Edu.Cat

STEM Challenge

Level 1A

Caring for Cats

(Suitable Kinder-Prep)

Teacher Guide



TenLives

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About Ten Lives

Ten Lives is a leader in cat management and operates Tasmania's largest cat shelter taking into our care all lost, stray, unwanted, wild and feral cats. Ten Lives receives no government funding and relies on funds generated from our own operations and the support of the general community through donations and bequests.

Operating for over seventy years Ten Lives has cared for tens of thousands of cats and kittens. In kitten season we have on average one cat or kitten coming into our care every 30 minutes during our 7 day a week operation.

By changing the way we collectively care for cats, we are benefiting not only cats but also members of our community and the environment.

Ten Lives has an independent board and has a professional and dedicated team that ensure Ten Lives is a sustainable organisation for the long term.

Ten Lives objectives are:

- To promote and improve the welfare of cats and kittens.
- To promote responsible cat ownership and humane animal welfare principles.
- To shift public attitude towards the welfare of their cats in order to reduce the number of stray, abandoned, lost, unwanted or feral cats.
- To provide education throughout schools and the general public to create positive outcomes for cats, the environment and communities.
- To reduce unnecessary euthanasia of cats and kittens.

Ten Lives promotes responsible cat ownership and all cats adopted are microchipped, de-sexed, vaccinated and have received all necessary veterinary care.

Ten Lives works with all levels of government, community groups, education and research institutions, conservation groups and business.

Ten Lives believes that education is key to creating long term social change in the way we care for our cats, the community and our environment.

Ten Lives

About Edu.Cat

Edu.Cat is an Australian-first STEM education program focusing on issues surrounding cat welfare, cat management and the positive and negative impact cats have on individuals, communities and wildlife. The subject matter of the program (cats) is tangible and appealing to students whilst the presentations, STEM challenges and additional work book activities engage students in areas of Science, Technologies, Engineering and Mathematics, inspiring students in these fields and empowering them to make positive choices in cat ownership.

Edu.Cat, developed in Tasmania by Ten Lives is available to all schools. The program includes Australian Curriculum - linked unit plans for Kinder to Year 6.

As students progress through the program they engage in new and exciting inquiry-based learning and STEM Challenges to build on information they have learnt in previous years.

Ten Lives can provide teachers with supporting resources: Teacher Guides, Students Books, STEM Challenges and additional activities linked to the Australian Curriculum and the Early Years Learning Framework.

All **Edu.Cat** curriculum-linked presentations are tailored to the needs of individual classes which is highly desirable for teachers, as well as being engaging for all students.

Enquiries can be made for kittens to attend Edu.Cat sessions as an additional component to the program, subject to availability.

Ten Lives also offers schools the opportunity to book a behind the scenes tour of Ten Lives, Tasmania's largest cat shelter.

Edu.Cat paves the way for students to:

- **inquire**
- **problem solve**
- **design**
- **create**
- **evaluate**
- **work as a team**
- **innovate**
- **be inspired**
- **participate in interactive learning**
- **engage in STEM**



Presentation for Level 1A

	Guiding Question	Resources Required	Learning Intentions
30 mins	How do we care for cats?	White board, easel for display if possible, space in classroom for a game.	• Students will learn how to care for the needs of a pet cat. • Students will learn what is safe and unsafe for a cat. • Students will learn how to tell if their cat is unwell.

Activity	Description	Links to the curriculum
Caring for cats:	Students use their senses to describe and identify objects hidden in a sack. Making connections with the needs and wants of a pet cat.	**EYLF:** **Outcome 4: Children are confident and involved learners.** • Children resource their own learning through connecting with people, place, technologies and natural and processed materials **Outcome 5: Children are effective communicators.** • Children interact verbally and non-verbally with others for a range of purposes • Children express ideas and make meaning using a range of media **ACF Science:** Strand: Science understanding Sub-strand: Communicating Students will share questions, predictions, observations and ideas with others. AC9SF105 Foundation
What is safe and unsafe for a cat:	Students will be directed to sit in a circle. Each will be given a picture of something that is safe/unsafe for a cat. In turns they will be asked to place the picture onto a poster in the middle of the circle that is safe or unsafe. These things will be discussed as each one is put down.	**ACF:** Science: Science understanding Sub-strand: Chemical sciences Students will recognize that objects can be composed of different materials and describe the observable properties of those materials. AC9SFU03 Foundation





How to tell if a cat is well or unwell:	Students will be shown photos of cats with symptoms of illness etc. Presenter will discuss with students how they can notice how their cat is feeling and what they can do about it. 	**ACF:** Science: Strand: Science Inquiry. Sub-strand: Communicating Students will share questions, predictions, observations and ideas with others. AC9SFI05 Foundation

STEM Challenge Overview

	Guiding Questions	Resources Required	Learning Intentions
Activity 1:	• Students reflect on what they've learnt about how to care for cats.	• Paper	• Students will draw a cat puppet based on what they have learnt.
Activity 2:	• How do needs and wants help living things to survive?	• Sticky notes. • Photos of presentation and a selection of items in the 'Pet Detective game. • 'Happy Cat' wants - a list and examples (maybe include how do we know when a cat is happy?)	• Students will recall and list what living things need to survive and determine the differences between needs and wants.
Activity 3:	• If you are responsible for a living thing e.g. a pet cat, how can you create something that would help provide for its needs e.g. food and water and wants e.g. toys, brush.	• Photos/pictures of a range of items used to provide food and water for a pet cat. Same for cats wants e.g. toys, brush. • Plain paper, grey leads and a selection of coloured pencils.	• Students will create a design or a plan showing the objects that cater to the needs and wants of a pet cat.
Activity 4:	• If you are responsible for a living thing e.g. a pet cat, how can you create things that would help provide for its needs and wants?	• A selection of recycled materials. • A shoebox or similar. • Strong, thick paper per group. • Glue, construction paper, coloured paper, scissors etc.	• Students will create a diorama or a drawing showing the objects that meet the needs and wants of a pet cat.

Success Criteria - Evidence of work

- Students will have drawn their own sock puppet.
- Students will have developed an easy-to-read written list of the needs and wants of a pet cat.
- Students will have designed a plan (sketch with notes) correctly labelling the specific objects that relate to the needs and wants of a pet cat.
- Students will have a neat and clearly presented diorama or drawing showing at least 6 different objects that provide for the needs and wants of a pet cat.

Level 1A

STEM Challenge Part 1: Caring for Cats

Happy cats need and want...

Challenge for students to solve

Students will draw a cat puppet to remind themselves of the thing they've learnt about caring for cats.

STEM Challenge Part 1 of 4

Time 30 minutes

Learning intentions for STEM Challenge Part 1:

Students will draw a cat puppet and will reflect upon what they have learnt from the presentation and use this as a basis later on to create a sock puppet from craft items and recycled materials.

Success criteria:

Students will have drawn and/or created their own sock puppet showing their understanding of the basic features of a cat that reflect their needs and wants.

Knowledge and Understanding - Australian Curriculum

Science		
Strand: Science Understanding. **Sub-strand: Biological Science** • Observe external features of plants and animals and describe ways they can be grouped on these features • AC9SFU01 Foundation	**Strand: Science as a Human Endeavour** **Sub-strand: Use and influence of science** • Explore the ways people make and use observations and questions to learn about the natural world • AC9SFH01 Foundation	**Strand: Science inquiry** **Sub-strand: Communicating:** • Share questions, predictions, observations and ideas with others. • AC9SF105

EYLF outcomes
EYLF Outcome 4: Children are confident and involved learners. • Children develop a range of skills and processes such as problem solving, inquiry, experimentation, hypothesizing, researching and investigating • Create and use representation to organize, record and communicate mathematical ideas and concepts **EYLF Outcome 4: Children are confident and involved learners.** • Children resource their own learning through connecting with people, place, technologies and natural and processed materials • Provide sensory and exploratory experiences with natural and processed material • Manipulate resources to investigate, take apart, assemble, invent and construct

Technologies
Design and Making • Generate, communicate and evaluate design ideas and use materials, equipment and steps to safely make a solution for a purpose. • AC9TDEFP01

Resources

- Socks, materials, buttons, glue, pipe cleaners etc

Vocabulary

Whiskers, mouth, ears, nose, teeth, legs, claws, paws.

Key Inquiry Question

How do all of these features contribute to keeping a cat happy and safe?

STEM Challenge - teaching and learning activity

- Explain to students what they are going to make
- Co-construct one together
- Allow students to construct one by themselves

General Capabilities	
Personal & Social Capability: Expanding students' capacity to question, solve problems, explore and display curiosity. Students use their scientific knowledge to make informed choices about issues that impact their lives such as environmental change, and consider the application of science to meet a range of personal and social needs.	**Critical and Creative Thinking:** Creative thinking enables the development of ideas that are new to the individual, and this is intrinsic to the development of scientific understanding. Scientific inquiry promotes critical and creative thinking by encouraging flexibility and open-mindedness as students speculate about their observations of the world and the ability to use and design new processes to achieve this. Students' conceptual understanding becomes more sophisticated as they actively acquire an increasingly scientific view of their world and the ability to examine it from new perspectives.
Literacy: By learning the literacy of science, students understand that language varies according to context and they increase their ability to use language flexibly. Scientific vocabulary is often technical and includes specific terms for concepts and features of the world, as well as terms that encapsulate an entire process in a single word, such as 'photosynthesis'. Language is therefore essential in providing the link between the concept itself and student understanding and for assessing whether the student has understood the concept.	
Ethical Understanding: Explore what integrity means in science and explore and apply ethical guidelines in their investigations. They consider the implications of their investigations on others, the environment and living organisms. They use scientific information to evaluate claims and to inform ethical decisions about a range of social and environmental issues, including the treatment of animals.	

STEM Challenge Part 2
Happy cats needs and wants...

Challenge for students to solve

Students design a list showing the objects that cater for the needs and wants of a pet cat. See suggested photos and lists at back of this document.

STEM Challenge Part 2 of 4

Time 30 minutes

Learning intentions for STEM Challenge Part 2

Students will design/write/draw a list of objects that show the needs and wants of a pet cat.

Success Criteria:

Students will have created a list or drawing etc that shows their understandings of the objects cats need to keep them safe and healthy.

Knowledge and Understanding - Australian Curriculum

<table>
<tr><th colspan="3">Science</th></tr>
<tr>
<td>Questioning & Predicting:
Processing, modelling & analysing
• Represent observations in provided templates and create patterns with evidence
• AC9SF103</td>
<td>Questioning & Predicting:
Evaluating:
• Compare observations with predictions with guidance
• AC9SF104</td>
<td>Science Understanding:
Biological Sciences:
• Observe external features of plants and animals and describe ways they can be grouped based on these features
• AC9SFU01</td>
</tr>
<tr><th colspan="3">Design & Technologies</th></tr>
<tr>
<td colspan="2">Technology and Society
• Explore how familiar products, services and environments are designed by people.
• AC9TDEFK01</td>
<td>Design and Making
• Generate, communicate and evaluate design ideas and use materials, equipment and steps to safely make a solution for a purpose
• AC9TDEFP01</td>
</tr>
<tr><th colspan="3">General Capabilities</th></tr>
<tr>
<td colspan="2">Personal & Social Capability: Expanding students' capacity to question, solve problems, explore and display curiosity. Students use their scientific knowledge to make informed choices about issues that impact their lives such as environmental change, and consider the application of science to meet a range of personal and social needs.</td>
<td>Critical and Creative Thinking: Creative thinking enables the development of ideas that are new to the individual, and this is intrinsic to the development of scientific understanding.
Scientific inquiry promotes critical and creative thinking by encouraging flexibility and open-mindedness as students speculate about their observations of the world and the ability to use and design new processes to achieve this. Students' conceptual understanding becomes more sophisticated as they actively acquire an increasingly scientific view of their world and the ability to examine it from new perspectives.</td>
</tr>
</table>

General Capabilities (continued)	
Literacy: By learning the literacy of science, students understand that language varies according to context and they increase their ability to use language flexibly. Scientific vocabulary is often technical and includes specific terms for concepts and features of the world, as well as terms that encapsulate an entire process in a single word, such as 'photosynthesis'. Language is therefore essential in providing the link between the concept itself and student understanding and for assessing whether the student has understood the concept.	**Numeracy:** Many elements of numeracy are evident in the Australian Curriculum: Science, particularly in Science Inquiry Skills. These include practical measurement and the collection, representation and interpretation of data from investigations.
Ethical Understanding: They explore what integrity means in science, and explore and apply ethical guidelines in their investigations. They consider the implications of their investigations on others, the environment and living organisms. They use scientific information to evaluate claims and to inform ethical decisions about a range of social and environmental issues, including the treatment of animals.	

Resources

- Photos and/or a range of objects used to provide needs. e.g. bowl or dish for food, water for a cat.
- Same for cats wants e.g. toys, brush, scratching post.
- Plain paper, grey leads, selection of coloured pencils.

STEM Challenge - teaching and learning activity

- Introduce challenge.
- Display a range of objects that meet the basic needs of a cat - a water/food bowl, shelter and litter tray.
- Students look at the objects:
- How much food does a cat need each day?
- Do cats need two bowls for food: wet food and dry food?
- How big does the water bowl need to be for a kitten?
- You can write the needs / wants on pieces of paper, fold and place in a jar. Students pick one from a jar. They need to record that need / want in their workbook.
- Discuss and group them by moving the notes around. You can start making a table with headings (needs vs wants) or circles that may have an overlapping area.
- Students then write or draw a list of things that living things need and want, recording in their workbooks.

Vocabulary

Basic needs - something that is necessary for survival, e.g. every living thing needs food, shelter and water to survive.

Wants - to have a strong feeling to have something, e.g. every living thing has wants to make their life more enjoyable and happy.

Key inquiry questions

How do needs and wants help living things survive?

How can you decide if it is a need or a want? How can you group the needs and the wants?

STEM Challenge Part 3
Happy cats needs and wants...

Challenge for students to solve

Students create a design or plan to show their knowledge and understanding of which elements meet the needs and wants of a pet cat.

Challenge number Part 3 of 4

Time 30 minutes

Learning intentions for STEM Challenge Part 3

Students produce an accurate plan/diagram showing the elements that cater to the needs and wants of a pet cat, demonstrating their knowledge and understanding of materials and design.

Success criteria

Students will have created a design or plan/diagram (sketch with notes), correctly labelling the specific elements that relate to the needs and wants of a cat.

Knowledge and Understanding - Australian Curriculum

Technologies	
Technology and Society • Students explore how familiar products, services and environments are designed and produced by people to meet personal or local community needs and sustainability. • AC9TDE2K01	**Designing and Making** • Students will sequence steps for making designed solutions cooperatively. • AC9TDE2P04

General Capabilities	
Personal & Social Capability: Expanding students' capacity to question, solve problems, explore and display curiosity. Students use their scientific knowledge to make informed choices about issues that impact their lives such as environmental change and consider the application of science to meet a range of personal and social needs.	**Critical and Creative Thinking:** Creative thinking enables the development of ideas that are new to the individual, and this is intrinsic to the development of scientific understanding. Scientific inquiry promotes critical and creative thinking by encouraging flexibility and open-mindedness as students speculate about their observations of the world and the ability to use and design new processes to achieve this. Students' conceptual understanding becomes more sophisticated as they actively acquire an increasingly scientific view of their world and the ability to examine it from new perspectives.
Literacy: By learning the literacy of science, students understand that language varies according to context and they increase their ability to use language flexibly. Scientific vocabulary is often technical and includes specific terms for concepts and features of the world, as well as terms that encapsulate an entire process in a single word, such as 'photosynthesis'. Language is therefore essential in providing the link between the concept itself and student understanding and for assessing whether the student has understood the concept.	**Numeracy:** Many elements of numeracy are evident in the Australian Curriculum: Science, particularly in Science Inquiry Skills. These include practical measurement and the collection, representation and interpretation of data from investigations.
Ethical Understanding: They explore what integrity means in science and explore and apply ethical guidelines in their investigations. They consider the implications of their investigations on others, the environment and living organisms. They use scientific information to evaluate claims and to inform ethical decisions about a range of social and environmental issues, including the treatment of animals.	

STEM Challenge - teaching and learning activity

- Discuss and review what we found out from the Ten Lives presentation.
- Hand out a few sticky notes to each small group and ask them to write one thing that living things need to live e.g. air, food, water, shelter. They need to write one thing per note.
- Students place their sticky notes on a whiteboard or wall.
- You can repeat asking groups to write one thing living things want.
- Students will write/design a plan of their own.

Vocabulary

Air - the invisible substance surrounding the earth

Food - any nutritious substance that people or animals eat or drink in order to maintain life

Shelter - a place giving temporary protection

Water - a liquid that forms the sea, lakes, rivers etc.

Key Inquiry Question

Why are these things necessary for a cat to be healthy?

Resources

- Paper, pencils, rubbers, sharpeners, rulers, sticky notes
- Photos/objects from list of needs and wants of a cat

STEM Challenge Part 4
Happy cats need and want...

Challenge for students to solve

Students create a diorama showing the objects that meet the needs and wants of a pet cat. See template and photo at back of this document.

Time 30 minutes

Learning intentions for STEM Challenge Part 4

Students will create a diorama to show their knowledge and understanding of which objects meet the needs and wants of a pet cat.

Success criteria

Students will have created a neat and clearly presented diorama showing at least 6 different objects that provide for the needs and wants of a cat.

Knowledge and Understanding - Australian Curriculum

Technologies	
Strand: Knowledge and understanding **Sub-strand: Technologies and society** • Students will identify how familiar products, services and environments are designed and produced by people to meet personal or local community needs and sustainability. • AC9TDE2K01	**Strand: Processes & production skills** **Sub-strand: Producing and implementing** • Students will use materials, components, tools equipment and techniques to safely make designed solutions. • AC9TDE2P02

Technologies	
Technology and Society • Explore how familiar products, services and environments are designed by people. • AC9TDEFK01	**Design and Making** • Generate, communicate and evaluate design ideas and use materials, equipment and steps to safely make a solution for a purpose • AC9TDE FP01

Resources needed

- A selection of craft and recycled materials for 3D shapes e.g. bottle tops, pipe cleaners, paper rolls, cardboard.
- Strong, thick paper, glue, construction paper, coloured paper, scissors etc.
- A shoebox or similar

Vocabulary list

Function - the purpose of a thing, how it works. Diorama - a model that represents a scene.

Material - the matter from which something is made, e.g. fabric, metal, wood.

Property - a quality or characteristic of something [not a possession or house].

Words used to identify properties: flexible; inflexible; protective; waterproof; shiny.

Diorama - a model that represents a scene, with three dimensional figures.

Key inquiry questions

- If you are responsible for a living thing, how would you help provide for its needs?
- What is the function of that object? What materials is it made from in real life?
- What materials have you used in your diorama?

Support materials

- Example photo of a diorama. Students' challenge is to design and draw a plan for a diorama showing the objects that meet the needs and wants of a pet cat. Encourage students to explain what materials the objects are made from and what properties they have.
- Students design, draw and label their ideas in their workbook.

STEM Challenge - teaching and learning activity

- Teacher will describe to class what they are going to make.
- Teacher will co-construct a diorama with students.
- Students construct their own diorama based on their design plan.
- Students present to class, display dioramas at school assembly or for greater community.

STEM Challenge Template Part 1:

Draw a picture of a cat or puppet to remind themselves of the things they've learnt about caring for cats.

English

Strand: Literacy,

Sub-strand: creating texts: Students will use writing and drawing which may include digital tools to represent and communicate personal responses to ideas and events experienced through texts. AC9EFLY06

STEM Challenge Part 2:

Write or draw a list of what living things need and want

Needs	Wants

STEM Challenge Part 3:

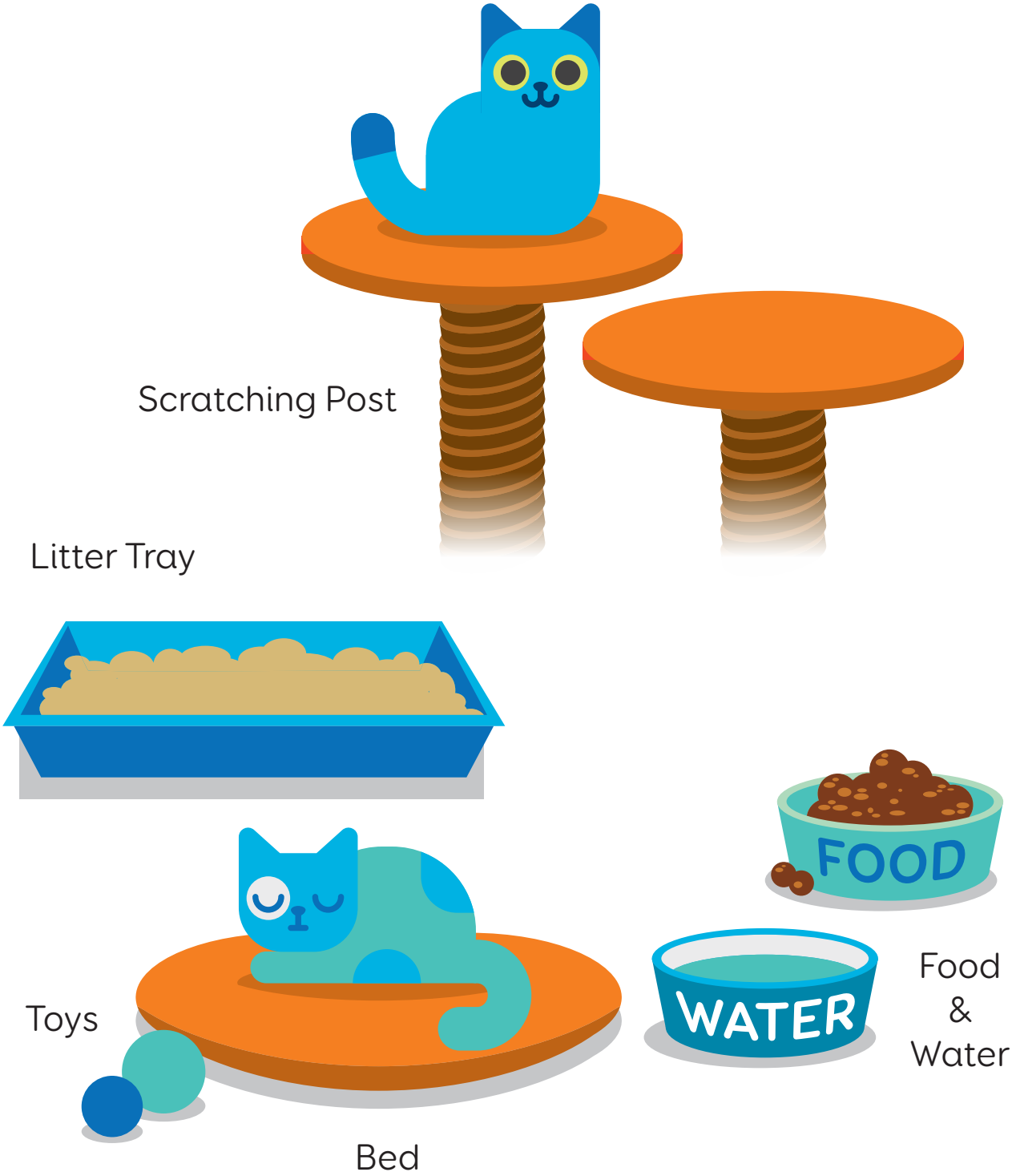
Draw and label a plan for a diorama

Include the needs and wants of a pet cat

STEM Challenge Part 4:
Students will create a diorama or a drawing showing the objects that meet the needs and wants of a pet cat

Activity 1

Examples of objects needed for a pet cat's safety and health. (Links to Part/Challenge 2)



Activity 2: Literacy Activity

Fill in the missing letters (Links to Challenge 2 & 3)

Use knowledge of letters and sounds to spell words

- AC9EFLY13 Foundation

What do all cats need?

w f k v sh

__ood

__ater

__ __elter

__indness

__et

What do cats want?

o a c ch s

t__ys

pl__y

__ __ase

__limb

__cratch



stephaniezieber/123RF

Activity 3:

Having a cat is a big responsibility (Challenges 1-4)

Circle the items cats need and want to keep them healthy and happy.

Identify the basic needs of animals, including air, water, food or shelter, and describe how they help an animal.























































Example of Diorama (Challenge 4)



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.

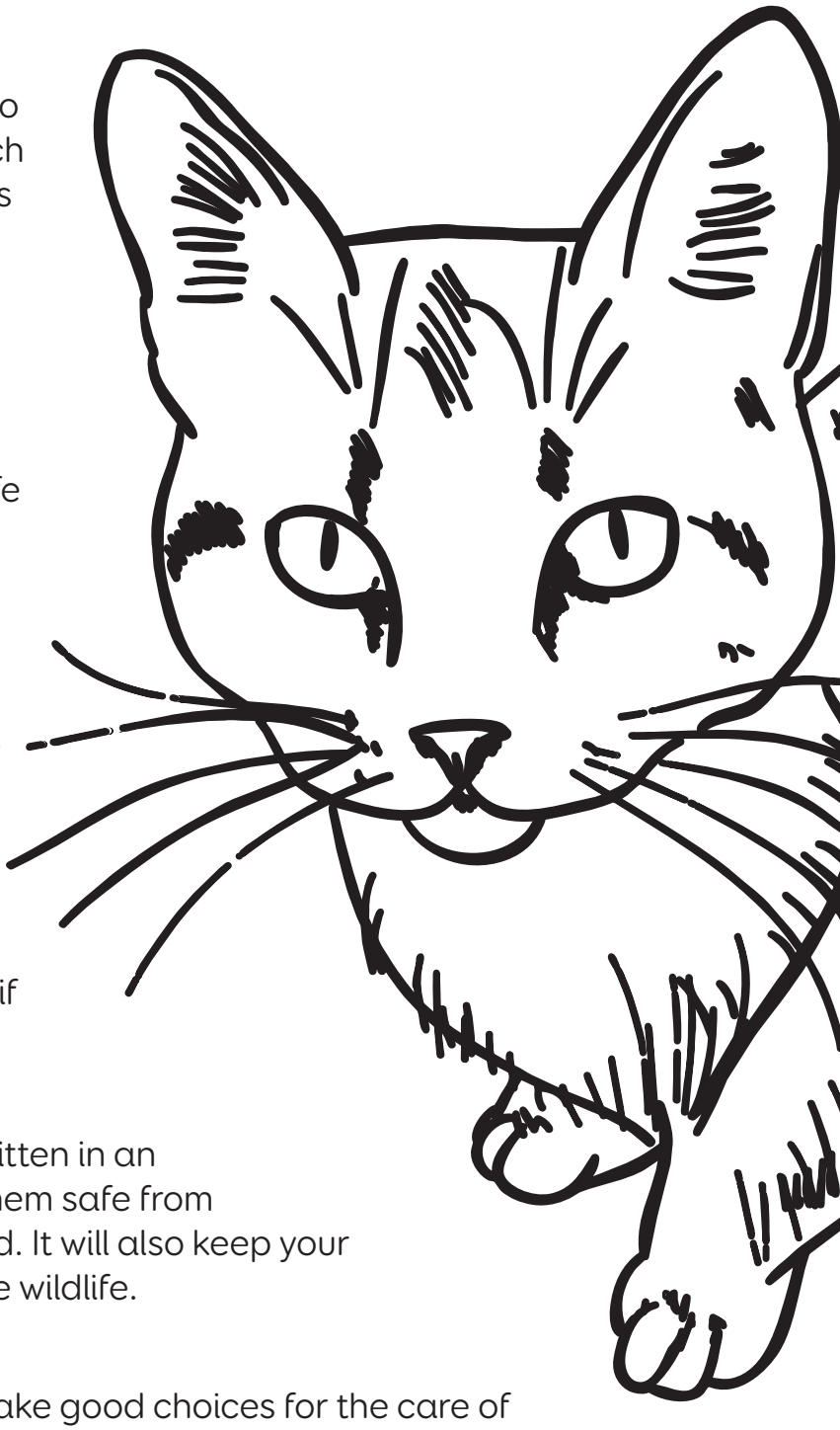
Vaccinations protect pets from a range of diseases which can be life threatening. Kittens should have their first vaccination between 6 - 8 weeks of age.

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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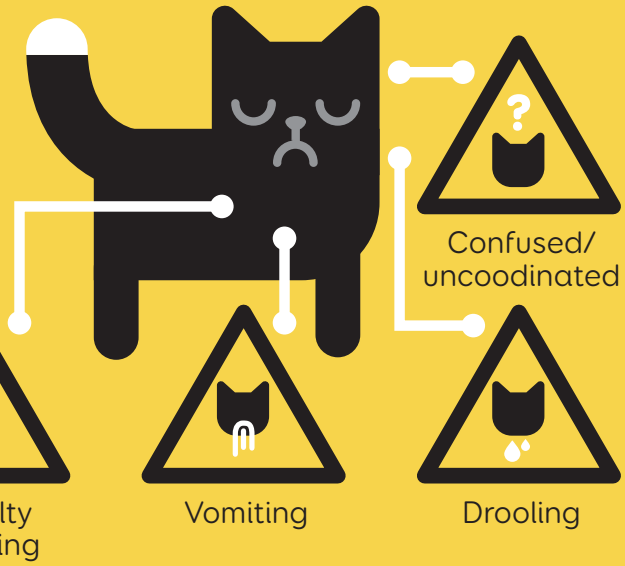
POISON SAFETY AT HOME FOR CATS

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

Caring - feeling or showing a concern or kindness to animals/people

Safety - being protected from harm

Healthy - in a positive physical and mental state



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