles by using *It's a Rat...It's a Pig...It's a Bandicoot!* (page 40).

Strengthen vocabulary with *Koala Crossword* and *Platypus Crossword* (page 41-42).

Make a miniature pocket animal with *Pocket Pal Craft* (page 43).

Review kilometers and graph skills with *Kangaroo Kilometer Contest* (page 44).

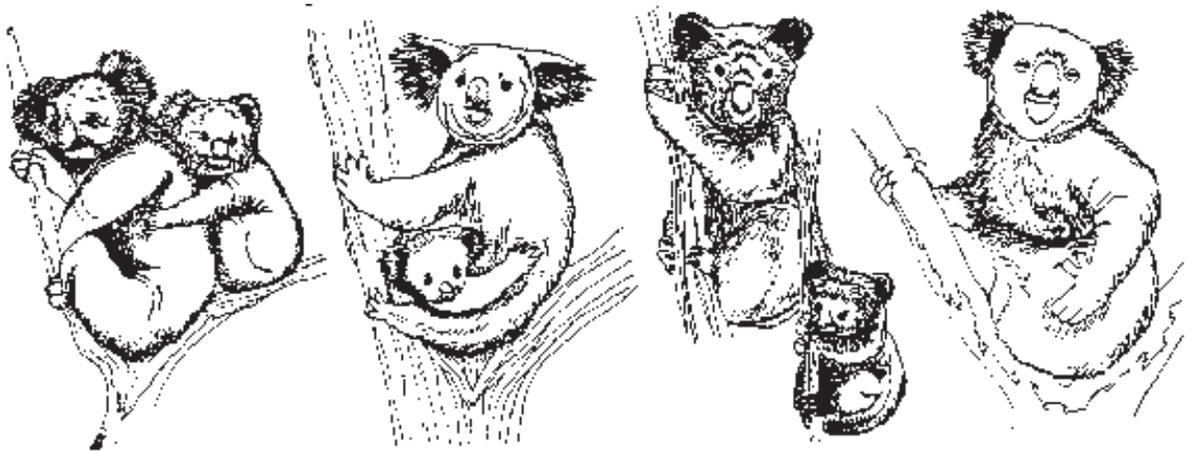
Review vocabulary with *Australia Word Find* (page 45).

The Koala

Like the kangaroo, the furry koala is also an Australian marsupial. Koalas grow to 2-3 feet long, and can weigh up to 25 pounds. Koalas only eat leaves of certain eucalyptus (YOO-kuh-LIP-tuss) trees in which they live.

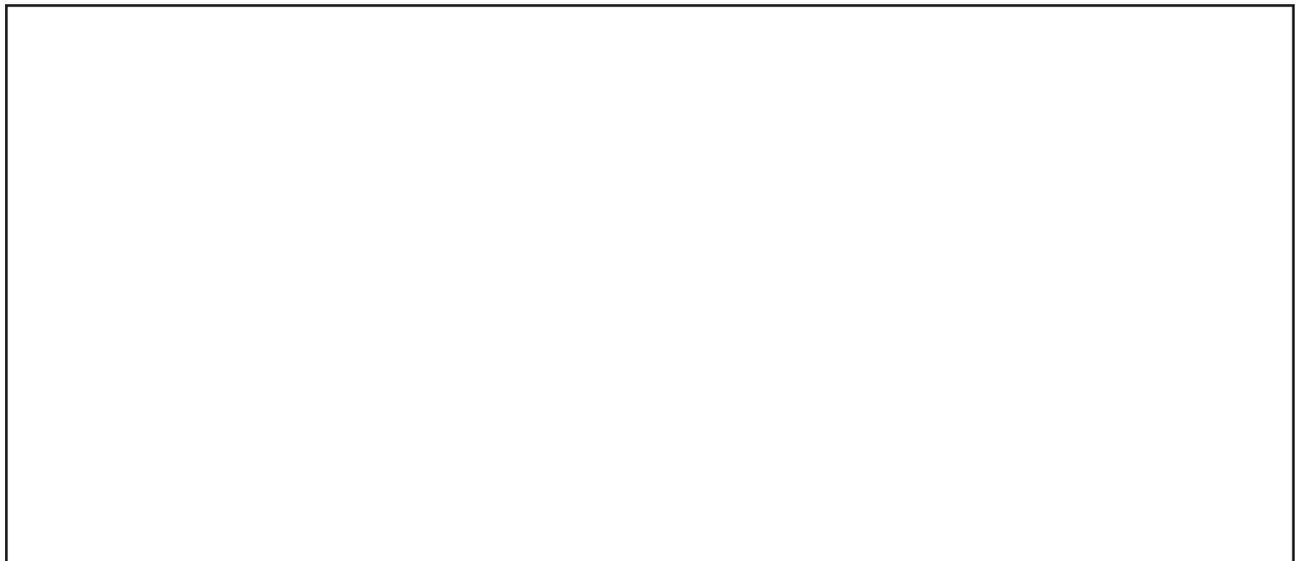
After birth, the tiny baby koala crawls into its mother's pouch and stays for 6 months. Then it crawls out and is carried on its mother's back for another 6 months. If a koala baby becomes separated from its mother at feeding time, it will usually be nursed by another female. The koala is one of the few animals that will "share" baby care.

Write down which picture comes first, second, third, and fourth.



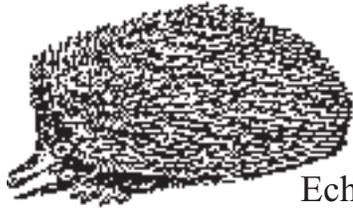
A. _____ B. _____ C. _____ D. _____

Draw a picture of what you think happens next in the life of a koala.



Tracking Australian Animals

Carefully examine the feet of these Australian animals. Then draw a line from each animal to its footprint.



Echidna



Tasmanian devil



Koala



Dingo



It's a Rat...It's a Pig...It's a Bandicoot!

The bandicoot is a rabbit-sized marsupial that gets its name because it resembles both a rat and a pig. It has a sharp, pointed nose with rodent-like teeth. It has hind feet with fused toes like those of a kangaroo. The female's pouch opens to the rear (facing the tail), making it easier for the baby to get in and stay in the pouch.

First, match the name of the bandicoot to the correct picture. Write the name on the line below the picture. Choose from these names:

- Short-nosed bandicoot
- Rabbit-eared bandicoot
- Pig-footed bandicoot



This bandicoot runs instead of hopping. Its front feet are shaped like the hooves of a pig.



This bandicoot digs for grubs and bulbs. Its front claws are not all the same size.



This bandicoot digs holes quite easily with long, almost equal-sized claws.

Name _____

Which feet? _____



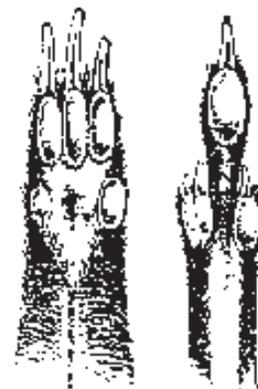
A



B



C



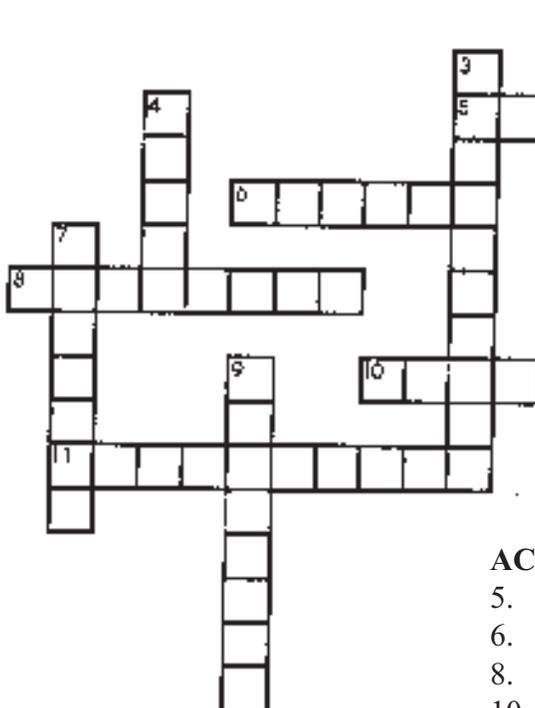
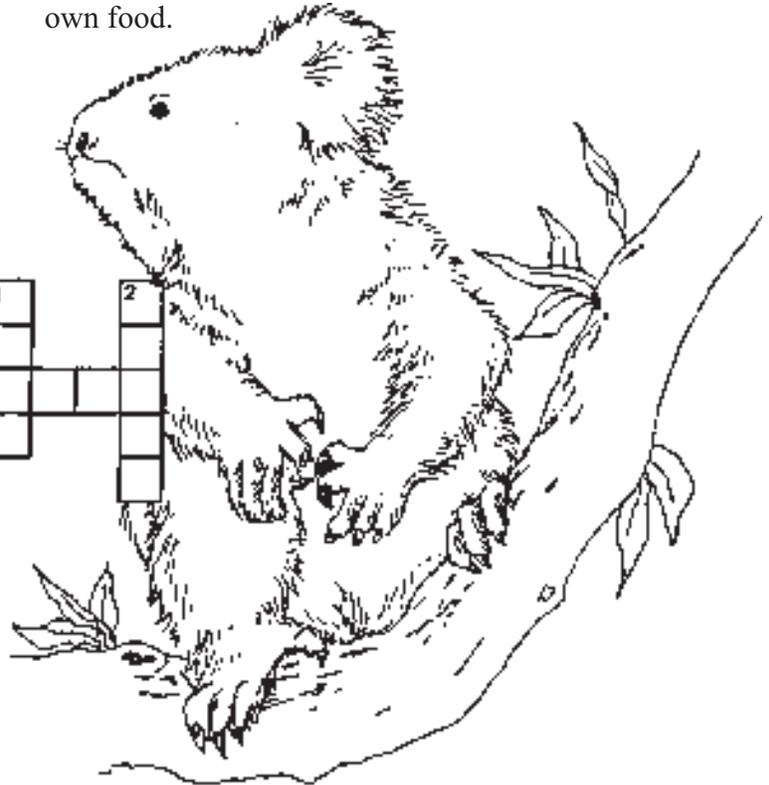
Koala Crossword

The small, gray, bear-like koala is one of Australia's best-loved mammals. According to Australian folklore, the spirits of lost children live in koalas. Koalas spend their lives high in the branches of eucalyptus (YOO-kuh-LIP-tus), or gum trees. The koalas' strong claws help them hold onto branches.

With their bright eyes, fuzzy ears, shiny nose, thick fur, and stump of a tail, koalas look like

they are related to bears. Koalas are not bears -- they belong to the group of animals called marsupials, or pouched mammals.

Female koalas carry their young in a pouch. The newborn remains there for several months. Young koalas are helpless during their first year of life, because they are not able to gather their own food.



ACROSS

5. Koalas live in _____.
6. A baby koala stay in its mother's pouch for several _____.
8. Stories told by people of a certain area.
10. The koala looks like this animal
11. A gum tree is also called a _____.

DOWN

1. The color of koalas
2. The body part that makes koalas suitable for life in trees; plural
3. Pouched mammals; plural
4. The kind of fur koalas have.
7. Female koalas carry their young in _____.

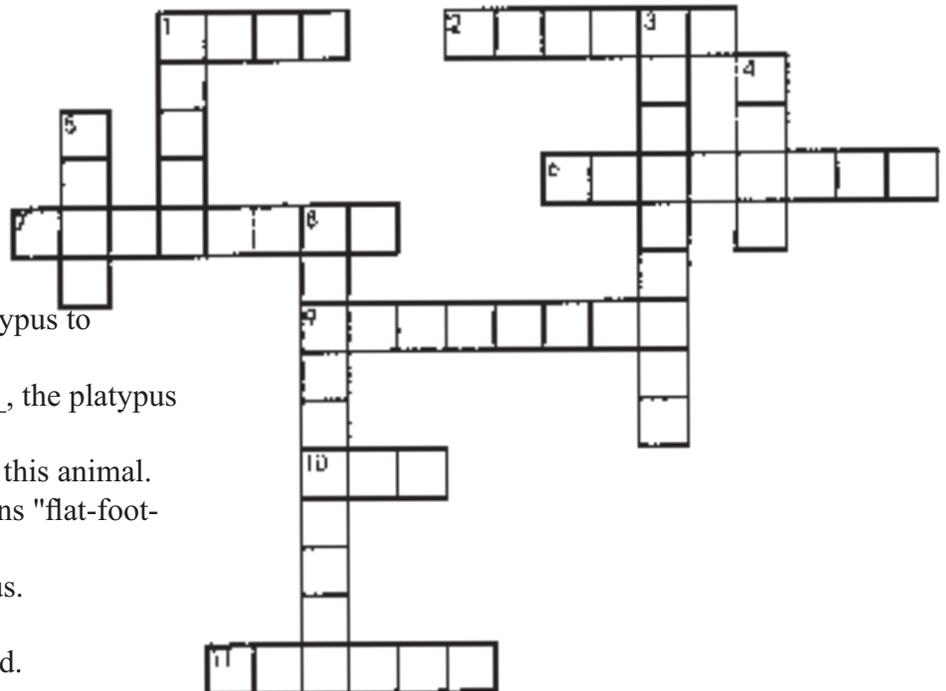
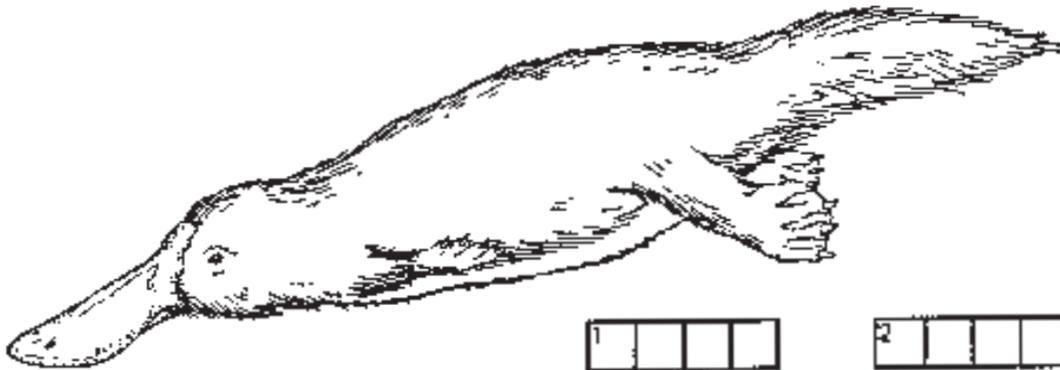
Platypus Crossword

The Australian platypus is related to the spiny anteater (also known as the echidna), which it hardly resembles at all! The two-foot long platypus is a mammal with a flat tail and a big snout, which is shaped like a duck's bill. For this reason, it is sometimes called a "duckbill" platypus.

Platypus comes from a Greek word meaning "flat-footed." Both toes and fingers on this mammal are webbed, enabling it to swim quite

well. Although it spends most of its time in rivers and creeks, the platypus can't stay underwater very long. It quickly gathers its food, then comes back up for air.

The platypus digs very long tunnels, or burrows, in the banks of streams. It brings wet leaves to the burrow to keep its eggs from drying out. A platypus is one of the few mammals that lays eggs. However, once the eggs hatch, the babies are nursed with mother's milk, like most other mammals.



ACROSS

1. Webbed feet help the platypus to _____ well.
2. Although it is a _____, the platypus lays eggs.
6. The platypus is related to this animal.
7. Animal whose name means "flat-footed."
9. Another name for platypus.
10. Moist, not dry.
11. Tunnel beneath the ground.

DOWN

1. The platypus has a big _____.
3. The country in which the platypus lives.
4. The platypus' tail is _____.
5. What a baby platypus drinks.

Pocket Pal Craft

Make cardboard and burlap marsupials to peek out of kids' pockets.

Materials:

copies of patterns on this page
lightweight cardboard
burlap (an 18" x 60" square will provide enough for about 30 students)

glue
markers
pipe cleaners
scissors
pictures of marsupials (optional)
tape (optional)

First, pass out a copy of the patterns on this page, a 6" square of cardboard, and a 6" square of burlap to each child. Then have the kids follow these directions:

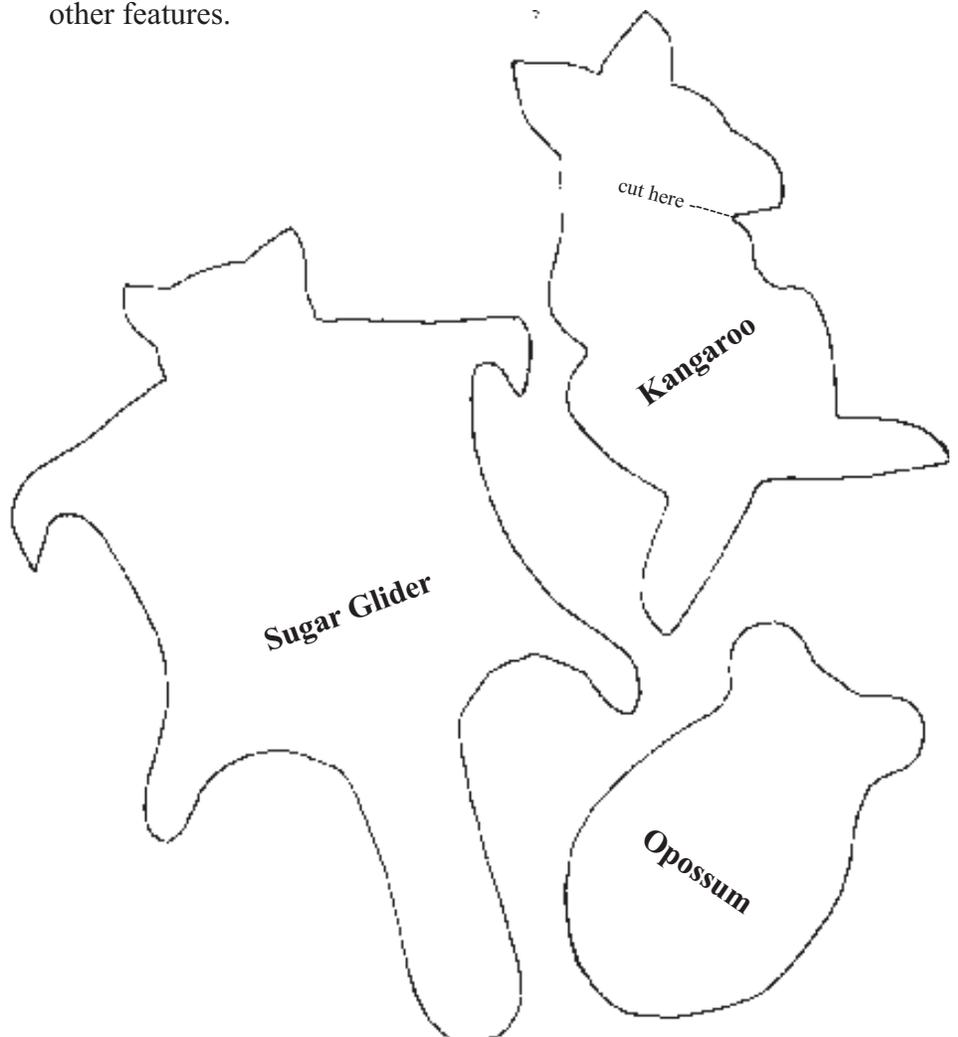
1. Choose one of the pocket pal patterns and cut it out. Then trace the pattern onto the cardboard and cut it out.
2. Spread a thin film of glue evenly over the surface of the cardboard. Then stick it on the burlap square and let it dry.

3. Trim the overhanging burlap from around the cardboard. To make a furry-looking animal, leave about 3/4" of burlap extending beyond the cardboard. Then unravel the fabric by pulling out loose threads. For a smoother mammal, trim the fabric close to the cardboard edge. The glue will prevent the fabric on the cardboard from unraveling.

4. Use a fine-tip marker to draw the pocket pal's face and other features.

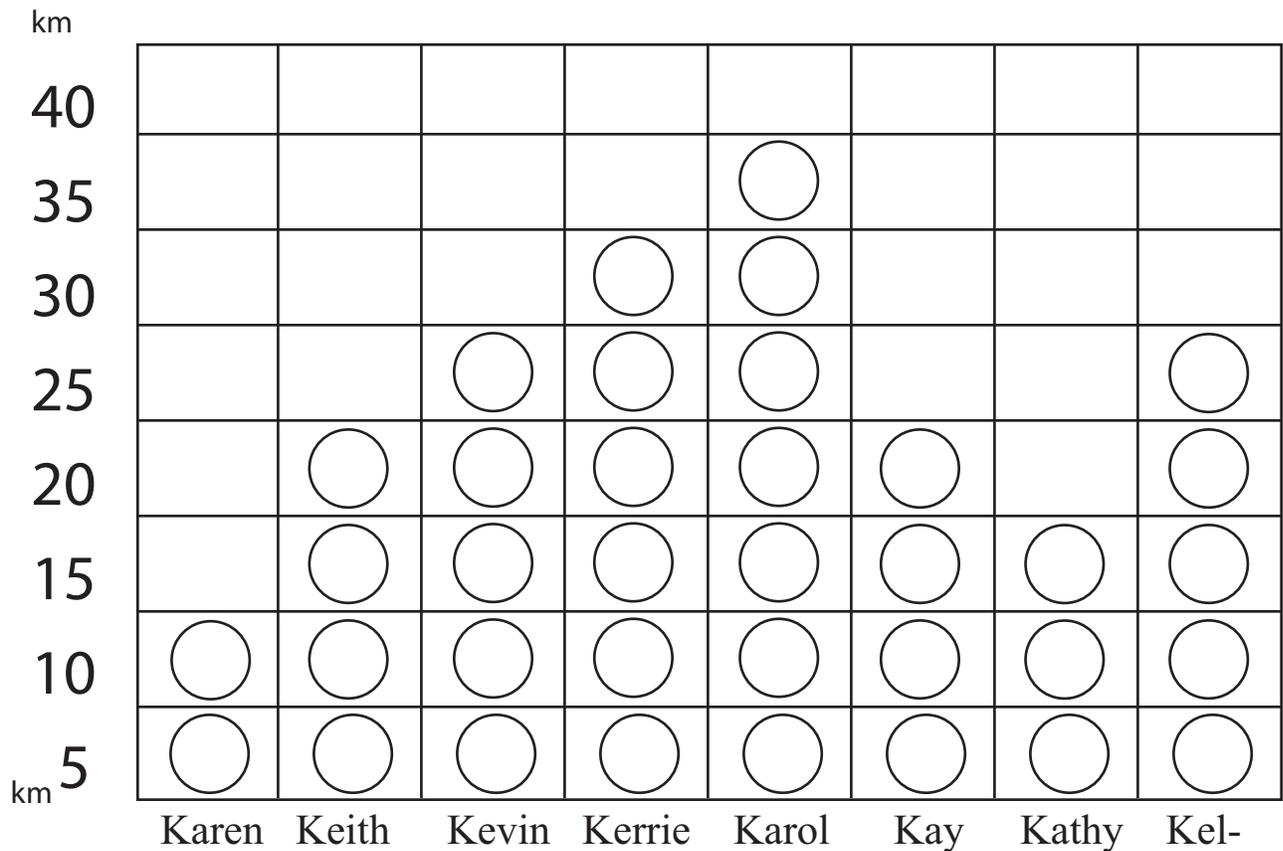
5. To make the opossum's tail, glue or tape a piece of pipe cleaner to the back of the cardboard and bend it into a curl. For the kangaroo, cut along the dotted line (see pattern) so that its head will be able to peek out over the edge of your pocket.

6. Hook the sugar glider's front paws, the kangaroo's head, or the opossum's tail over the edge of your pocket and take your pocket pal for a ride!

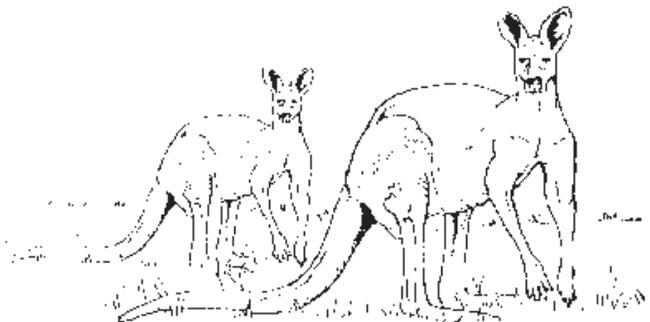


From *Ranger Rick's Nature-scope: Amazing Mammals*.

Kangaroo Kilometer Contest



- Which kangaroo won the kilometer contest? _____
- Which kangaroo came in last? _____
- Which two kangaroos tied? _____
- How much farther did Kerrie go than Karen? _____
- How far did Kathy and Keith jump together? _____
- If Kay was allowed to double her distance, how far would she have jumped? _____



Australia Word Find

Y T M V K M Y Y C F U G I U
T T X K Y X K M I I X I H A
L A C F M A R S U P I A L H
P F S X B O J D D V L K U S
O L T M U R A M J A L A O K
O F A B A B O R I G I N E S
R G R T A N P L C G K U A Q
A C R Q Y I I C O A P K K H
G O U P M P L A I P T R S B
N H B E F W U A N Y T T F G
A P A E C I T S R D C E L L
K F K H Q I H T Q T E X W E
Y N O S G S T A B Q S V K X
L T O R P I N J X V H U I V
R N K M V W L U A Q K O A L

Find these hidden words in the puzzle:

ABORIGINES

CATTLE

KOOKABURRA

SHEEP

AUSTRALIA

KANGAROO

MARSUPIAL

TASMANIAN DEVIL

BATS

KOALA

PLATYPUS

Answer Page

Australia (page 18): 1. Australia was settled by the British, and was governed by Britain until 1901, when it achieved independence. 2. The southern cross is a constellation that can only be seen in the southern hemisphere, where Australia is located. 3. Summer: December - February; Fall: March - May; Winter: June - August; Spring: September - November.

Aussie Magic Triangle (page 23): a. 1; b. 5; c. 6; d. 9; e. 7; f. 2; g. 8; h. 4; i. 3.

Kangaroos (page 24): MARSUPIAL

A Tricky Track (page 25): From top of picture: Left hindfoot, left forefoot, tail, right forefoot, right hindfoot.

Looking at Coral (page 29): Left top: tentacles; left bottom: hard coral skeleton; right top: mouth; right bottom: stomach.

Kanga-parts (page 35): Ears - G, H; nose - A; mouth - F; claws - D; pouch - C; feet - B; fur - J; leg - E; tail - I.

The Koala (page 38): A. 3rd; B. 2nd; C. 4th; D. 1st.

Tracking Australian Animals (page 39): Footprints from top: Koala, dingo, echidna, Tasmanian devil.

It's a Bandicoot (page 40): Names in order: pig-footed bandicoot, short-nosed bandicoot, rabbit-eared bandicoot. Feet in order: B, A, C.

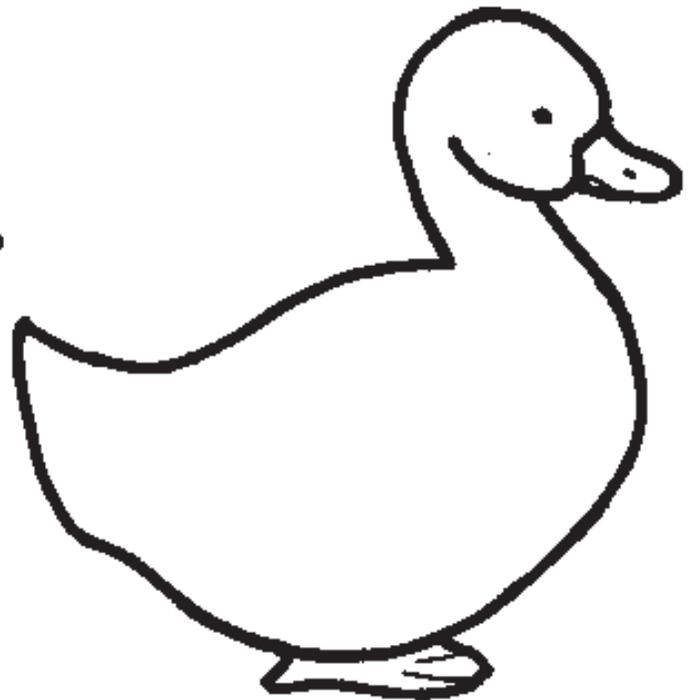
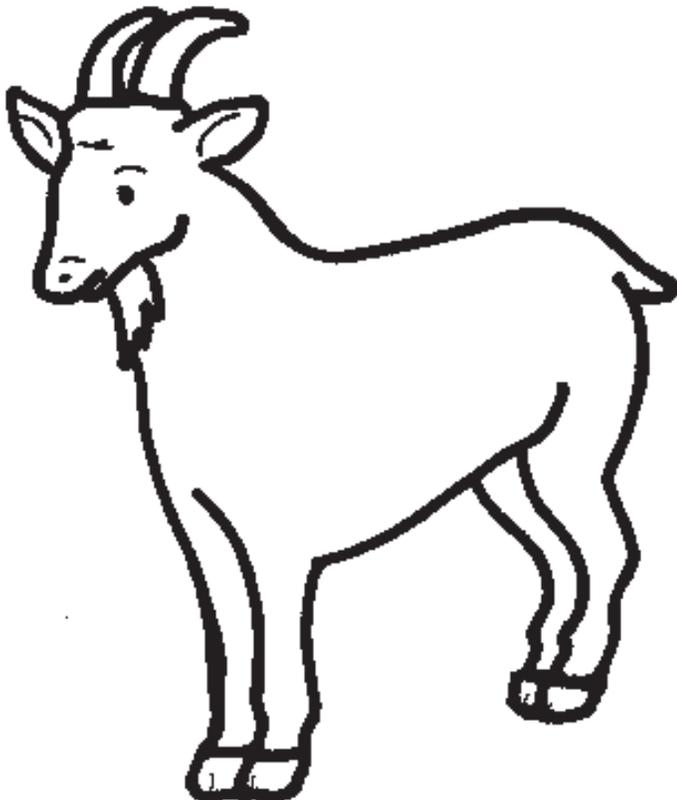
Koala Crossword (page 41): ACROSS: 5. Australia 6. months 8. folklore 10. bear 11. eucalyptus. DOWN: 1. gray 2. claws 3. marsupials 4. thick 7. pouches 9. helpless.

Platypus Crossword (page 42): ACROSS: 1. swim 2. mammal 6. anteater 7. platypus 9. duckbill 10. wet 11. burrow DOWN: 1. snout 3. Australia 4. flat 5. milk 8. underwater.

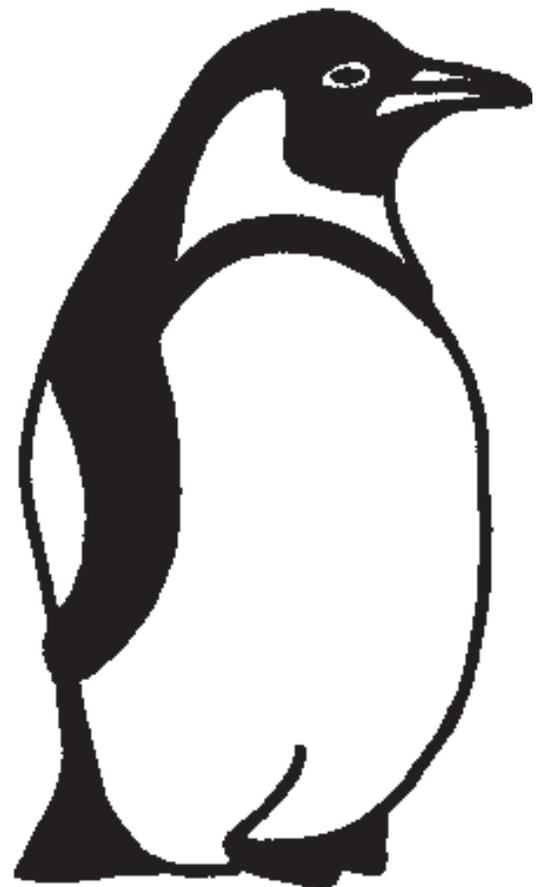
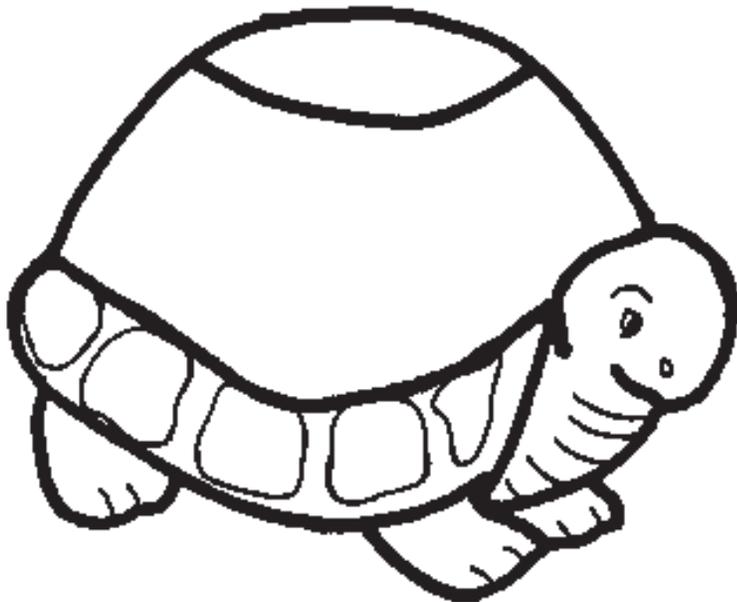
Kangaroo Kilometer Contest (page 44) : 1. Karol 2. Karen 3. Kevin, Kelly; Keith, Kay 4. 20 km 5. 35 km 6. 40 km 7. 15 km 8. 20 km 9. 50 km

Y	T	M	V	K	M	Y	Y	C	F	U	G	I	U
T	T	X	K	Y	X	K	M	I	I	X	I	H	A
L	A	C	F	M	A	R	S	U	P	I	A	L	H
P	F	S	X	B	O	J	D	D	V	L	K	U	S
O	L	T	M	U	R	A	M	J	A	L	A	O	K
O	F	A	B	A	B	O	R	I	G	I	N	E	S
R	G	R	T	A	N	P	L	C	G	K	U	A	Q
A	C	R	Q	Y	I	I	C	O	A	P	K	K	H
G	O	U	P	M	P	L	A	I	P	T	R	S	B
N	H	B	E	F	W	U	A	N	Y	T	T	F	G
A	P	A	E	C	I	T	S	R	D	C	E	L	L
K	F	K	H	Q	I	H	T	Q	T	E	X	W	E
Y	N	O	S	G	S	T	A	B	Q	S	V	K	X
L	T	O	R	P	I	N	J	X	V	H	U	I	V
R	N	K	M	V	W	L	U	A	Q	K	O	A	L

Name Tag Patterns



Name Tag Patterns



Resources on Australia

Elementary Books

Edward the Emu by Sheena Knowles

Edwina the Emu by Sheena Knowles & Rod Clement

My Grandma Lived in Gooligulch by Graeme Base

No One Quite Like Me by Mary Diestel-Fedd

Picture Roo Books by Pauline Reilly (several titles pertaining to Australian animals)

Tasmanian Devil : On Location by Kathy Darling

Australian Animals by Caroline Arnold

Australia (True Books, Continents) by David Petersen

Pocket Babies & Other Amazing Marsupials by Sneed B. Collard

Platypus by Joan Short, Jack Green, and Bettina Bird

The Kookaburra & Other Stories by Dal Burns

DVD/Video

Australia/New Zealand by Educational Video Network, Inc.

National Geographic Really Wild Animals "Wonders Down Under"

IMAX Presents: Australia - Land Beyond Time

IMAX Presents: The Great Barrier Reef

Australia's Birds & Animals by Panorama Australia

Websites

National Geographic www.nationalgeographic.com

National Wildlife Federation www.nwf.org

Fort Wayne Children's Zoo www.kidszoo.org

San Diego Zoo www.sandiego.org

Brookfield Zoo www.brookfieldzoo.org

National Zoo www.nationalzoo.si.edu

Fort Wayne Children's Zoo Resources

Australia Discovery Box - A kit containing storybooks, lesson ideas, Australian coins, stamps, and

Evaluation Form Zoo Activity Packet

Dear Teacher:

Please take a few minutes to fill out and return this evaluation form. Your input will help us improve our teacher resource materials in the future.

Return in the envelope provided or mail to Education Department, Fort Wayne Children's Zoo, 3411 Sherman Blvd., Fort Wayne, IN 46808. Thank you for your time and effort!

SCHOOL or GROUP NAME: _____

GRADE LEVEL: _____ DATE OF VISIT: _____

1. Were the materials and activities appropriate for your grade level? _____

2. Which worksheet did you use? _____

3. Which activities did you try? _____

4. Which of these were enjoyed most by your students? _____

5. Did you create or modify any activities to supplement this packet? If so, we would appreciate receiving a copy to include in future packets or to distribute to teachers on request.

6. What other materials would you like to see included in the packet? _____
