

GEMMA'S HOME

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INTRODUCTION

Gema is a forest dwelling insectivorous bat. When her tree-hollow-home is under threat by Mr Aziz who wants to cut it down, she asks her friend, Nur, for help. Together they take Mr Aziz on a journey of bat enlightenment. Mr Aziz discovers that the magical world of bats is also important to his own.

ACKNOWLEDGEMENTS

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GEMA'S HOME

Early one morning Nur was gathering bananas from her garden at the edge of the forest. In the distance she could hear a chainsaw.

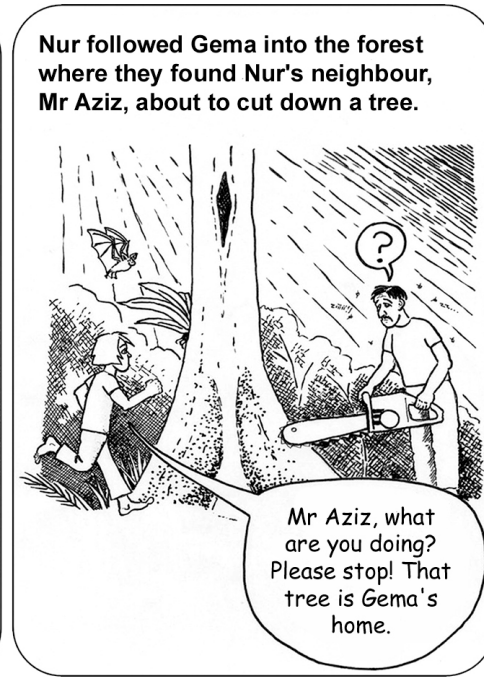


Suddenly a bat flew past her. It was Gema, her friend, flying round in circles in a panic.



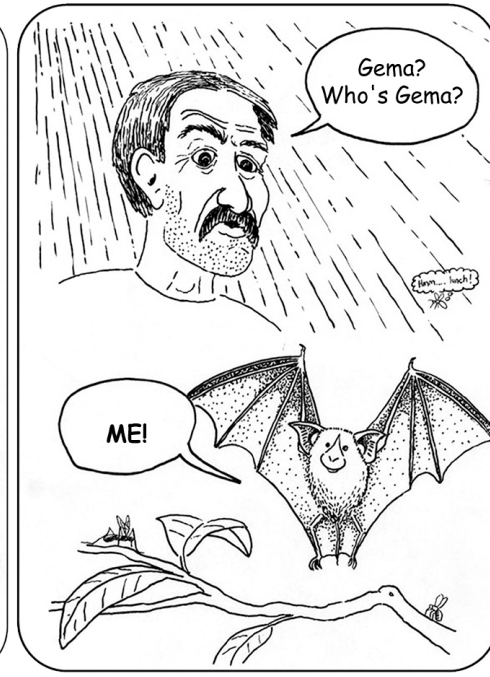
Gema!
What are you doing out this time of day? You should be resting!

I was in my roost grooming when I heard this horrid noise. There's a man with a chainsaw. He's going to cut down my home. Oh Nur! Please help me!



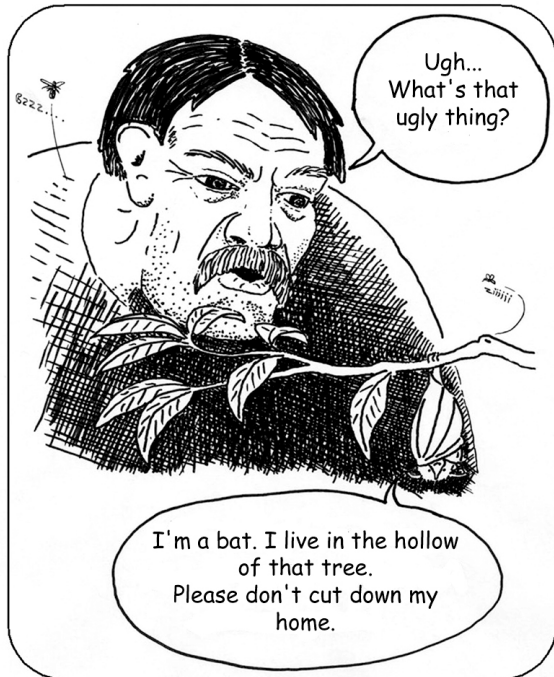
Nur followed Gema into the forest where they found Nur's neighbour, Mr Aziz, about to cut down a tree.

Mr Aziz, what are you doing? Please stop! That tree is Gema's home.



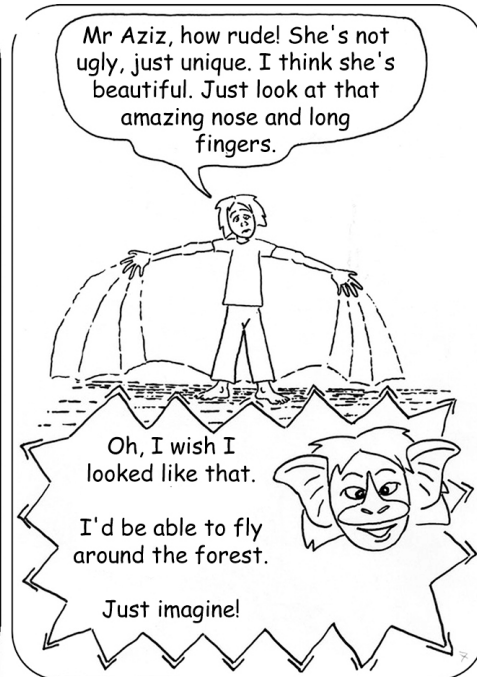
Gema?
Who's Gema?

ME!



Ugh...
What's that ugly thing?

I'm a bat. I live in the hollow of that tree. Please don't cut down my home.



Mr Aziz, how rude! She's not ugly, just unique. I think she's beautiful. Just look at that amazing nose and long fingers.

Oh, I wish I looked like that.

I'd be able to fly around the forest.

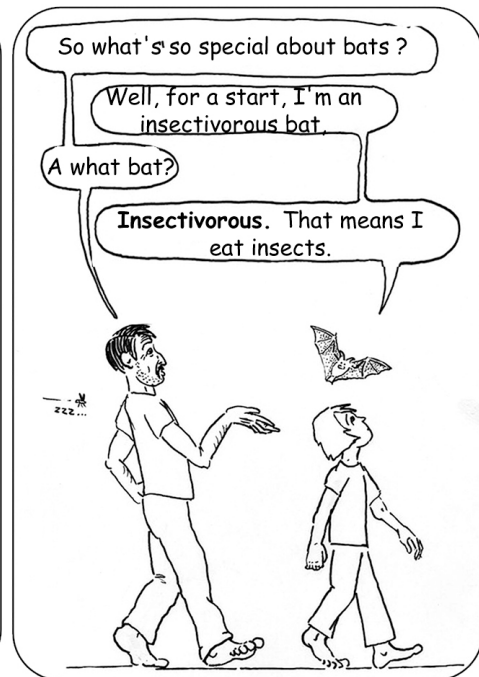
Just imagine!



You want to know why bats are so important? Follow me! You can meet some of my friends. They normally rest in the day, but they won't mind if we pay them a friendly visit.

Silly bats! Stopping me from my work...

Agh! mosquitoes!



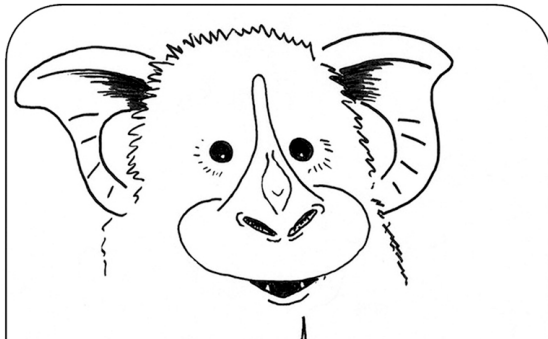
So what's so special about bats?

Well, for a start, I'm an insectivorous bat.

A what bat?

Insectivorous. That means I eat insects.

GEMA'S HOME




That's why I have this huge funny shaped nose.

I shout out of it and from the echo I can tell where things are, even in the dark! We call this technique, **echolocation**.

It's great for catching yummy mosquitoes. Watch this!

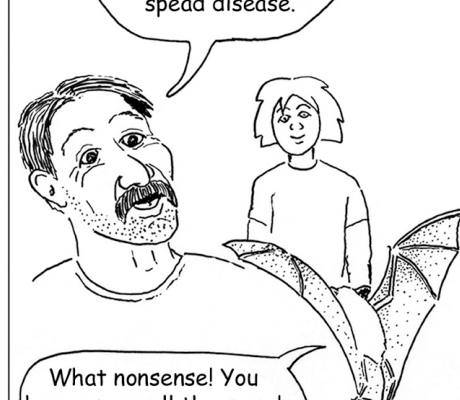
Gema demonstrated her echolocation skills. She swooped through the air and caught a mosquito just before it could munch on Mr Aziz.



SCOOOP
GULP

Has it gone?
I can't hear it anymore.

Wow! Thank you Gema! I thought you bats were just pests that raid our crops and spread disease.



What nonsense! You humans are all the same! You're always afraid of things you don't understand!

So that's why you fly at dusk and dawn - for insects?

Yep! I can eat 600 mosquitoes in one hour!


You mean mossie-munching machine?

CHOMP

GULP!

So, the more bats there are the less we get bitten by these horrid insects!

SEE, BATS ARE IMPORTANT!
We're fantastic pest control!



Do all bats eat insects?

No we don't. My friend Polly lives here in this cave. She eats nectar and pollen.
Polly! Polly!
Wake up Polly!

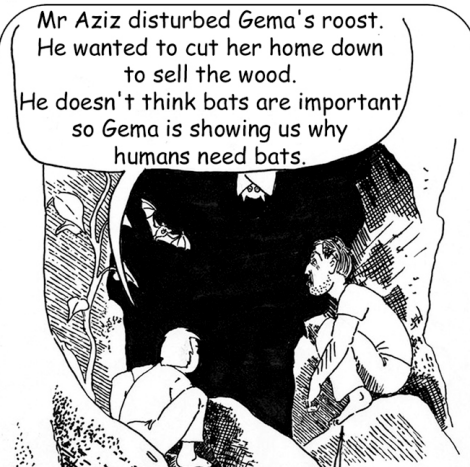
Goodness! What a long nose and tongue you have! I've never seen anything like it!

Sshhh! You'll wake my baby! I've been up all day feeding and grooming him. He's just fallen asleep.



Gema, what are you doing out this time of the day?

Mr Aziz disturbed Gema's roost. He wanted to cut her home down to sell the wood. He doesn't think bats are important so Gema is showing us why humans need bats.



Gema eats annoying insects. That's useful, but I can't see how you can be of any use to **anyone** living in this dark, damp, smelly place.


Mr Aziz! How rude! This cave is nice and cool.



Tell him what kind of bat you are Polly.

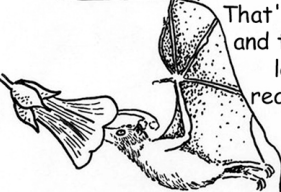
GEMA'S HOME

I'm a nectarivorous bat!




A what bat?

Nectarivorous. That means I eat nectar and pollen from flowers. That's why my nose and tongue are so long, so I can reach into flowers! My favourite nectar is from the durian flower.





Wow! I thought only bees and butterflies ate nectar! Does that mean you pollinate them too?

Yes! When I feed, I nestle right into the flower and get covered in pollen. When I visit other plants it rubs off into them. This makes the plant produce fruit. My favourite nectar is from the durian flower.




You help us make my favourite fruit - durian! That's amazing!

SEE, BATS ARE IMPORTANT

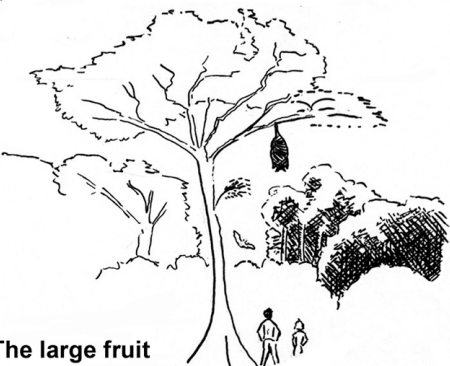
We pollinate plants so there is fruit.



Don't bats also eat the fruit?

Yes, some bats do. Our friend Fruity the fruit bat does. He lives in the top branches of that tree over there. Go and ask him about it.


Nur, Mr Aziz and Gema left the cave to find Fruity.



The large fruit bat was resting in the top of a tree.

My goodness! You're much bigger than Gema and Polly. Your face looks like a dog's too!

That's no way to wake a bat in the middle of the day, by **insulting** him.



Hey Fruity! how many different kinds of fruit do you eat?


Oh I don't know. Lots and lots. It depends what's in season.

Gema has been showing us how bats are useful to humans.

Insectivorous bats eat annoying insects, nectarivorous bats pollinate flowers to produce fruit.

But I've heard you eat fruit from plantations. You're a pest yourself!

Hang on Mr Aziz. You've got it all wrong! Haven't you worked it out by now? Humans need **ALL** bats! Tell him Fruity!



Well, for instance, I only eat over-ripe fruit.



Farmers can't sell over-ripe fruit anyway. It would go off before they could sell it. Besides some people cover their fruit in nets so bats go to other places for fruit.



That's not so bad. We can live together.

We just have to ensure there's enough for everyone so we can share!



I already help with that. When I eat fruit I eat the seeds too. What goes in must come out, right? I poo the seeds out and they grow into more fruit trees.



I'll be a tree one day!

GEMA'S HOME



Fruity and his friends spread seeds of the fruit he eats around the forest so new new trees can grow. That's why there are so many different ones all year round. All this free food and you want to cut it down?!




SEE BATS ARE IMPORTANT! You need them for more trees to grow.

Gema, Nur and Mr Aziz left Fruity so he could rest, ready to find food that evening. As they walked back through the forest Mr Aziz was deep in thought.


What's up Mr Aziz?

If I cut down trees that bats need, there will be no insect-eating bats...



...no pollinating bats and no bats to disperse seeds for fruit trees to grow.



Oh dear, I'm so tired! I've been up all day when I should have been resting. I'll have no energy to go out and find any food tonight! I must go home and sleep in my tree.

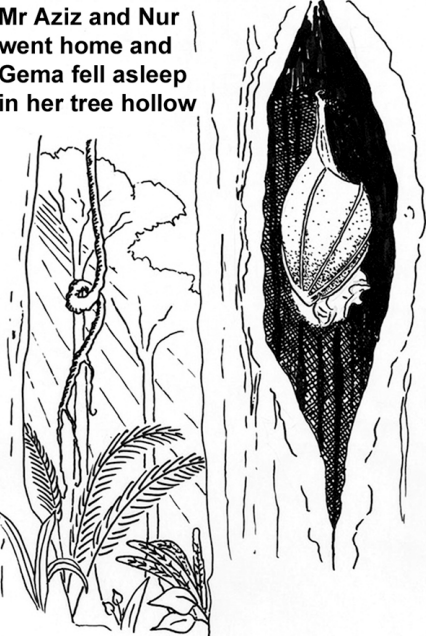


Poor Gema.

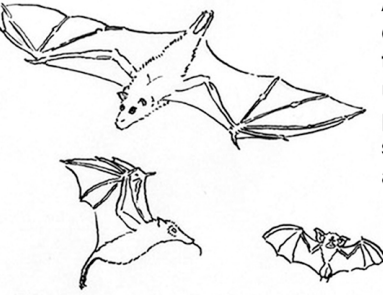
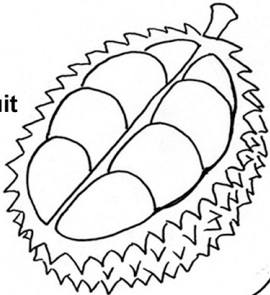
You're right. Bats really are important to us. Gema I'm sorry I disturbed you. Thank you for taking me to meet your friends. Nur, lets go back home so Gema can get some rest. Sweet dreams Gema!

Mr Aziz and Nur went home and Gema fell asleep in her tree hollow



At night fall, as with any other evening, the different bats left their roosts and went about their usual business, eating insects, pollinating flowers and dispersing seeds in the forest and farmland around.

At dinner time, Mr Aziz ate his favourite fruit and Nur told her family and friends about her adventures that day.

What about you? How will you help Gema and her friends?

Tell your friends how important bats are so they too can understand...

IF WE HELP BATS, THEY CAN HELP US TOO!




BATTY WORD SEARCH

Now that you've watched Gema search for her bat friends to help explain their importance to us, let's see if you can search for these words.

The following words from the story are also found in the grid below:

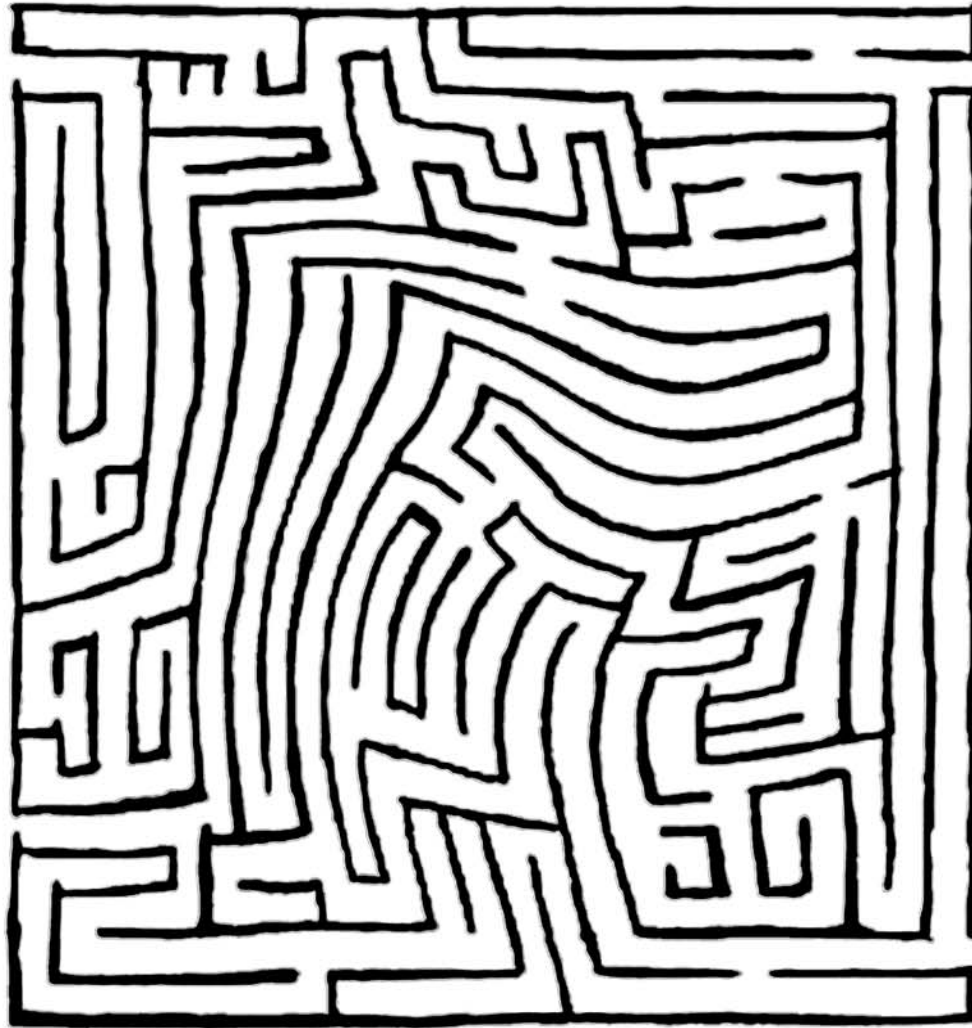
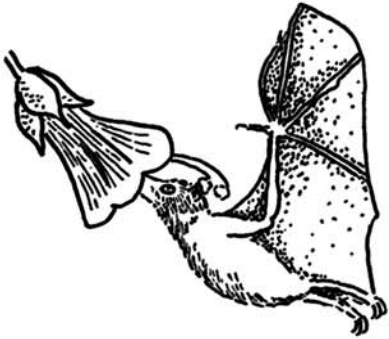
Echo Wings Mammal Fruity Bananas
Polly Insect Pup Gema Petai
Cave Roost Seed Mr Aziz
Bat Durian Pollen Nur



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

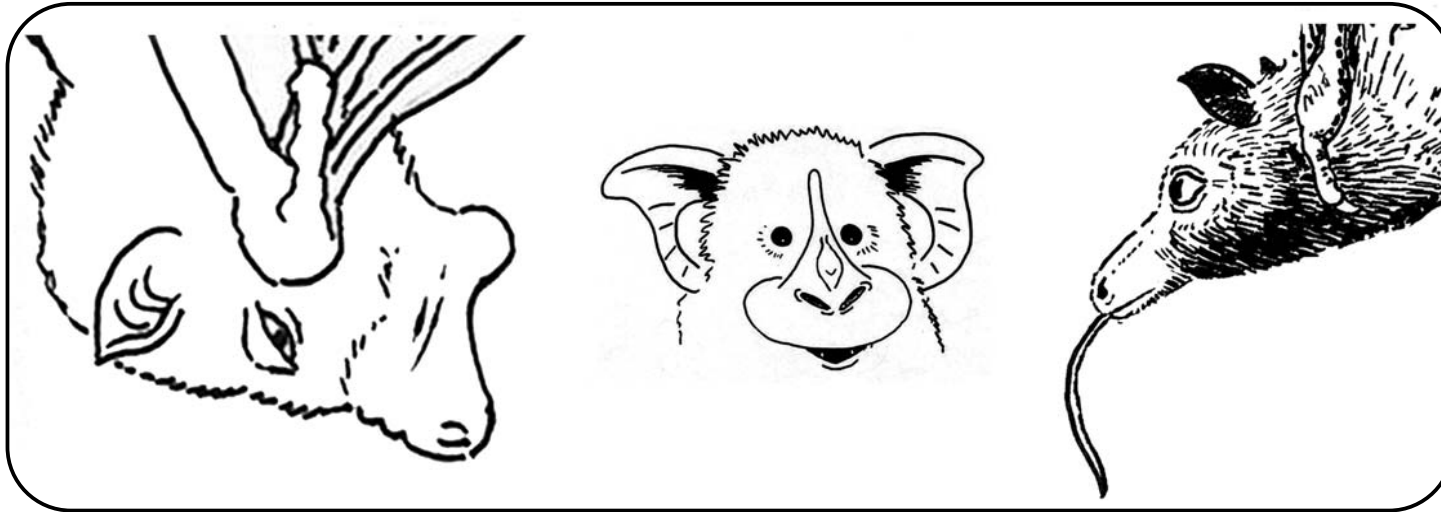
WHERE'S MY FOOD?

It's early evening, Gema and Polly have come out to find their dinner. Can you help them?
Lead Gema and Polly through the maze to their favourite meal.



BATTY SPOT THE DIFFERENCE

Do you remember that Mr Aziz was very surprised when he saw how different Polly, Gema and Fruity looked compared to each other? Look at them again in the picture below and circle 5 differences in their faces.



See if you can remember why they are so different:

What food do you think each bat eats? Why?

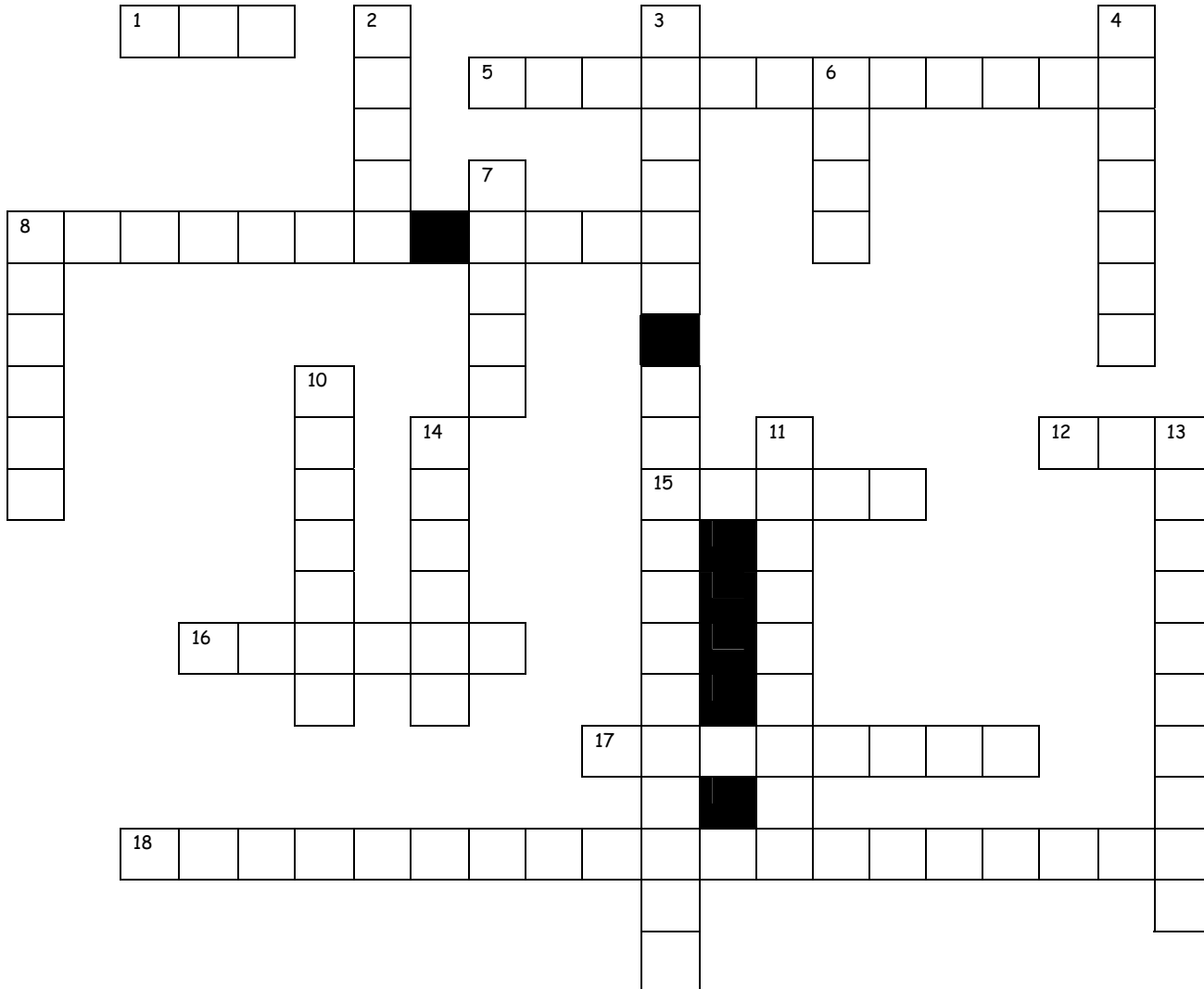
What does the size of their eyes and ears tell you about how they find their way around and look for food?

Who do you think uses sight and which uses smell? How can you tell?

Who do you think uses echolocation? Remember, this is when insect-eating bats produce sound and listen for the echo to find their way around and to find food.

Why is it so important for people that they eat these kinds of food?

BATTY CROSSWORD



Across

1. The only flying mammal (3)
5. Listen for that food. Don't hit that tree (12)
8. Our food and shelter destroyed (7,4)
12. No I'm not a baby dog, but a baby bat (3)
15. Clean yourself (5)
16. We need bats to pollinate this smelly fruit (6)
17. A country that has a very large diversity of bats (8)
18. This very important place has 64 species of bat (4,8,7 with no gaps)

Down

2. A place where bats live
3. Fruit bats seed dispersal is essential for this (6,12)
4. A pest for humans, food for bats (7)
6. Dark, damp and cool (4)
7. Some of us may not have excellent eye sight, but we are defiantly not this (5)
8. Bats biggest threat (6)
10. A bat only found in Central and South America. They are not vicious (7)
11. Bees to it, so do bats (9)
13. Popular with gardeners, but poisonous to bats (10)
14. Bats like sweet things too (6)

ANSWERS

Did you complete all the batty puzzles correctly? Find out!

BATTY CROSSWORD

Across: 1. bat 5. echolocation 8. habitat loss 12. pup 15. groom 16. durian 17. Malaysia 18. Krau Wildlife Reserve

Down: 2. roost 3. forest regeneration 4. insect 6. cave 7. blind 8. humans 10. vampire 11. pollinate 13. pesticides 14 nectar

BATTY SPOT THE DIFFERENCE

The five differences were the size of their eyes, nose, ears, tongue and muzzle.

Gema is an insectivorous bat. She is a small bat with large ears and nose but small eyes. Gema looks like this because she uses echolocation to find insects to eat. To do this she emits sound through her elaborate nose and listens to the echo from an object through her large ears.

Polly is a nectarivorous bat. She has large eyes, a long nose and a very long tongue. This is because she uses vision and smell to find nectar. Polly nestles right into flowers with her long nose and then drinks the nectar with her long tongue!

Fruity is a frugivorous bat. He has large eyes and a dog-like nose so he can smell ripe fruit to eat.

How are bats important to humans? Insect-eating bats can eat up to 600 mosquito-sized insects in one hour! This makes them essential for pest and disease control. Nectar-eating bats feed from plants such as durian, mango, or banana. They also pollinate them, just like bees! Without bats these fruits would be very rare. Fruit eating bats disperse seeds so more fruit trees can grow. See, bats are important!