

Aleksandra Mizielińska & Daniel Mizieliński

UNDER EARTH

ACTIVITY BOOK



36
activities
from the creators of
the bestselling
MAPS



B P P

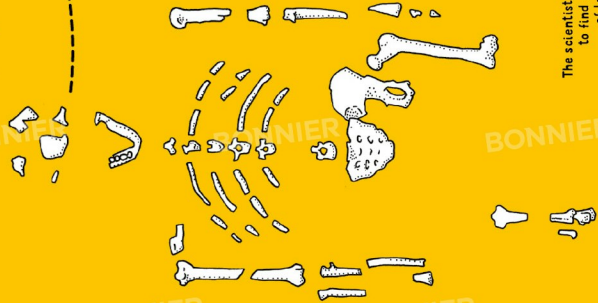




THE MEXICAN BURROWING TOAD
spreads the greater part of the year
in an underground burrow. When
hunted, it puffs up like a balloon.

The mystery of **LUCY.**

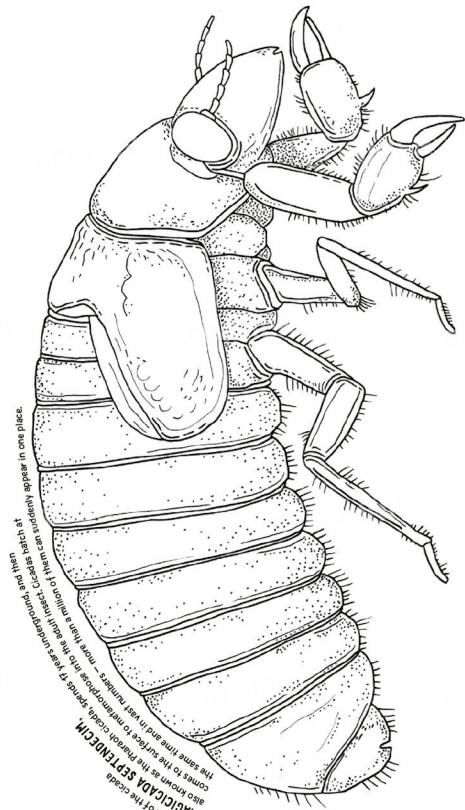
This extremely old skeleton of a creature related to human beings was found in Africa and is known as Lucy. She's over 3 million years old. Take a look at Lucy's bones. Imagine what she might have looked like in life, and try to draw her.



The scientists managed
to find nearly half
of Lucy's bones.



The pieces of her skull that were found
are marked in yellow. The rest was
reconstructed by scientists.



The larvae of the mole cricket, *Meligethes aeneus*, are the most common of all the larvae that hatch from the eggs of the mole cricket. They are found in the soil and are very common. They are found in the soil and are very common. They are found in the soil and are very common.

Draw the missing
BURROWING ANIMALS.





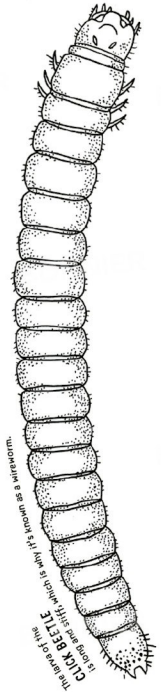
The RACCOON DOG
is nocturnal and
it spends the daytime
and its hibernation
period in a burrow.

Design a

SEWAGE TREATMENT PLANT.

Think about how to separate the clean water
from the large, small and microscopic pieces
of waste material. Your design can be realistic,
or completely crazy.



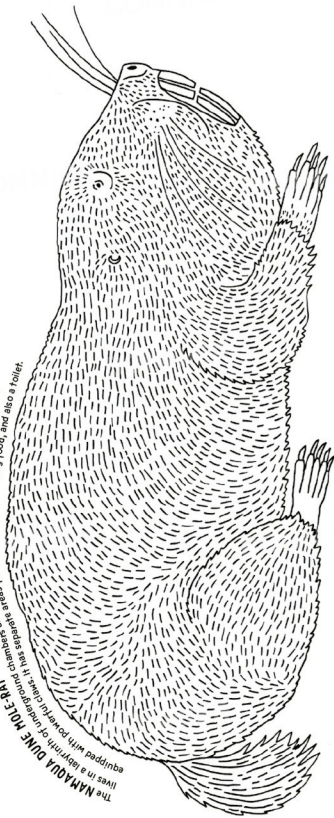


The head of the
CIA BEETLE
is like a little
worm. It is like a worm.

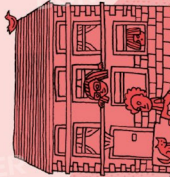
Drive the
TUNNEL
through the
middle of the
mountain.

Cut out a strip of white
paper to make your tunnel.
Draw people travelling
in cars on it, and then
stick it in the right
place on this page.

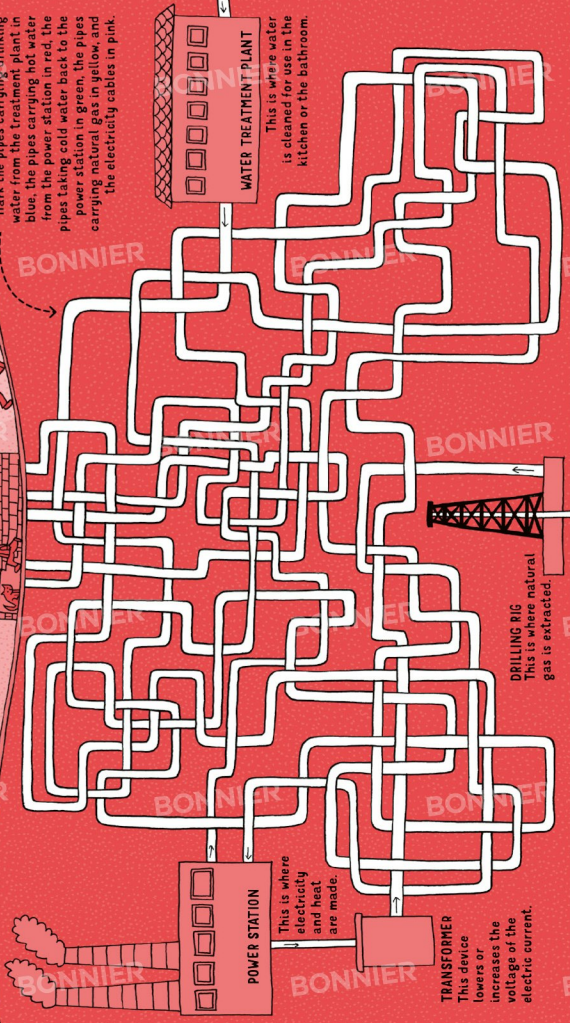
The NAMQUA DUNE TIGER HAT lives in a burrow or underground, equipped with powerful teeth. It has eyes with a third eyelid and also a fork.



Can you find your way through THE LABYRINTH OF PIPES?



Mark the pipes carrying drinking water from the treatment plant in blue, the pipes carrying hot water from the power station in red, the pipes taking cold water back to the power station in green, the pipes carrying natural gas in yellow, and the electricity cables in pink.

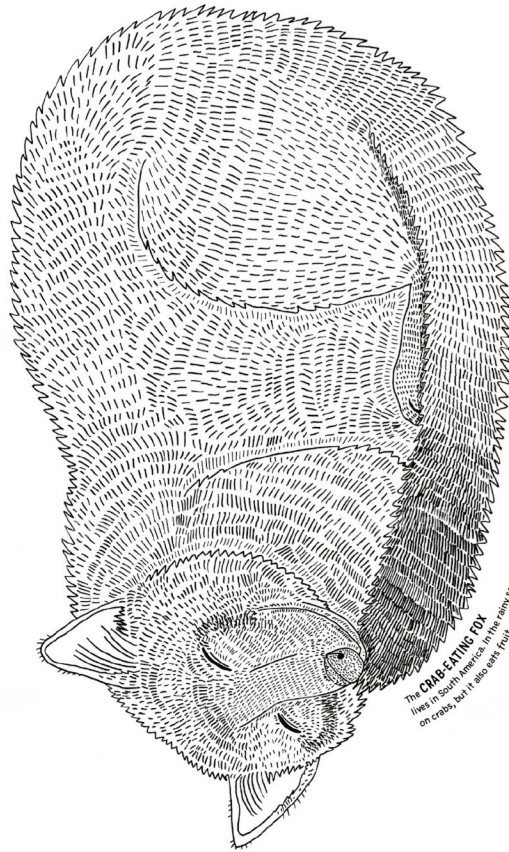


POWER STATION
This is where electricity and heat are made.

TRANSFORMER
This device lowers or increases the voltage of the electric current.

DRILLING RIG
This is where natural gas is extracted.

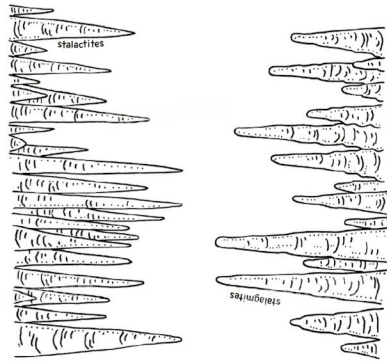
WATER TREATMENT PLANT
This is where water is cleaned for use in the kitchen or the bathroom.



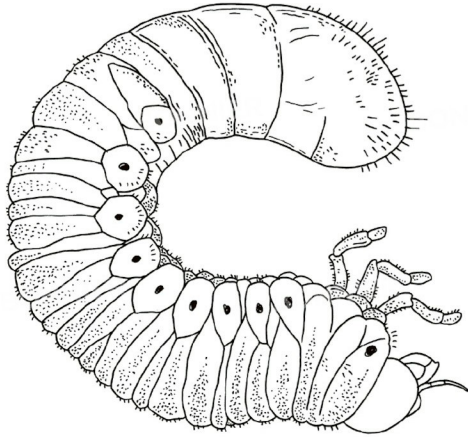
The **CRAB-EATING FOX** lives in South America in the rainy season. It feeds mainly on crabs, but it also eats small mammals, turtles and lizards.

Imagine the stalactites and stalagmites* are large teeth.

DRAW IN THE REST OF THE MONSTER.



* Stalactites and stalagmites are mineral deposits formed by water dripping in caves.



The larvae of the **MAY FLY** hatches underground. It lives there for 3 years. In the third autumn it metamorphoses into an adult insect that only emerges when the winter is over.

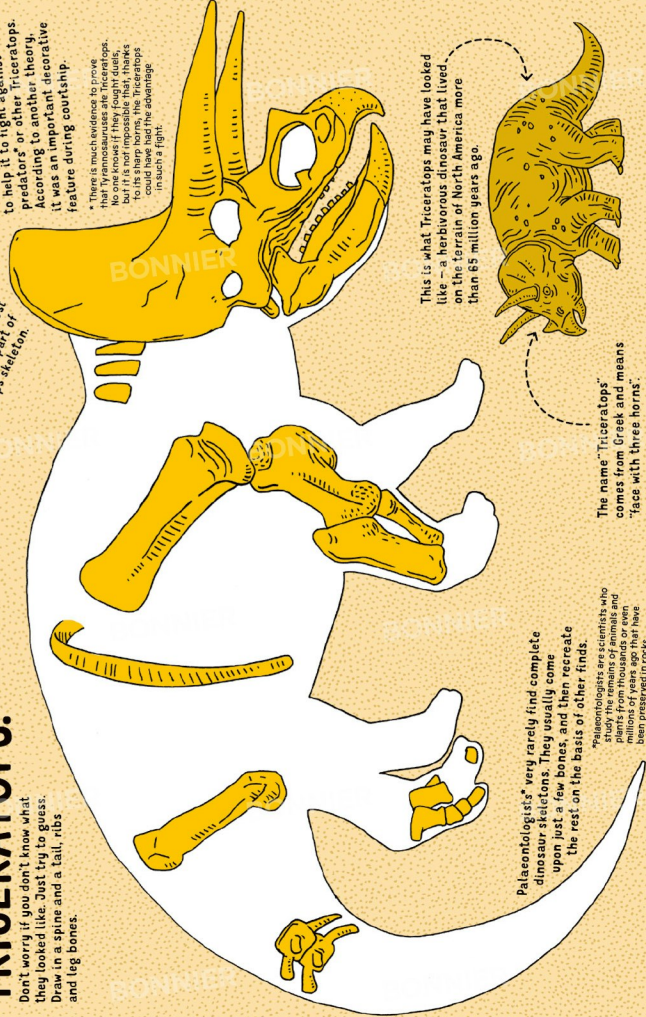
Fill in the missing bones of the **TRICERATOPS.**

Don't worry if you don't know what they looked like. Just try to guess. Draw in a spine and a tail, ribs and leg bones.

The skull is the most commonly found part of the Triceratops skeleton.

Scientists are not sure what the ruff on top of the Triceratops head was for. It may have been to help it fight against predators* or other Triceratops. According to another theory it was an important decorative feature during courtship.

*There is much evidence to prove that Tyrannosaurus ate Triceratops. No one knows if they fought directly, but the sharp horns of the Triceratops could have had the advantage in such a fight.

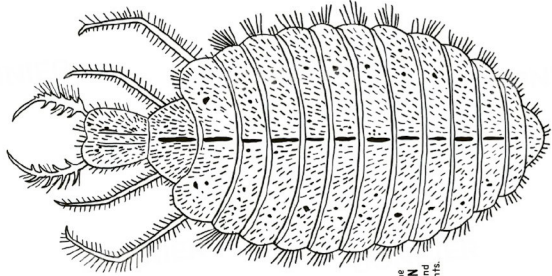


This is what Triceratops may have looked like – a herbivorous dinosaur that lived on the terrain of North America more than 65 million years ago.

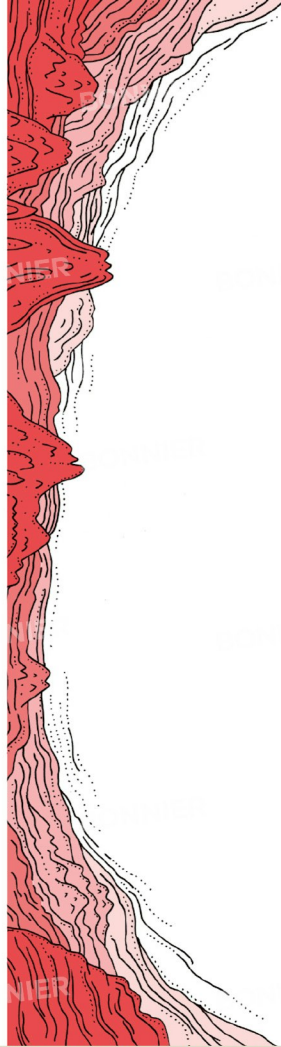
The name "Triceratops" comes from Greek and means "face with three horns".

Palaeontologists* very rarely find complete dinosaur skeletons. They usually come up with just a few bones, and then recreate the rest on the basis of other finds.

*Palaeontologists are scientists who study the remains of animals and plants that lived millions of years ago (the fossils have been preserved in rocks).



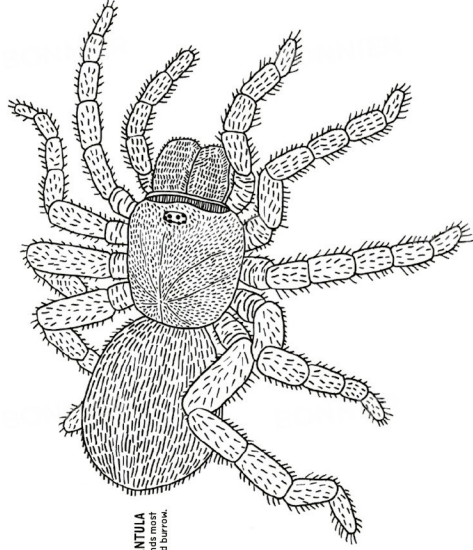
The larva of the
ANTLION
digs funnel-shaped traps in the sand and
hides at the bottom of them to prey on ants.



Draw a street in the

UNDERGROUND CITY.

How do you think it might differ from an ordinary street? What do you imagine life is like in a city where there's no daylight, rain, wind or other change of weather? What do the underground houses look like, and how do their inhabitants dress?

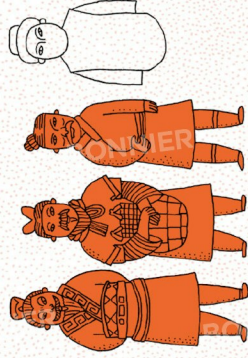


The **COBALT BLUE TARANTULA** lives in rainforests. It spends most of its time in an underground burrow.

Draw the soldiers in the
TERRACOTTA
ARMY.

Don't forget that each figure is different – they have individual facial expressions and poses.

This unusual relic – more than 8,000 life-sized figures made of terracotta, in other words fired clay – was found in the tomb of the first emperor of China, Qin Shi Huang, who ruled over 2,200 years ago.





The **BALUCHISTAN PYGMY JERBOA**
is one of the world's smallest rodents.
The female weighs less than 1g.

WHAT ARE THE PASSENGERS THINKING ABOUT

as they wait for the underground
train? Draw their thoughts.

Are they wondering where to go on holiday? Or
maybe they're thinking about the person they're
going to meet for a date? Are they trying to decide
what to have for dinner or what to watch on TV?
Or maybe they're trying to invent excuses to explain
why they're late home from work or school?

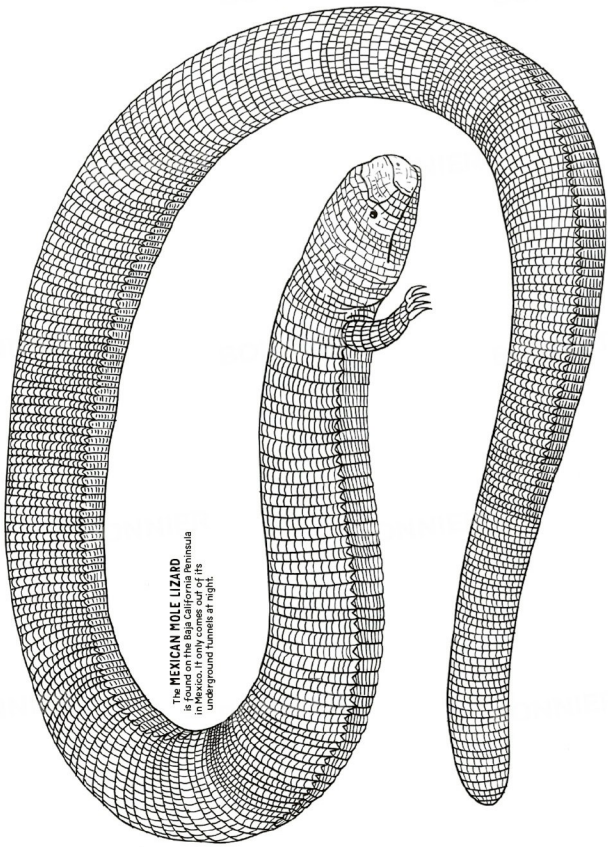
A red background with a white train track and several white thought bubbles. To the right, there are cartoon illustrations of people with thought bubbles above them, connected to the main thought bubbles by dotted lines. The people are drawn in a simple, sketchy style. The thought bubbles are large and empty, intended for drawing. The background has a repeating pattern of the word 'BONNIER' in a light red color.



The **EUROPEAN MOLE CRICKET** spends most of its life underground, tunnelling through soil, earthworms and even snails.

Draw what's floating
IN THE SEWERS.

It's usually leftover food, poo, and other waste matter that goes into the sewers. But all sorts of things can fall down the toilet – false teeth, diamonds, toys, phones or even live snakes.

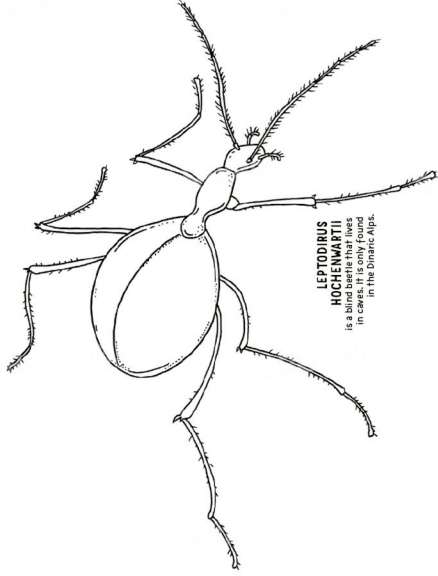


The **MEXICAN MOLE LIZARD** is found on the Baja California Peninsula in Mexico. It only comes out of its underground tunnels at night.

Draw your favourite toys or other devices for which:

YOU NEED
electricity.

YOU DON'T NEED
electricity.



LEPTODIRUS HOCHENWARTII
is a blind beetle that lives in caves in the mountains in the Dinaric Alps.

How big were the

BIGGEST DINOSAURS?

Draw one of them next to the buildings and people.

The most complete skeleton of a large dinosaur ever found for the species *Tyrannosaurus rex* belonged to a creature that was 26m long, with a neck as high as a giraffe, and a head that could be as long as a car.

The largest dinosaur ever found was 30m in length and 20m in height (when they raised their long necks).

25 m

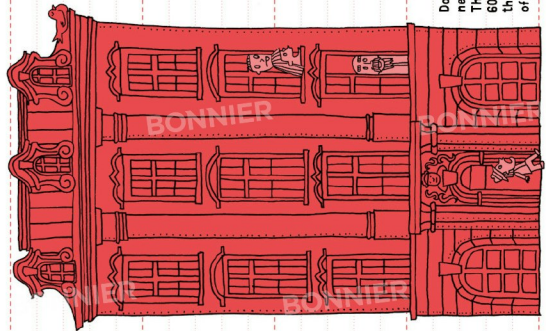
20 m

15 m

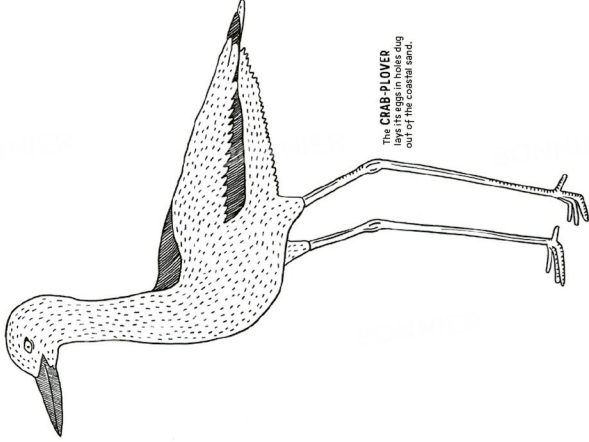
10 m

5 m

0 m



Don't forget that dinosaurs never encountered people. They died out at least 60 million years before the appearance of mankind.



The **CRAB-PILOVER**
lays its eggs in holes dug
out of the coastal sand.

Draw the passengers crowded in the
TOKYO SUBWAY.

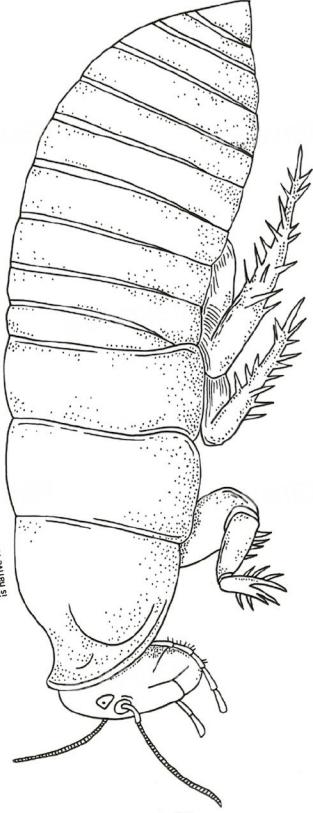
*In the Japanese capital, during peak hours the carriages
are as tightly packed as tins of sardines.*

新宿
Shinjuku



The GIANT BURROWING COCKROACH

is native to Australia. It lives in burrows deep underground.



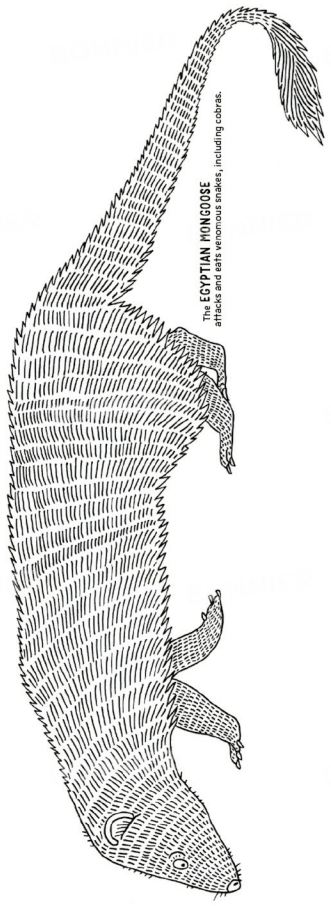
The Large Hadron Collider is the biggest, most powerful and most complex machine on Earth. It has a circumference of 27km and is located

100m underground. More than 10,000 scientists and engineers from over 100 countries were involved in its creation. Experiments are

conducted inside this enormous device, thanks to which we have a better understanding of how the world around us functions.

What does the
LARGE HADRON COLLIDER look like?

Before you look it up use your imagination and try to draw it. What do you think a hadron might be?



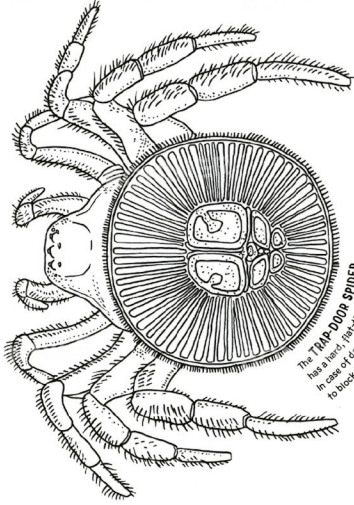
The **EGYPTIAN MONGOOSE**
attacks and eats venomous snakes, including cobras.

In the deep caves that speleologists explore, there is*

TOTAL DARKNESS.

Find out how hard it must be to work in these conditions. Cover your eyes with a blindfold and try to draw a bat.

*Speleologists are scientists who study caves.



The **TRAP-DOOR SPIDER** has a large, flat-topped abdomen. In case of danger, it uses it like a cork to block the entrance to its burrow.

Grow your own TUBERS.

Potatoes are the world's most commonly cultivated tubers. Each person eats on average 33kg of them per year. You too can join in with the potato craze.

TO GROW THEM AT HOME YOU'LL NEED:

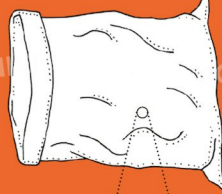
1 3-4 POTATOES

Ordinary ones bought at the grocery, or special ones for planting. They can have sprouts.



2 A WOVEN POLYPROPYLENE SACK

Cheap, available at any garden centre or building supplies store.



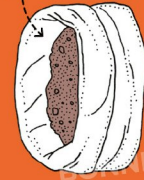
tightly sealed plastic



3 SOIL

In this respect, the potato is a demanding vegetable. For the tubers to grow properly, you need fertile soil.

HOW DO YOU CULTIVATE POTATOES?



1 Roll down the brim of the sack and fill it with soil to a depth of 15 centimetres.



2 Place the potatoes in the soil with plenty of space around them.



3 Cover the potatoes with a thin layer of soil, roll the sack up a bit and water the soil.

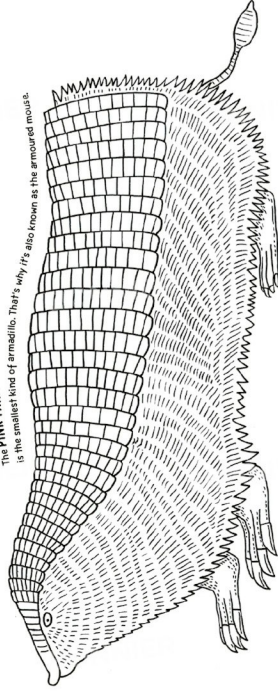
4 Keep the soil moist. After a few days sprouts will appear. Cover them with another layer of soil and roll the sack up a little more.

5 Once your potato plants flower, you can try to collect your first harvest. You don't have to remove all the tubers at once. You can cut a hole in the sack and pull a few potatoes out at a time.



The PINK FAIRY ARMADILLO

is the smallest kind of armadillo. They're also known as the armoured mouse.



Design a COAL MINE.

➊ Entrance to the mine.

➋ Extracted coal.

➌ Shaft* with a lift to transport the miners.

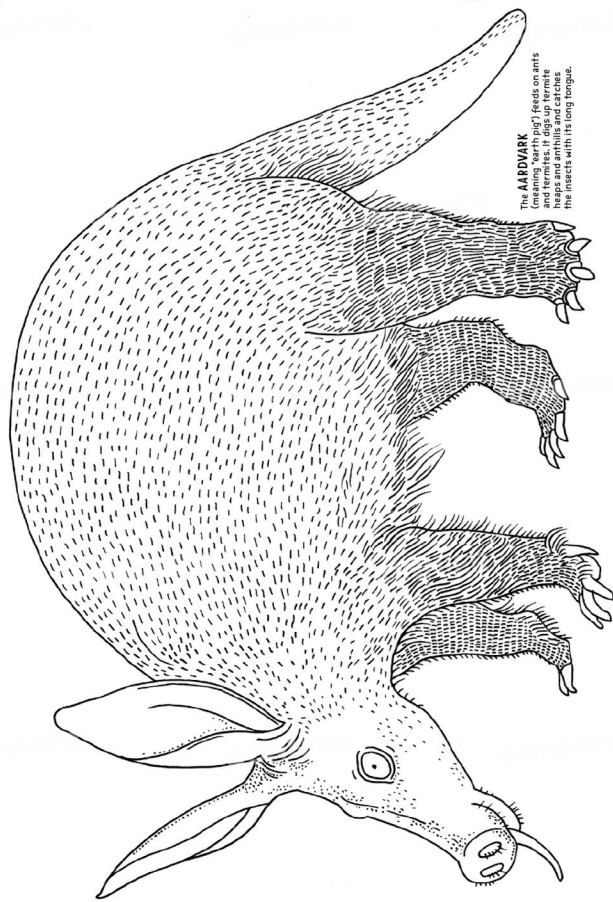
➍ Shaft for carrying coal to the surface.

➎ Coal-crushing machine.

➏ BITUMINOUS COAL

➐ Horizontal corridor linking the shafts and the bituminous coal deposit.

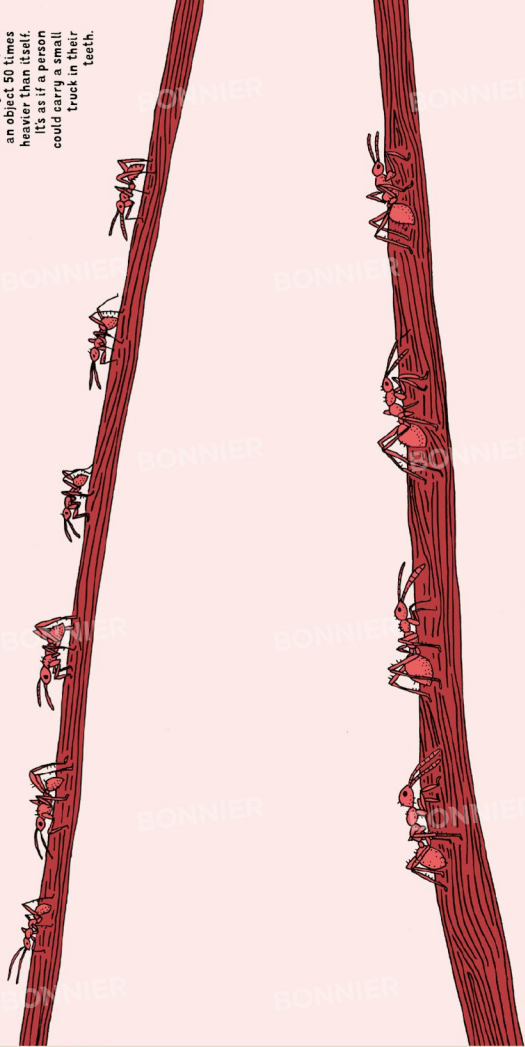
* A shaft is a vertical or nearly vertical corridor inside a mine.



THE ARMADILLO
(meaning 'sharp paws') feeds on ants and termites. It digs up termites and eats them. It has banded armor and the insects with its long tongue.

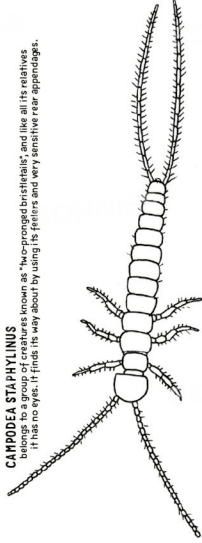
Draw WHAT THE ANTS ARE CARRYING.

A leaf-cutting ant can carry in its jaws an object 50 times heavier than itself. It's as if a person could carry a small truck in their teeth.



CAMPODEA STYLIANUS

belongs to a group of creatures known as "hairy-pronged bristlers", and like all its relatives it has no eyes. It finds its way about by using its feelers and very sensitive ear appendages.



How does a GEYSER* work?

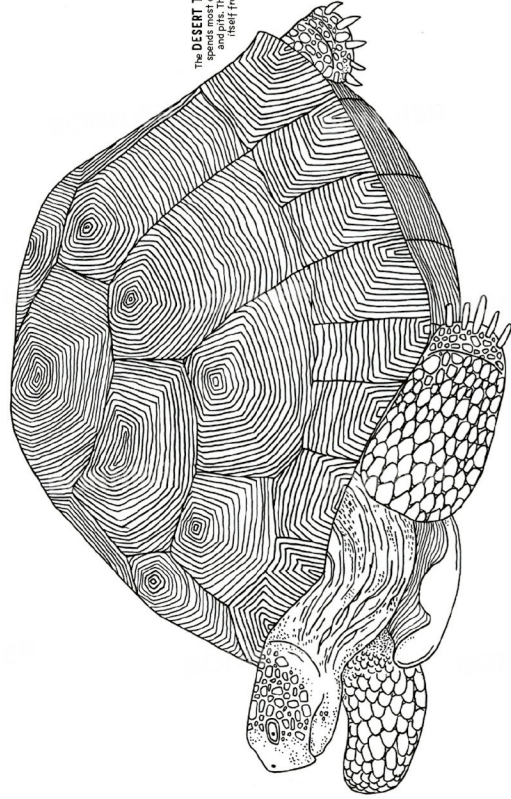
* Geysers are hot springs that occasionally shoot a pillar of water and steam into the air.

1 Draw the hot water shooting upwards.

2 Draw the narrow channel that brings the boiling water to the surface.

3 Draw the chamber full of water here.

4 Fill the bottom of the page with the hot volcanic magma that heats the water in the chamber.



THE DESERT TORTOISE
The desert tortoise lives in the deserts of the southwestern United States and Mexico. That's how it protects itself from the desert heat.

Make your own
MYRIAPOD.

Myriapods are creatures whose bodies consist of a large number of segments.



Trace this segment on white paper at least 30 times. Cut out all the segments you have traced.



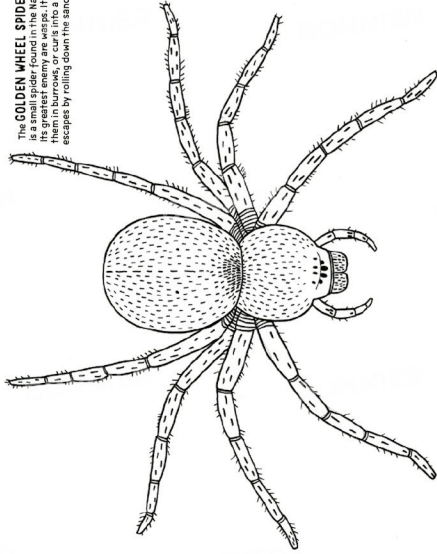
Arrange the cut-out pieces between the head and the last segment of the myriapod.



Your myriapod can be straight or wiggly.



The **GOLDEN WHEEL SPIDER** is a small spider found in the Namib Desert. It has a unique way of escaping from them in burrows or curls into a ball and escapes by rolling down the sand dunes.



PRAIRIE DOGS

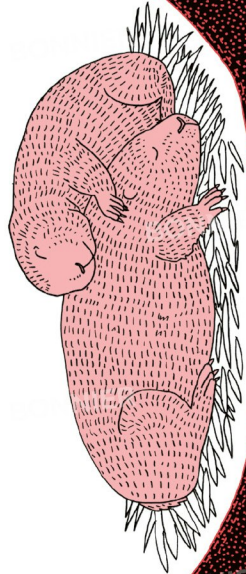
like to sleep curled

up together.

Draw the

other prairie

dogs.





THICKSKINNED PANGOLIN
The pangolin, once an armoured animal, is now almost entirely defenceless. It has a head as thin as paper and a tail as long as a whip.

The **ROUGH WOODLOUSE** looks like an elongated piece of armour made of overlapping bumpy scales. It has long, curly whiskers growing from its front.

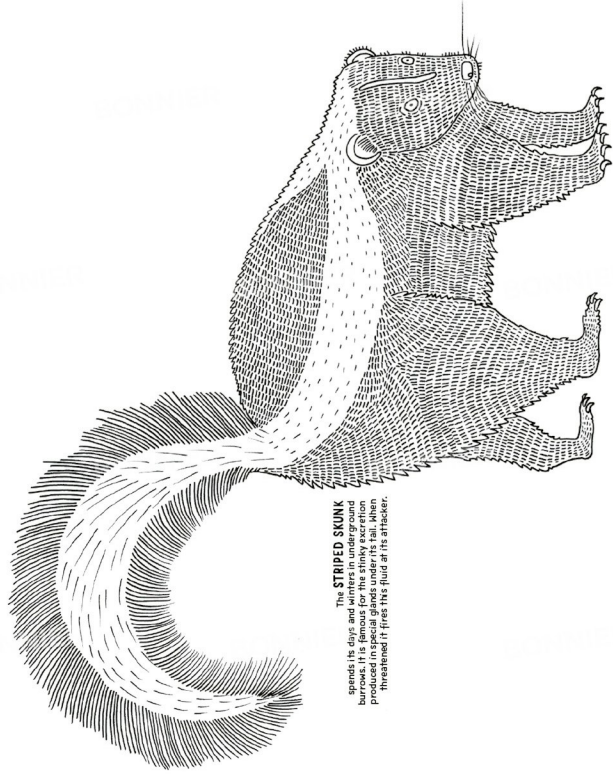
After a meal, the **CASTOR BEAN TICK** looks like a large, fat balloon full of water with eight very thin legs and a tiny head attached.

TARDIGRADES look like aliens from another planet in oversized purfer jackets. They have eight stubby legs and a short tube sticking out where the head should be.

The **CAT FLEA** looks like the fat, clumsy larva of a spiny dragon.

DRAW THE CREEPY CRAWLIES
you can find in the earth.

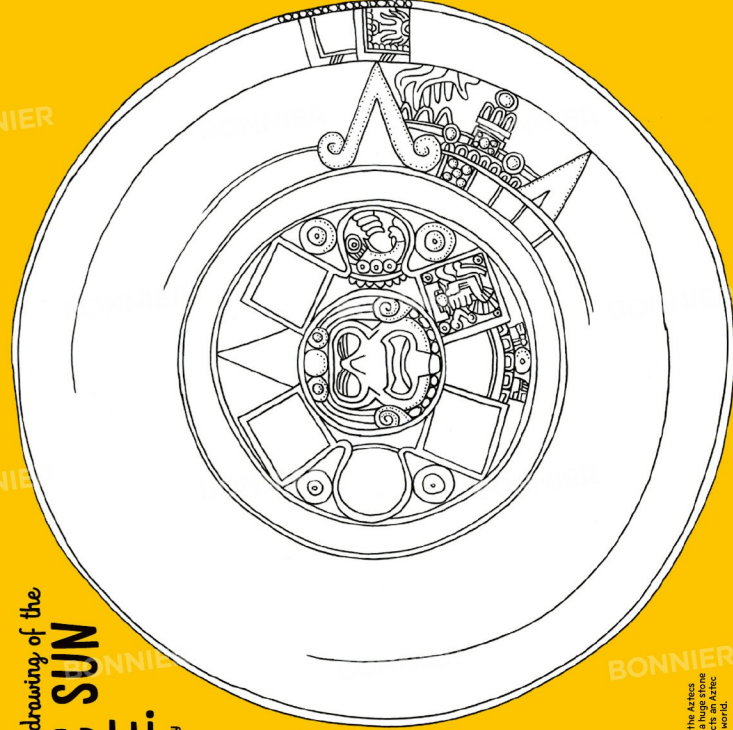
Once you've finished, search for pictures of them on the internet and see if yours look the same.



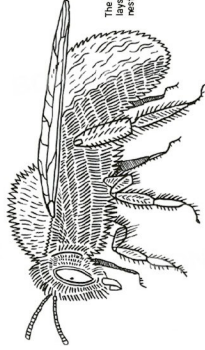
The **STRIPED SKUNK** spends its days and nights in its burrows. It is famous for the stinky excretion produced in special glands under its tail. When threatened it puffs this 'flour' at its attacker.

Complete the drawing of the
**AZTEC SUN
STONE.**

You don't have to copy
the real sculpture.
You can make up
your own version.



The Sun Stone was carved by the Aztecs more than 500 years ago. It's a huge stone sculpture that tells the Aztec myth about the origin of the world.



The **TAWNY MINING BEE** lays its eggs in underground nests.

Learn how to cut **PRECIOUS STONES.**

Copy the cuts, or patterns used in cutting stones. Don't use a ruler or a pencil. Don't correct your lines, but draw them decisively. You can practise first on a spare piece of paper.

Once you've mastered the standard cuts, create your own, unique pattern.



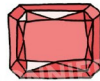
emerald



teardrop



cushion



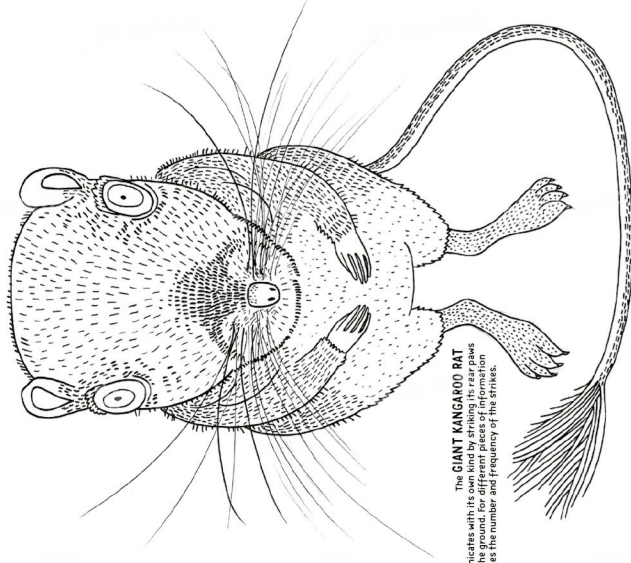
radiant



heart



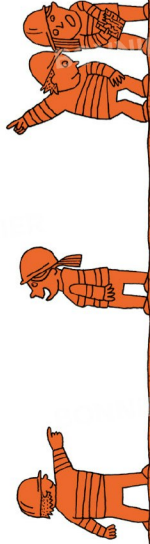
brilliant

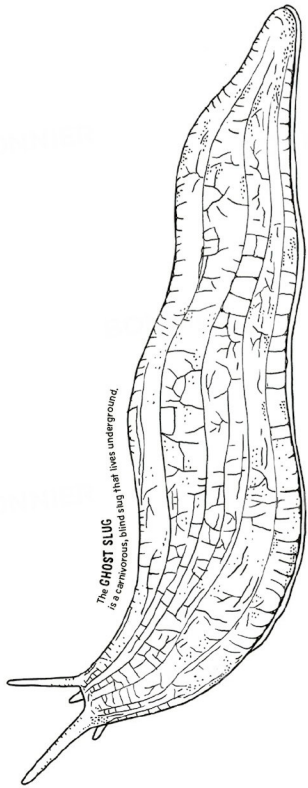


The **GIANT KANGAROO RAT** communicates with its own kind by striking its ear plates against the ground, for different pieces of information. It changes the number and frequency of the strikes.

Help the engineers to do their job – draw in a large

TUNNEL BORING MACHINE.





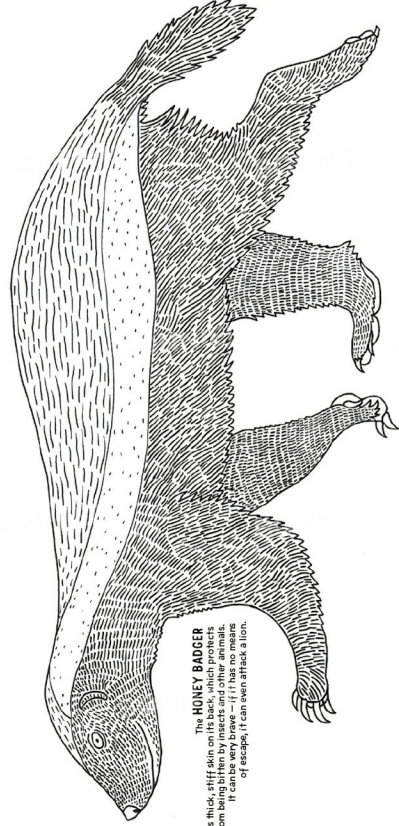
The **GHOST SLUG**
is a transparent, blind slug that lives underground.

Colonise the **ANTHILL.**

Ants like to keep their nest in order. Each area inside it has a defined purpose. Some areas are for eggs, larvae or pupae to grow, others are for storing food. The anthill also has to include a chamber for the queen.

Think what else the ants might find useful.

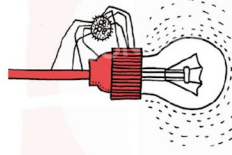




THE HONEY BADGER

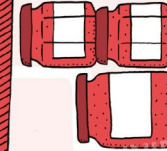
has thick, stiff skin on its back, which protects it from most predators.
It can be very brave – if it has no means of escape, it can even attack a lion.

Draw the things that are kept
IN THE CELLAR.



↑ SURE TO COME IN HANDY ↑
ONE DAY ↑

↑ FOR THE WINTER ↑



↑ PRESERVES ↑

↑ OLD TOYS ↑

↓ BARELY USED ↓

↑ FORGOTTEN ↑

↑ NOT NEEDED ↑

↑ TO BE REPAIRED ↑

↓ PITY TO
THROW THEM OUT ↓

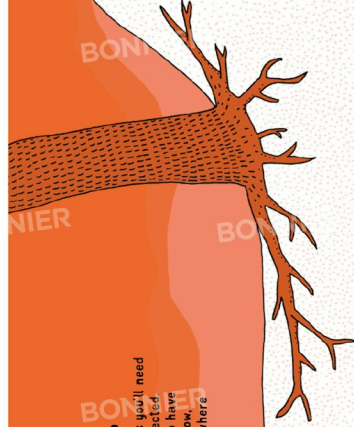
THE MILLING GOATS
In Australia, it spends most of its time underground.
The summer rains begin.
The goats will go underground.

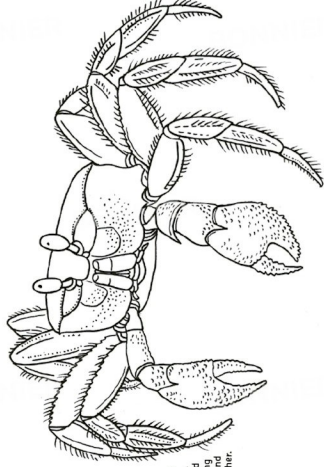


Design your own

BURROW.

Think about the sort of rooms you'll need
and how they should be connected.
Consider whether you want to have
a luxurious, comfortable burrow,
or an indestructible shelter where
you can hide from danger.



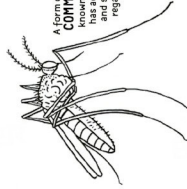


The **ATLANTIC GHOST CRAB** is a small, yellow-and-white crab. It commingles with others of its kind. By using its pincers against the ground and scraping its legs together,



Become an
ARCHAEOLOGIST*
and dig up the rest of the find from
underground. What could it be?

*Archaeologists are scientists who use excavated finds to study how people lived in the past. Sometimes, they come across part of an object sticking out of the ground, but they can't tell what it is, so they dig up the rest of it to explain the mystery.



A form of the
COMMON HOUSE MOSQUITO
known as the "London Underground mosquito"
has been identified in the tunnels of London's
and several of big cities that some scientists
regard it as a separate species.

Design an extremely valuable

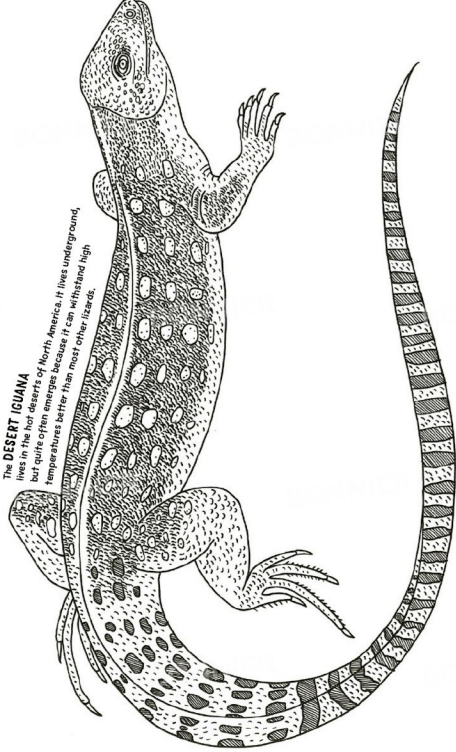
NECKLACE.

Use white diamonds, green emeralds,
blue sapphires, red rubies, yellow topazes,
purple amethysts or other gemstones.
Apply the traditional cuts from
the exercise on fabric to a white or milk up
link. Use a flexible pattern and
link the stones with gold or silver
to create a decorative design.



The DESERT IGUANA

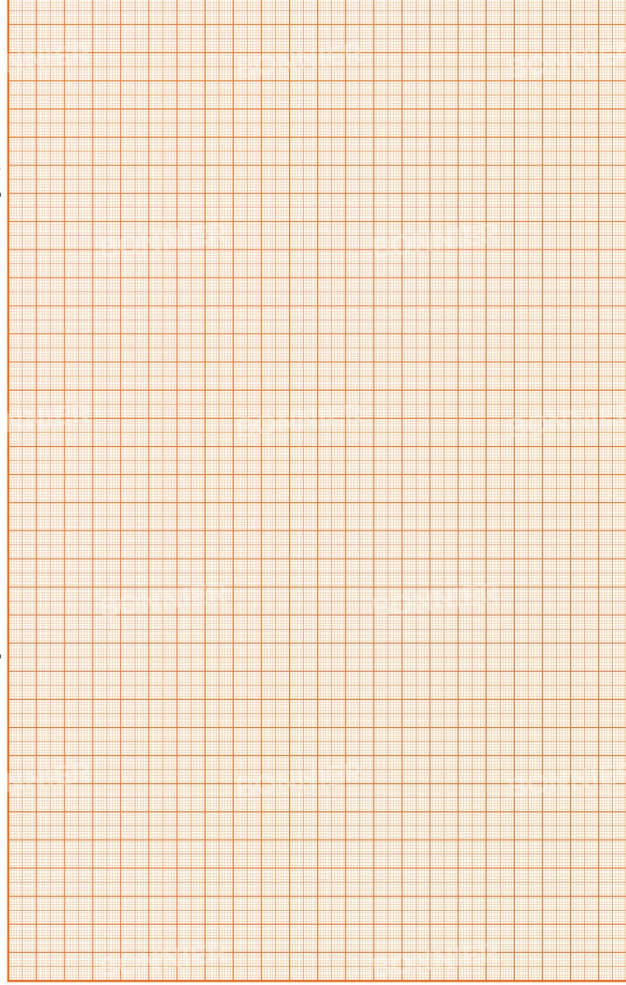
lives in the hot deserts of North America. It lives underground, but quite often emerges because it can withstand high temperatures better than most other lizards.



**Design a cave-exploring
ROBOT.**

It's very hard to draw an exact map of a cave. Narrow or flooded passages make many of the tunnels inaccessible. In the future, small research robots might help to explore each part of the walls, ceiling and floor.

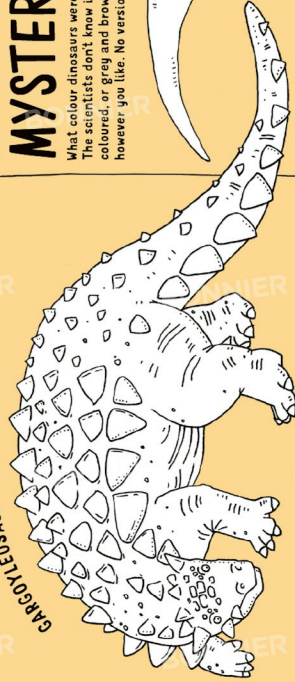
Invent and draw a super-modern machine of this kind. You can use any technology you like. Is your robot 'going to walk, or fly?' How will it be powered? Will it be able to swim? Will it explore the caves on its own, or in a group of similar robots?





ZOSPEUM THOLIUSSUM
is a very small, bites snail with a transparent shell. It lives in caves in Croatia, more than 300m underground.

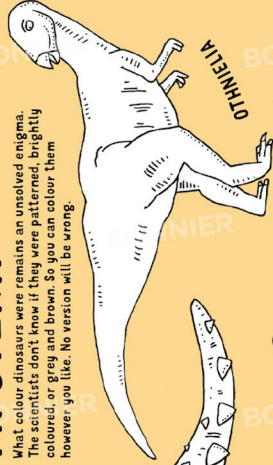
GARGOLESAURUS



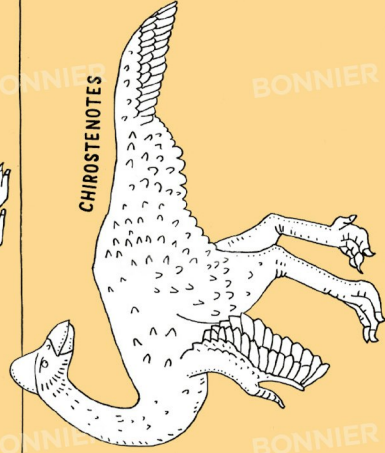
Solve the colour
MYSTERY.

What colour dinosaurs were remains an unsolved enigma. The scientists don't know if they were patterned, brightly coloured, or grey and brown. So you can colour them however you like. No version will be wrong.

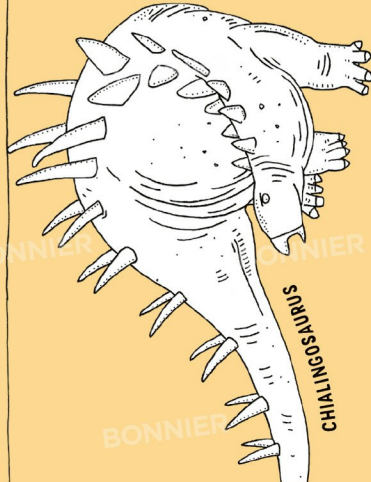
OTHELIA

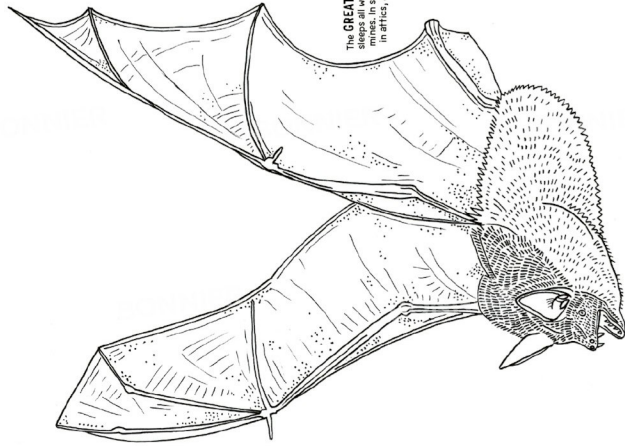


CHIROSTENOTES



CHITLALINGSAURUS



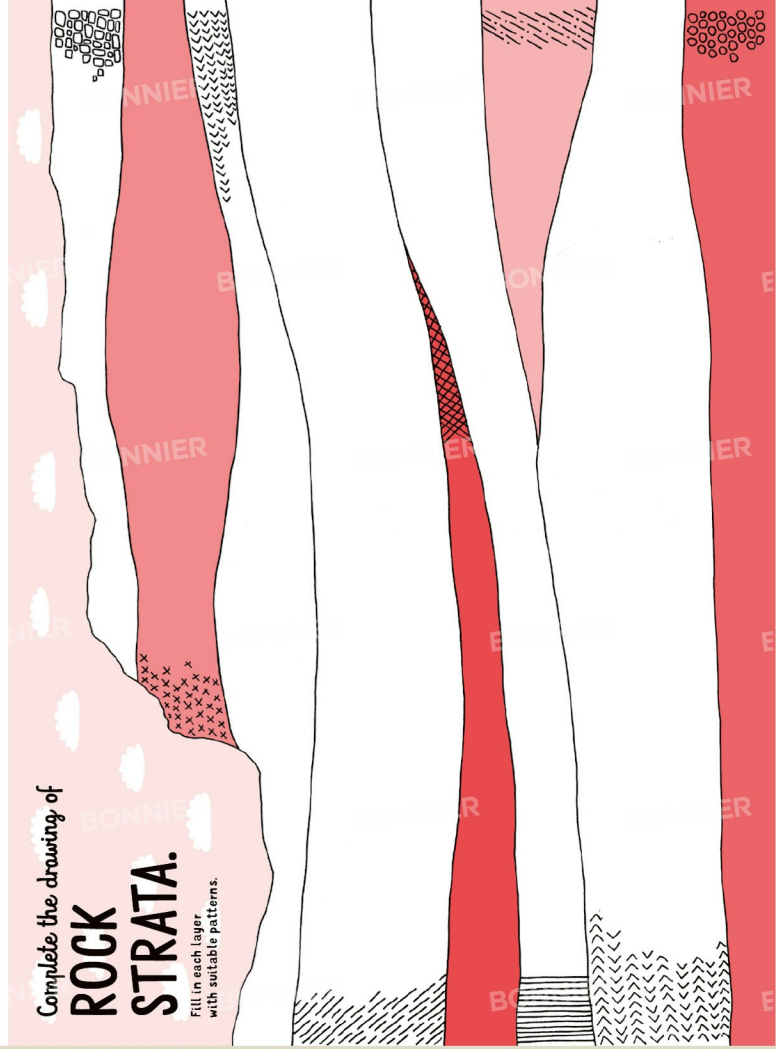


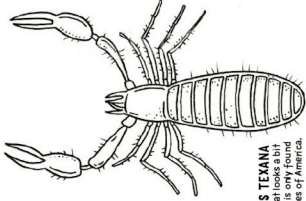
The **GREATER MOUSE-EARED BAT** sleeps all winter in caves, cellars and abandoned buildings. It is nocturnal and hunts for insects in attics, and at night it hunts beetles.

Complete the drawing of

ROCK STRATA.

Fill in each layer with suitable patterns.





TARTAROCREAGRIS TEXANA

is a scorpion species found in Texas. It is only found in Texas in the United States of America.

PLAY THE TUBE GAME

and design a network of underground tunnels for your city.

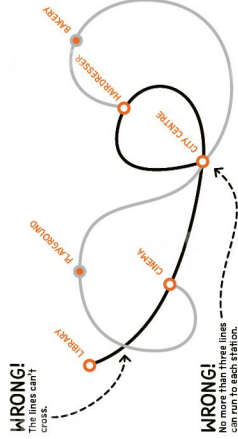
The game is for two players. You'll need a piece of paper and something to write with.

1 Draw a few small circles at various points on the paper. Each circle represents an underground station. If you like, you can give them names.

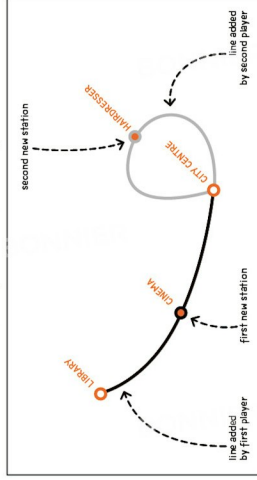
The more stations you draw at the start, the harder and more interesting the game will be. To get the hang of this card game, start with just two stations.



3 The lines can be straight or curved, but they cannot cross each other or touch. Only three lines in total can run to each station.



2 The players take turns to draw lines connecting two stations, or starting and ending at the same station. At the midpoint on each new line they must add a new station.



4 The winner is the player who draws the final line of the tube. You can also play an alternate version, where the person who draws the last line loses.

