Edu.Cat

STEM Challenge

Student Book

LEVEL 1B

Name:



TenLives

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Text 1

Once upon a time all cats around the world were wild



How did cats become pets?

When people started to grow food on farms in places in and around Africa, mice and rats began to live on the farms to eat the food.

Wild cats started to live near the farms to catch the mice and rats.

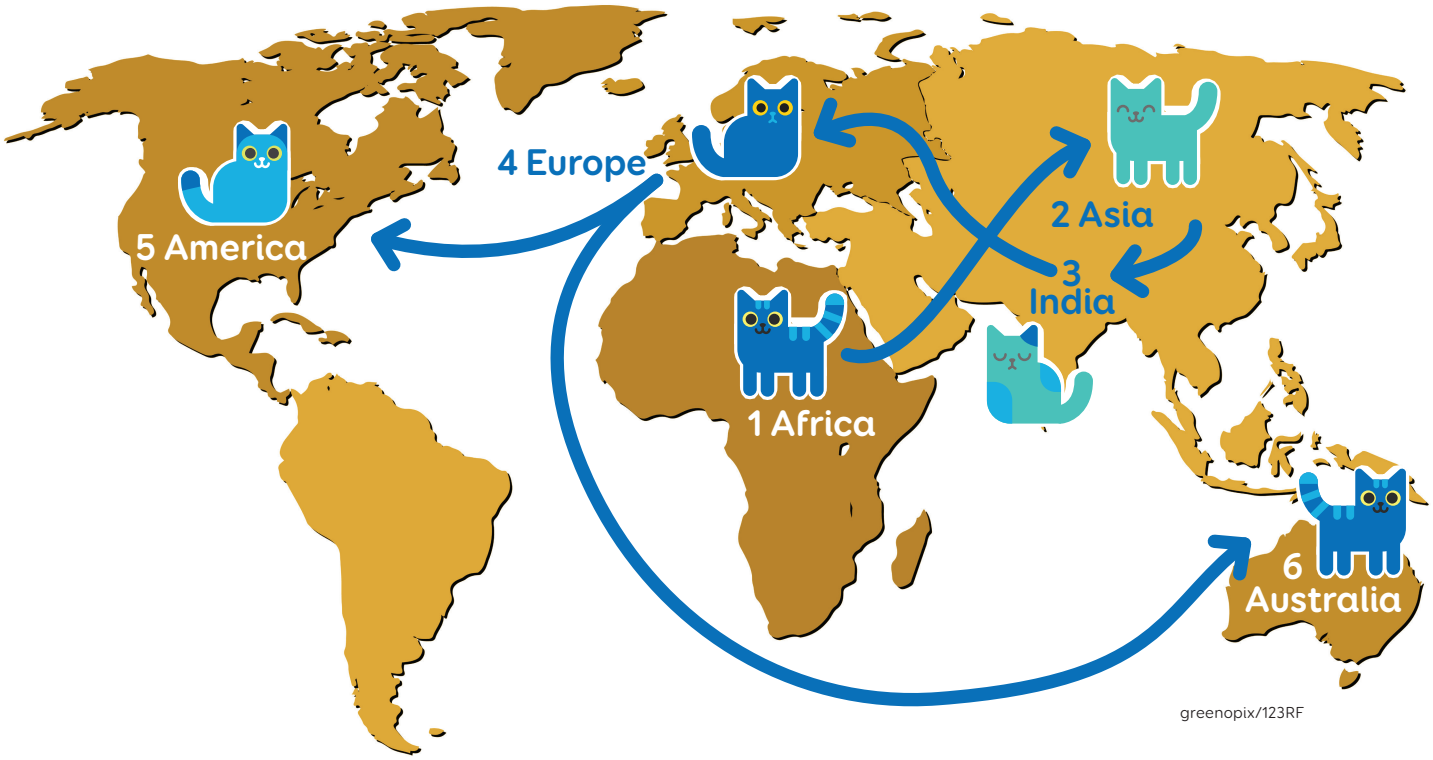
People really liked the wild cats catching the mice and rats, as this helped keep their food safe.

Thousands of years later some wild cats became friendly with people and started to live in their homes.

The people in Egypt liked pet cats so much they would not let anyone take them away from Egypt to other countries. (Continued on page 18 & 19).

One day, someone secretly took pet cats to Asia. Many years later pet cats were taken to other parts of the world.

The spread of domesticated African wild cats



Many people all over the world liked cats because they were so good at catching mice and rats as well as being friendly.

The first cats came to Australia about 230 years ago in 1788.

Cats were brought to Australia on ships to protect food by catching mice and rats.



A girl with her cat and doll in Queensland, Australia.
Photographed by Jens Hansen Lundager, (1853-1930).
Courtesy of the State Library of Queensland.

Text 2

Did you know, 10,000 years ago all cats around the world were wild?



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How did cats become pets?

Around 10,000 years ago people began growing food crops like grains and vegetables on farms. These people were called Neolithic farmers and they lived in the Fertile Crescent which included parts of north eastern Africa. A lot of the food they grew needed to be stored so they had food to eat throughout the year. There were no shops to buy food from like we have today, so growing food and storing food was very important for their survival.

With so much food stored in one spot, large numbers of rodents, like mice and rats, began to live on the farms to eat the food the people grew. This was a problem for the people. If they could not keep their food safe they would not have enough food to eat themselves throughout the year.

Wild cats began to live near the farms because there were so many rodents which they liked to catch and eat. They no longer had to travel great distances to find food to catch so they stayed close to the farms.

The people really liked the wild cats catching the rodents as this helped solve the problem of keeping their food safe.

Over time small villages grew into towns and even more people relied on food from farms, which of course needed to be stored for use throughout the year.

The people knew that having wild cats live in their towns was very important in keeping their food safe from rodents. The people were very kind to the wild cats and they learnt not to be afraid of people.



Ecosnap/123RF

A large country in north eastern Africa called Egypt was the first place African wild cats became domesticated pets. The cats became so friendly and liked being around people so much they started living in people's homes like our pet cats do today.

The people of Egypt (Egyptians) liked cats so much they worshipped them like gods and would not let anyone take them to other countries.

It was 1000 years or more before cats were secretly taken to Asia and India, and 1000 years or more after that before cats were taken to Europe.

It was only around 300 years ago that domestic cats were taken to America, and around 230 years ago when they arrived in Australia in 1788.

It is believed cats were brought to Australia on ships as pets to protect food from rodents during their voyage. Cats were also needed to protect food the people grew and stored once they arrived in Australia. Soon cats spread throughout Australia as people began to live in different parts of the country.



fieldsphotos/ 123RF Stock

Fast fact

The Egyptian Mau is the oldest breed of cat. The Egyptian word for cat is “mau”.

Activity 2: Who was first?

Look at the map on page 6. Write the order that domesticated African wild cats were taken to each continent from 1st to 6th.

E.g. Cats were _____ in _____

1. Cats were _____ in _____

1st **Africa**

2. Cats were _____ in _____

3. Cats were _____ in _____

4. Cats were _____ in _____

5. Cats were _____ in _____

6. Cats were _____ in _____

Activity 3: History of cats

Circle the correct words

Cats have/have not always lived with people.

Farmers liked/did not like wild cats.

Wild cats helped people by catching/watching mice and rats.

The first pet cats were in Africa/Australia.

The people in Egypt did/did not want other people to take cats to other countries.

Our pet cats are related to African wild cats/African hunting dogs.

Cats have been in Australia/America the least amount of time.

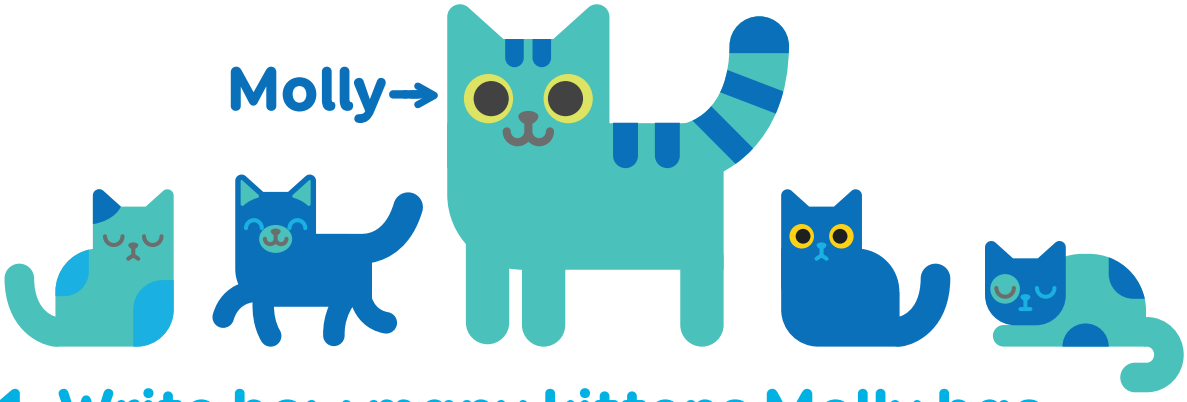
Activity 4: "It's Raining Cats... and Cats!"

To be used after teacher or presenter reads, 'It's Raining Cats and Cats'.

Can you remember what happened in the beginning, middle and end of the book? Write and draw what you remember.

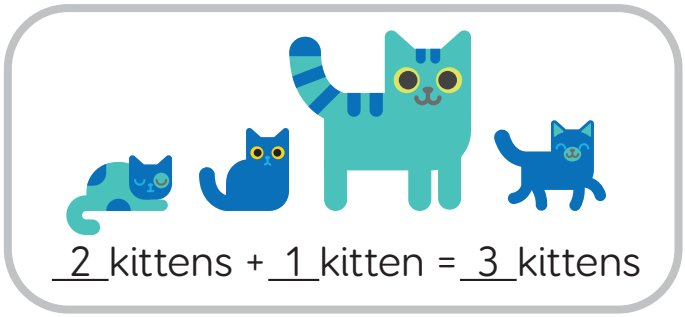
Beginning	Middle	End

Activity 5: Counting kittens



1. Write how many kittens Molly has ___

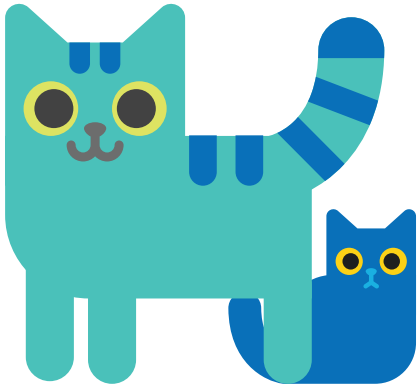
2. Write the number of kittens on each side of Molly then add them together.



___kitten +___kittens =___kittens

How many cats and kittens can you count on this page? ____

Activity 6: Draw a circle around the correct answer

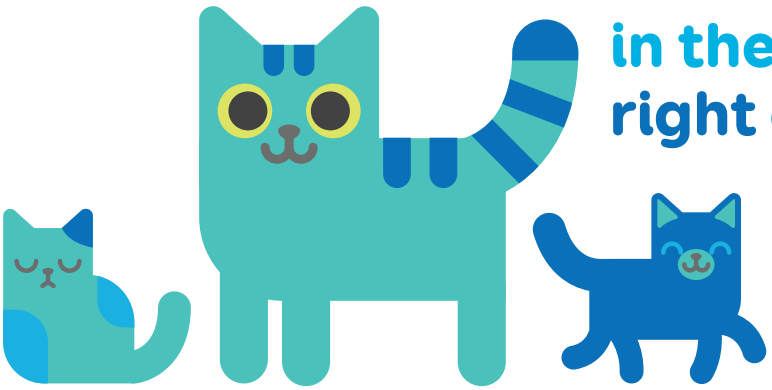


Is the kitten in front of or behind the cat?

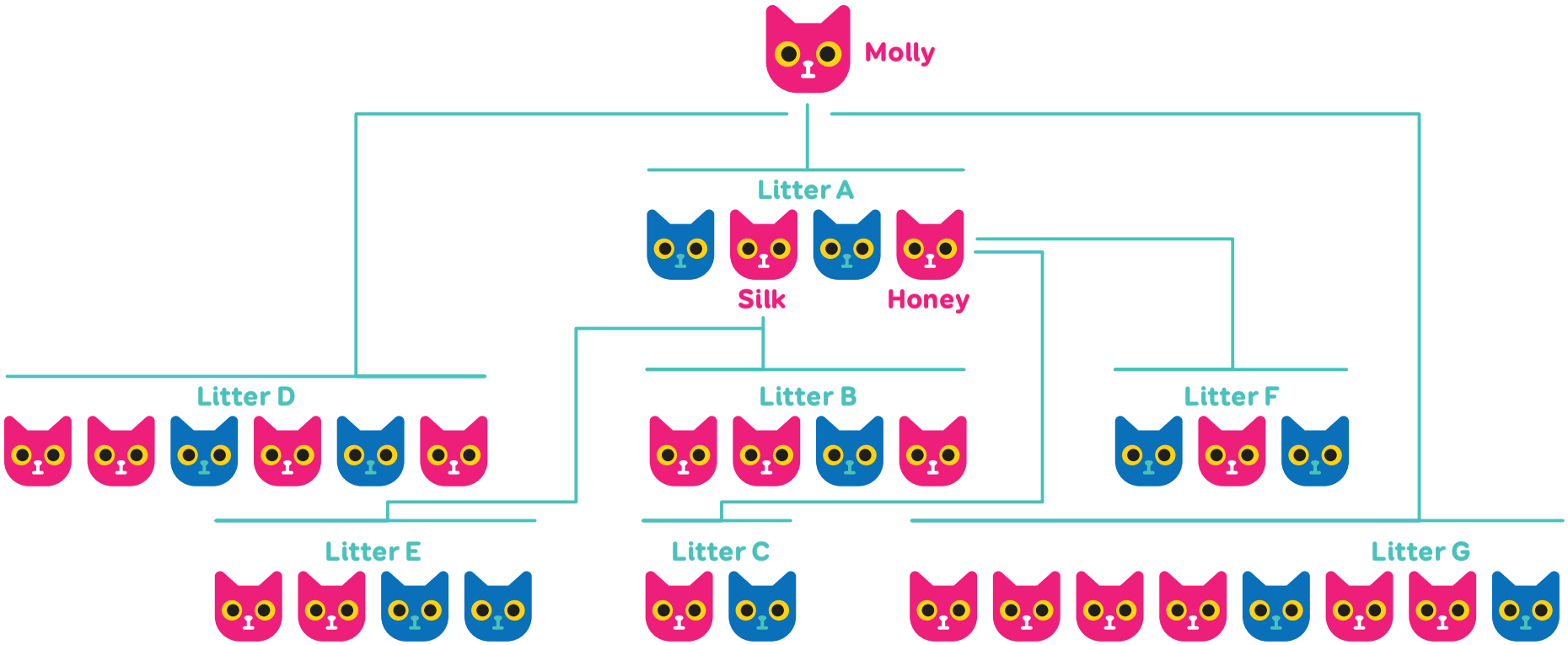
Is there 1 kitten on top of or under the cat?



Is the cat to the left, in the middle or to the right of the kittens?



Activity 7:
Kitten Maths Madness



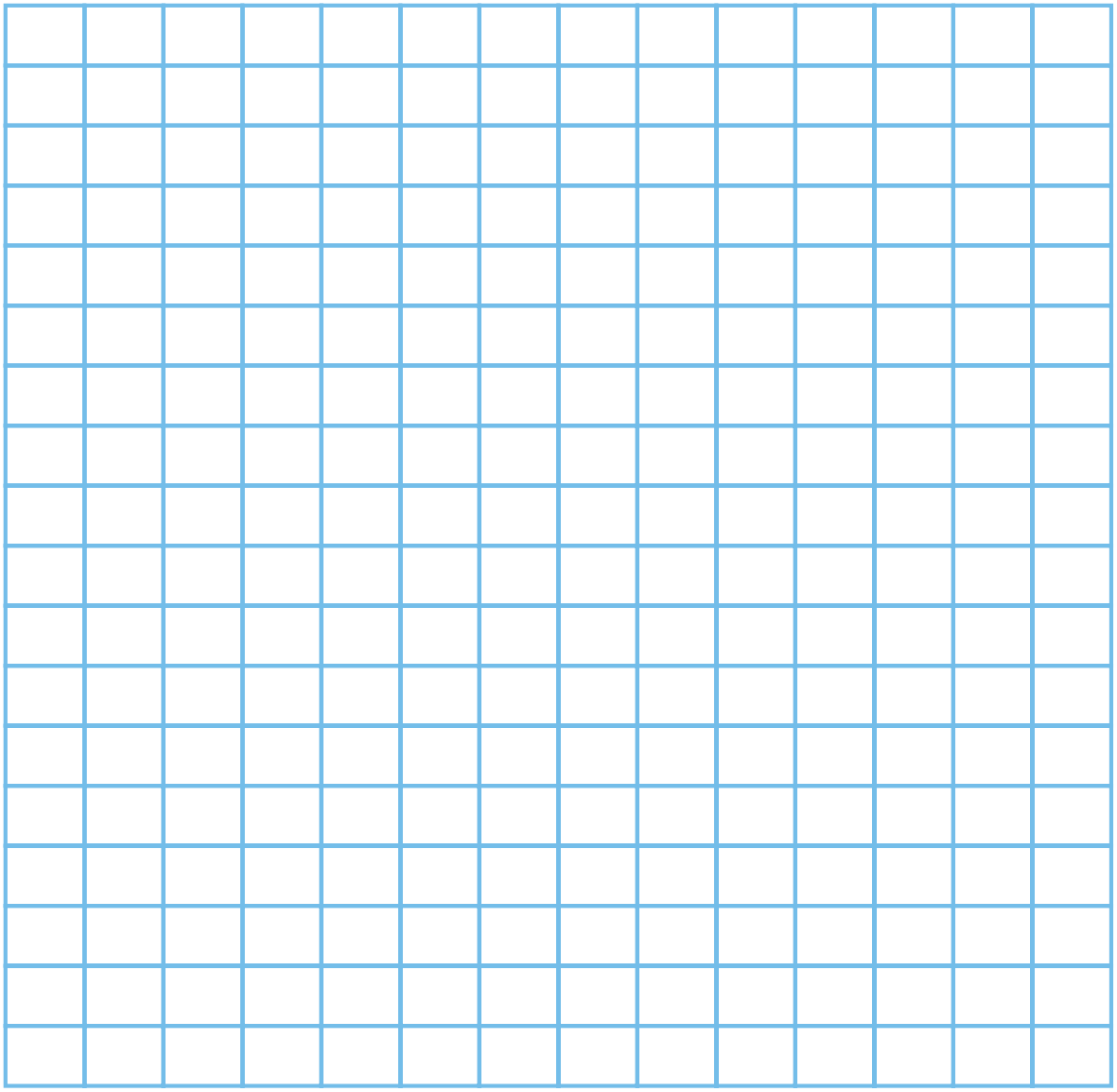
Molly and her offspring Silk and Honey had ☐☐ + ☐☐ = ☐☐

Female Kittens | Male Kittens | Kittens in 18 months

Activity 7 (continued):

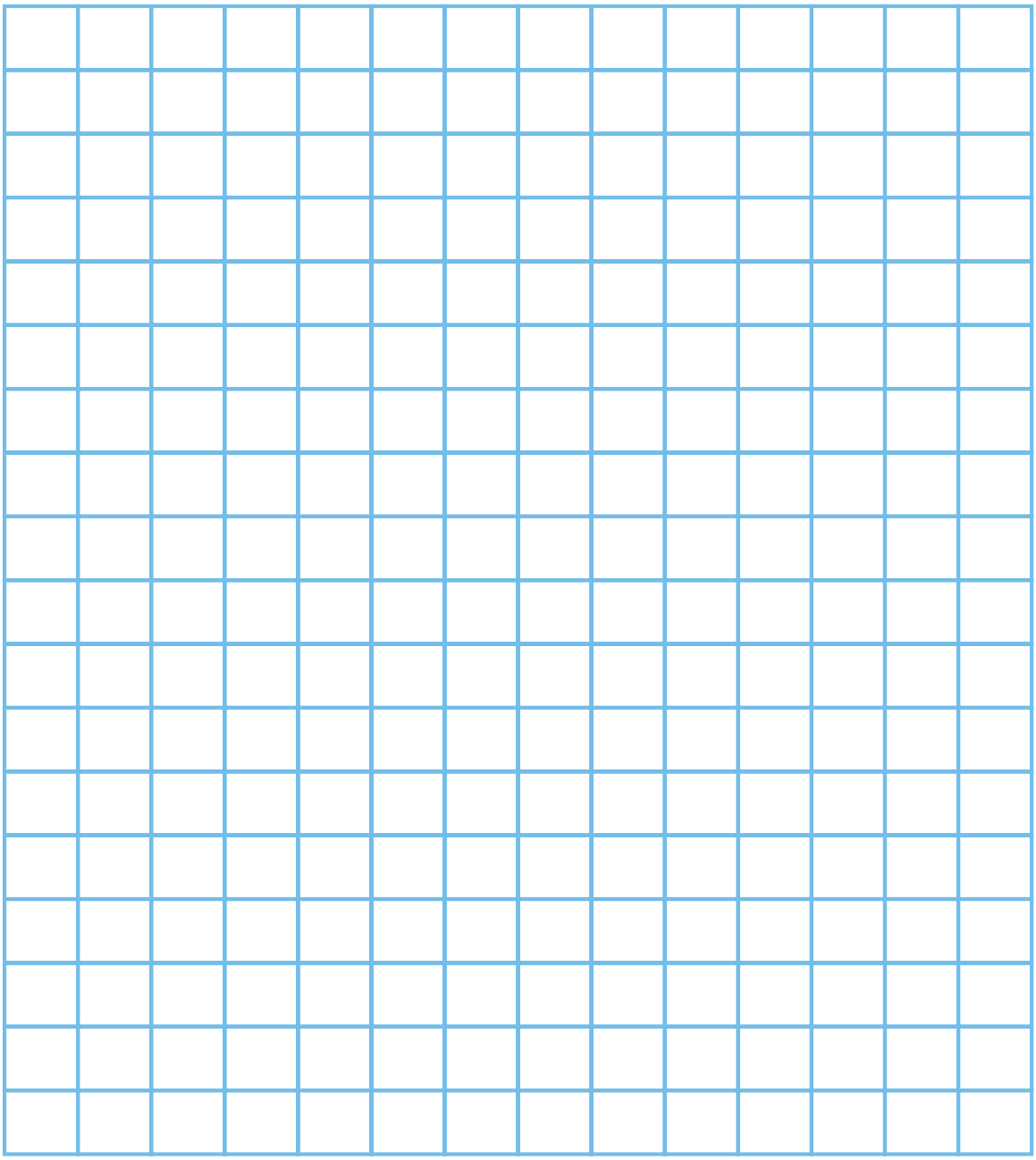
How many offspring in 18 months

Make a graph to show how many female offspring and how many male offspring were born to Molly, Silk and Honey in 18 months.



Activity 7 (continued):
How many offspring in each litter

Make a graph to show how many offspring were born in each litter.



Activity 7 (continued):
What are the chances

1. What was the lowest number of kittens born in a litter? _____

2. What could be the lowest number of kittens born in a litter? _____

3. What was the largest number of kittens born in a litter? _____

4. What was the average (the most common) number of kittens born in a litter? _____

5. How many female cats and kittens are on page 8? _____

6. If all the female cats and kittens on page 8 had an average litter of 4 kittens, and had 2 litters in the following year, how many kittens would be born in that year? Show your working out here.

7. Is it likely or unlikely Molly would have the same number of kittens in the next 18 months? Explain your answer.

8. What is the best way to stop cats and kittens from having or making offspring?

Why are cats so good at adapting? What makes them special?

Cats have special features that make them good hunters. All cats, including wild cats, lions and tigers have similar features, our pet cats are just smaller.

Eyes

- Split pupils
- Can see in dim light
- Three eyelids
- No eyelashes
- Cats can see up to 35 metres away but cannot see things very close to them clearly

Whiskers

- Sensitive
- Help them feel things
- On either side of their nose, above their eyes, on their chin and cheeks, and the back of their lower front legs.
- Whiskers are extremely sensitive and help cats measure an object's distance, direction and how it feels.

Tail

- Balance
- Show how cats are feeling

Ears

- Can move together or one at a time
- Hearing is a cat's strongest sense
- It's better than dogs.
- Cats have very sensitive hearing and can hear noises up to 1.6 km away.



General Information for Challenges 1, 2 & 3

Mouth

- Strong, sharp teeth
- 4 types of teeth
- Incisors are small and used for keeping fur clean and to hold small prey in the mouth.
- Canines are long and very strong and used for grabbing and killing prey.
- Molars and pre-molars are used for cutting through meat and bone.
- Cats cannot chew food as their jaws only move up and down, not side to side like human jaws do.
- Barbs on tongue
- Jaws only move up and down



duben/123RF

Claws

- Used for balancing, digging, self-defence and catching food
- To keep their front claws sharp cats retract them when not being used.

Paws

- Strong and soft
- Sensitive and help them feel things
- Cats walk on their toes and this allows them to walk quietly.
- Cats only sweat through their feet.

Nose

- Cats sense of smell is better than dogs
- Cats don't have many taste buds on their tongue, they rely on their sense of smell to know if food is ok to eat. The ridges and bumps on a cat's nose are unique, like human finger prints, no two are the same.

Fur (hair)

- Cats have 4 different types of fur (hair)
- Down hairs are closest to the skin and are short, fine and soft and keep cats warm.
- Guard hairs are long and thick and protect the down and awn hairs.
- Vibrissae (whiskers) are large, tough and sensitive to touch, providing cats with information about the world around them.

Tongue

- A cat's tongue is covered in tiny backward facing barbs called papillae which help them lick meats off bones and keep their fur clean.
- Anything caught on a cat's tongue like wool, string, cotton and tinsel is very dangerous as it is usually swallowed and may have to be surgically removed.

STEM Challenge Part 1:
Template 1

Draw a cat and label some features.

Write what the features are used for e.g. eyes for seeing well.

STEM Challenge Part 2:
Template 2

Draw a cat and label at least 6 features.

Write what the features are used for e.g. eyes for seeing well.

What materials will be used to represent each feature and why, e.g. round buttons for round eyes.

STEM Challenge Part 3:
Template 3

Write why you chose the materials for each feature

e.g. I chose round green buttons because some cats have green eyes.

I chose _____

_____

I chose _____

_____

I chose _____

_____

I chose _____

_____

I chose _____

_____

I chose _____

_____

My model of a cat or kitten

Place a photo of your model here

Fast facts

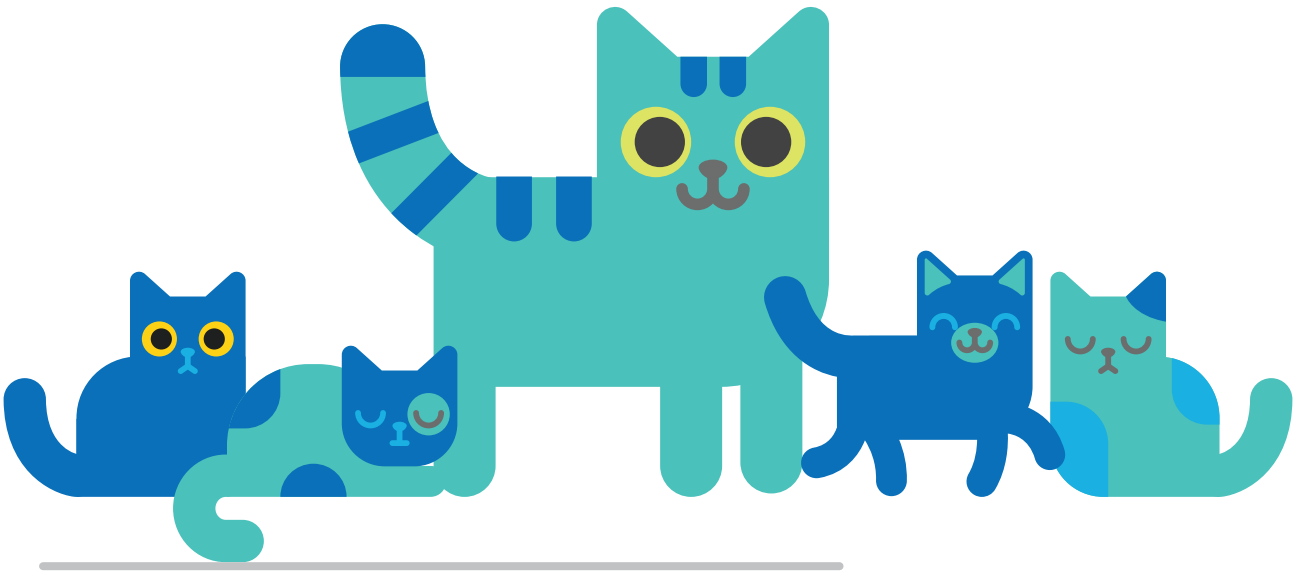
A female cat can become pregnant from 4 months of age.

In Tasmania cats can have 2 litters of kittens a year.
In places where it is warmer cats can have 3 or 4 litters of kittens each year.

Desexing cats is the best way to stop cats having kittens.

A group of baby kittens is called a litter.
When they grow up they will have features like their parents. They may be a different colour.

Litter sizes vary from 1 to 8 kittens with an average litter size being 4 kittens.





stephaniezieber/123RF

What you can do to help

Cats can live up to 21 years, so owning a cat is a long-term commitment.

As a general rule treat kittens for fleas straight away and treat for worms from 2 weeks of age. Talk to your local veterinarian about which products are safe to use on kittens younger than 8 weeks of age. All other pets need to be treated as well.

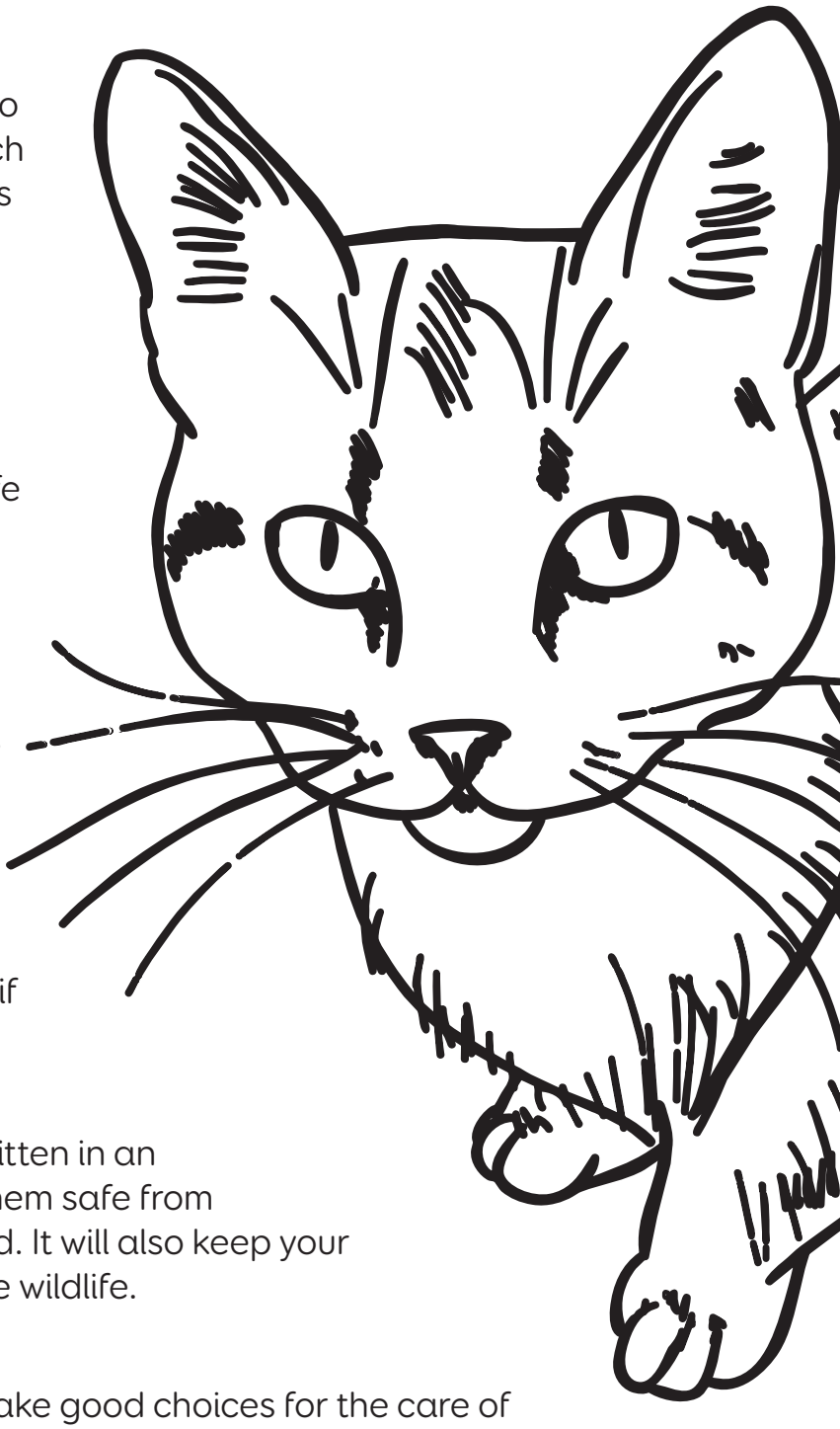
Vaccinations protect pets from a range of diseases which can be life threatening. Kittens should have their first vaccination between 6 - 8 weeks of age.

Desexing male and female kittens can be done from 8 - 10 weeks of age.

Provide your cat or kitten with a collar, id tag and microchip, even if they live indoors.

Think about keeping your cat or kitten in an enclosure or indoors: this keeps them safe from being lost, injured, killed or abused. It will also keep your neighbours happy and protect the wildlife.

Encourage people you know to make good choices for the care of their cat/s, their community and the environment.



Thanks for helping my friends



Where possible kittens should remain with their mother until 8 – 10 weeks of age. This gives them the best opportunity to develop physically and socially.

Encourage owners of unwanted cats and kittens to surrender them to a reputable shelter instead of giving them away.

Anyone can sell or give away a cat or kitten but legally it must be at least 8 weeks old, microchipped, desexed, wormed and vaccinated. Cats sold between registered breeders and genuine show cats are exempt.

Do not take free or cheap kittens unless they are already desexed, microchipped and vaccinated.

Never dump or abandon a cat or kitten (it is against the law).

Call your local animal shelter for help on how to care for your cat/kitten or how to find a new home for your cat/kitten if you can no longer care for them.

If you are eligible, National Desexing Network may help by reducing desexing fees. For more information go to
www.ndn.org.au
Ph 1300 368 992

Cat Language



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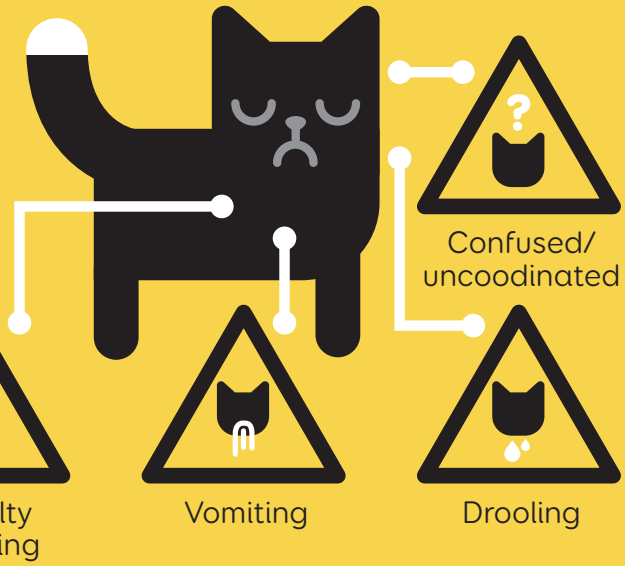
POISON SAFETY AT HOME FOR CATS

Common cat poisons

- Dog flea treatments
- Human Medicine
- Antifreeze
- Household chemicals
- Lillies
- Human Foods

Symptoms of poisoning

The symptoms of poisoning aren't always obvious and can vary, but there are a few of the most common signs...



- Confused/ uncoodinated
- Fitting/ seizures
- Difficulty breathing
- Vomiting
- Drooling

What should I do if I think my cat has been poisoned?

DO:

- Take them to the vet immediately
- Show your vet labels or samples of the suspected poison, if known
- Keep other pets away from source

DO NOT:

- Try to make your cat vomit or feed them salt water
- Wait for the symptoms to stop or assume they will go away
- Panic

Prevention is better than a visit to the vets!

Remember, keep poisonous substances out of cats' reach - ideally stored in a sealed container or closed cupboard or shed.

This list and advice is not exhaustive.
For further advice please consult your vet
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Vocabulary list

Adapting - something that changes slightly over time so it can continue to exist in a new environment

Breed - a group of animals having common ancestors and sharing certain looks and or personalities that are not shared with other members of the same types of animals. Ragdolls, Burmese and Siamese are all different breeds of cat

Crops - living plants grown by farmers. Most crops are foods such as grain, vegetables, or fruit

Desexing - to surgically remove the sexual organs of a cat by a vet. This is also called neutering or spaying



Vet nurse getting Honey ready for her desexing operation



Vet desexing Honey so she cannot have kittens



Honey eating food after her desexing operation

Domesticated - thousands of years of taming certain breeds of animals results in that breed wanting to live with or live close to people

Litter - a number of young animals born to an animal at one time

Offspring – an animal's young

Pregnant - when a female cat has kittens growing inside her

Reproduce – to produce one or more babies

Retract – to pull back in

Rodent – mammals that have two long front and bottom teeth (incisors) that grow all the time and are keep short by biting and chewing (gnawing)

Surgically remove – an operation to remove something

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