



Science

Animals Including Humans



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Meet Quizby!

Can you spot me in the
Lesson Presentation?

The questions that appear will help you to think about the key learning throughout the lesson.



Survival



Aim

- To research and describe what animals, including humans, need to survive.

Success Criteria

- I can explain what all animals need to survive.
- I can research the answer to a question.
- I can present the answer to a question clearly.





Remember It

Can you choose the correct missing words?

Click each word to complete the sentences.

Mammals give birth to . These babies often their adult when they are born.

All and most reptiles lay eggs. When the offspring , they often look similar to their adult and are called .

Most fish and most lay eggs which hatch into larvae. Most of these offspring look like their adult.

hatch

do not

amphibians

hatchlings

live young

birds

look like










Remember It

Can you put the pictures and matching labels into the correct order?

Click each word or picture to move it to the correct place.

The different stages a human goes through as they grow up are:

	baby		teenager		adult
child				toddler	



Remember It

Can you put the pictures and matching labels into the correct order?

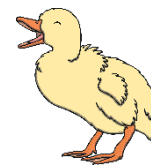
Click each word or picture to move it to the correct place.

A duck goes through different stages of growth. They are:

duckling



hatchling



eggs

adult duck



Remember It

Which of these things are most **toddlers** able to do?
Which of these things are **toddlers** not able or expected to do?
Click each one to find out.



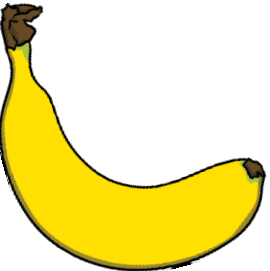

have their own home



learn to walk and run



eat solid food



have a job

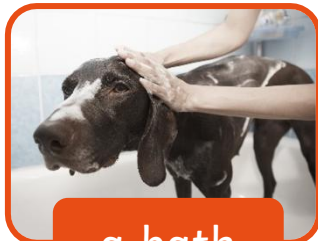


Survival

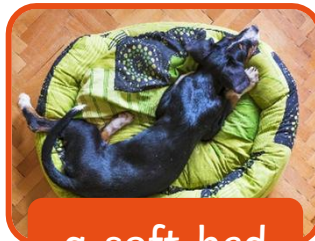
What do **all** animals need to stay alive?

All animals have **three basic needs** to survive.
These are the things it must have to be able to live.

Here are some things that are important for dogs to be happy and healthy.
Can you find the **three basic needs** that they (and all animals) need to survive?



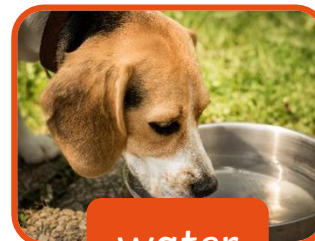
a bath



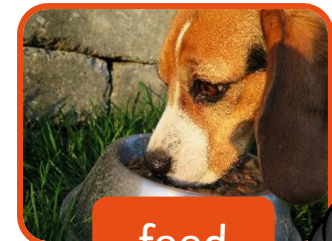
a soft bed



air



water



food



an owner



toys



a vet



grooming



Survival – Be Careful!



Even though they live underwater, fish need to breathe to stay alive too. They use their **gills** to breathe in oxygen from the water.

An illustration of a grey fish with white stripes swimming in blue water. An orange arrow points from a red box containing the word "gills" to the fish's gill cover.

gills

Fish also need **water** to stay alive. Fish that live in fresh water (like ponds and streams) take water in through their gills and skin while fish that live in saltwater (seas and oceans) actually drink the water they live in.



Survival



We are going to be finding out more about this section of the **Knowledge Organiser** in this lesson.

Year 2

To stay alive, all animals have 3 basic needs:

air



water



food



X

Do all animals need the same food? Explain how you know.



Survival



Although all animals have the same basic needs to survive - **air**, **food** and **water** - different animals need to eat different types of food.

Can you match the name of the diet with the type of food eaten in that diet?

carnivore

omnivore

herbivore

only eats
plants

only eats
meat

eats meat
and plants





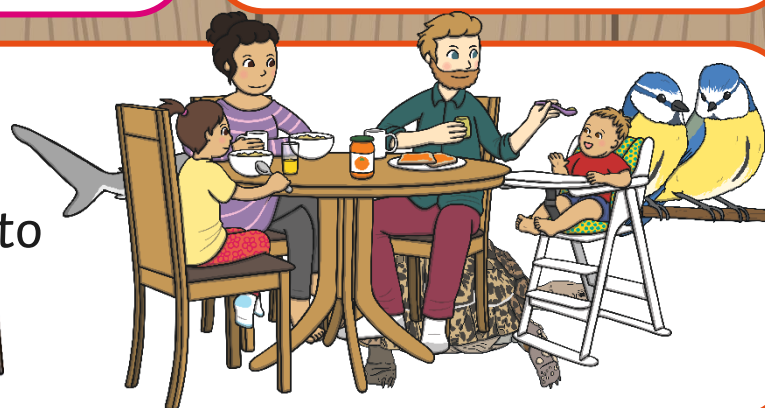
Survival

Can you match the animal to its diet?
Click each picture to move it.

Carnivores
(eat only meat)

Herbivores
(eat only plants)

Omnivores
(eat meat and plants)



Humans are generally grouped into omnivores, but some people choose to eat a plant-based diet.



Dear Kind Neighbours,

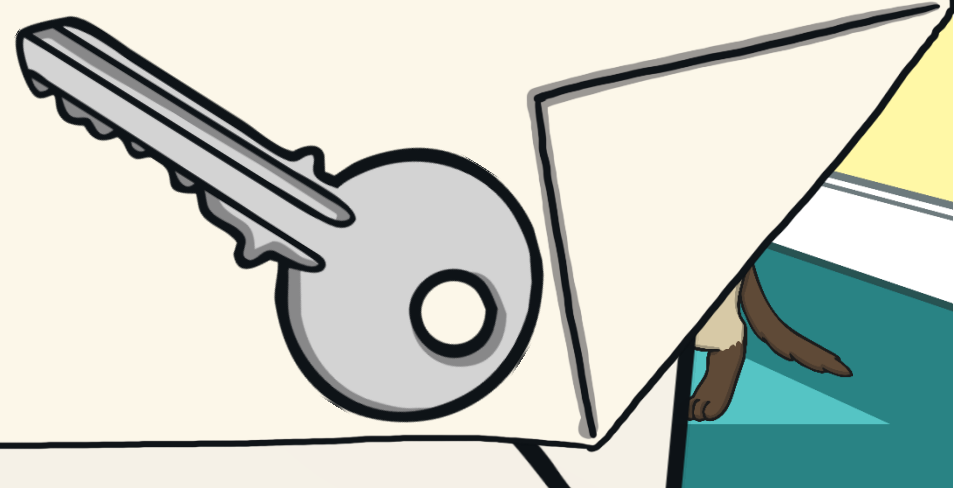
I have been called away on important business. Please can you look after my pets? I have:

- a budgerigar called Pecksniff;
- a chameleon called Charlotte;
- and a stick insect called Slim.

I will be away for one week. The key is in the envelope with this letter. I hope they all behave for you!

Many thanks,

Mrs Wilson at number 56.



Please Look After My Pets!

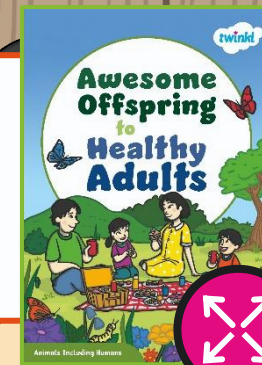


The problem is, I don't know anything about what these animals need. Can you help?

Where could you **research** (find out about) what these animals need?

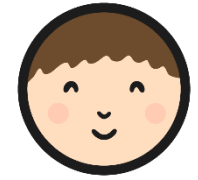


We are going to use the **Awesome Offspring to Healthy Adults eBook** to find out more about the basic needs of Mrs Wilson's pets.



non-fiction texts

own experiences



Finding Out the Facts

We are going to create Fact Files about how to look after these animals!

Budgerigar Fact File

To describe the basic needs of animals, including humans, for survival.

Who cares for a baby budgie when it is first born?

What does a budgie need to stay alive?

What does a pet budgie eat and drink?

What should a pet budgie never eat?

Budgerigar Fact File

To describe the basic needs of animals, including humans, for survival.

Budgie

Needs

What does a budgie need to stay alive?

A baby budgie needs _____

and _____.

What should a pet budgie never eat?

A budgie should never eat _____

or _____.

chocolate

water

lemon

baby

food

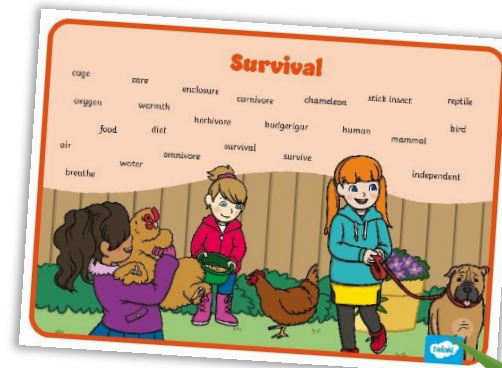
cooked rice

a safe place

Budgerigar Fact File

To describe the basic needs of animals, including humans, for survival.

You can use the **Survival Word Mat** to help you.



Pet Presentations



Share your fact file with the other children in your group.

After they have presented it, can you tell another child one thing that is fantastic about their fact file?

You could say:

'Your fact file taught me...'

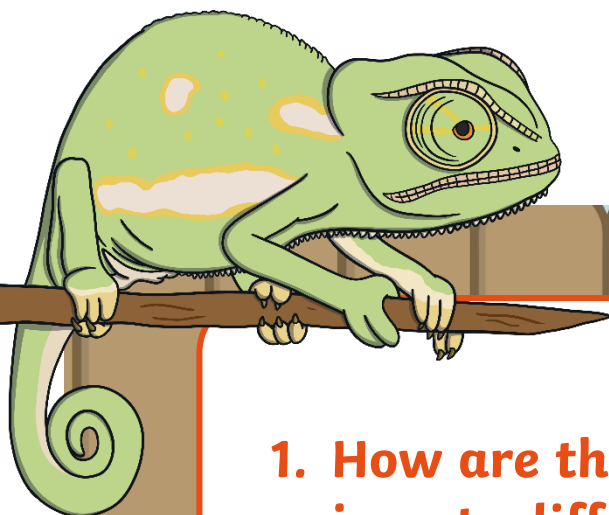
'I like that your fact file has...'

'My favourite part of your fact file is...'

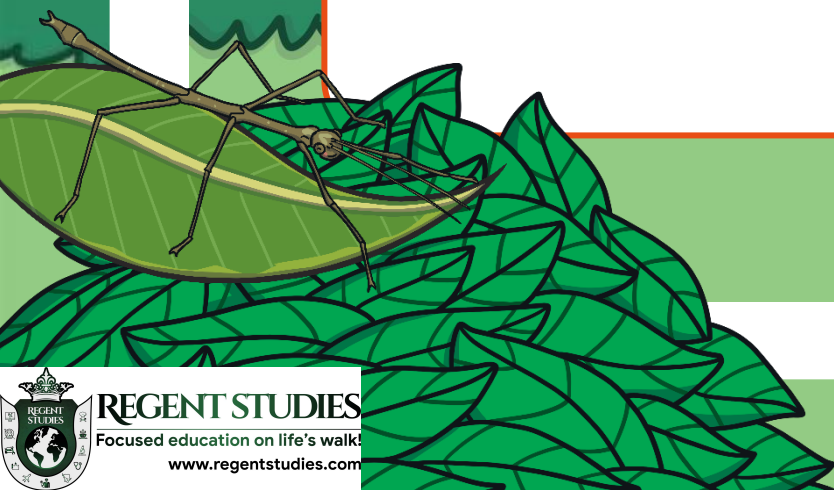




Pet Presentations



1. How are the diets of budgerigars, chameleons and stick insects different to one another?
2. What sort of shelter do they need? Are their shelters the same or different?
3. Do any of these animals need anything else special to care for them properly?
4. How are humans different to these animals?





Pet Presentations

Even though pets only need air, water and food to stay alive, they need love, attention and a shelter to make them happy.



Aim



- To research and describe what animals, including humans, need to survive.

Success Criteria

- I can explain what all animals need to survive.
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Animals Including Humans Scientific Knowledge

Introduction

As part of the new framework, OFSTED inspectors will evaluate the extent to which “Teachers have a good knowledge of the subject(s) and courses they teach”. This guidance has been provided to help you develop a broader knowledge of the concepts in this area of science and not just of the content taught in year 2. This will help you to anticipate and answer questions the children may pose. Alongside this, we have also provided some examples of the possible misconceptions you may find the children have.

Lesson	Scientific Knowledge	Possible Child Misconceptions
Lesson 1 Animal Offspring	<p>Animals that are viviparous give birth to live young. This is very common in mammals but also in other groups.</p> <p>Oviparous animals produce eggs that develop and hatch outside of the body. Examples include birds.</p> <p>Ovoviviparous animals produce eggs that hatch within the body. Examples include some fish and certain reptiles.</p> <p>Patterns within groups:</p> <p>Birds All birds lay eggs.</p> <p>Amphibians Most amphibians lay eggs but there are a few that do not in this group. For example, many caecilians (a wormlike and limbless amphibian) give birth to live young.</p> <p>Mammals All mammals give birth to live young with the exception of monotremes (which includes the duck-billed platypus and echidnas) who lay eggs.</p> <p>Fish Most fish lay eggs but some do give birth to live young. For example, different species of shark can be oviparous, ovoviviparous or viviparous. The hammerhead example given in this lesson is viviparous.</p> <p>Reptiles Most reptiles lay eggs but some, such as some lizards and snakes, give birth to live young.</p>	<p>Animals quite often either do not seem to fit into their group or do not follow the patterns generally seen in their group. For example, dolphins and whales seem like fish but are actually mammals.</p> <p>Throughout the lessons and eBook these irregularities are addressed (look out for the ‘Be Careful!’ slides in some Lesson Presentations throughout the unit).</p> <p>Children should be encouraged to spot patterns within the different animal groups but should also be aware that biology doesn’t always follow these patterns and there are often exceptions.</p> <p>In this lesson, children sort animals into those offspring that do look like their adult when they are born and those that do not. Children may have the misconception that because an animal’s young is a different colour or size, they do look different to their adult. However, when looking closely they should see that they do look similar to the adult. The aim of this activity is to identify the young that look drastically different to their adults (such as tadpoles) and to form the basis for understanding processes such as metamorphosis.</p>

Lesson 2 Life Cycles

This lesson examines how animal offspring grow into adults through the use of life cycle diagrams.

Metamorphosis describes the process in which there are major changes in the form or structure between the young and adult forms of an animal.

Metamorphosis is commonly found in the insect and amphibian groups but is also seen in some fish. Common examples of animals that undergo metamorphosis include frogs and butterflies.

We tend to call the pupa of a butterfly a 'chrysalis'.

See below (lesson 3) for further information about the human life cycle.

Children may assume that there is a sudden leap between each of the stages given in a life cycle diagram and nothing in between. Using the example of our own human life cycle is a good way to show how there are still changes in between each stage given.

Children can access the lesson content without using the term 'metamorphosis' (although this is used in the content and may be appropriate depending on your class) but should instead identify that some animals (such as frogs) have big changes across their life cycles.

The term 'cocoon' is often misused but may be one children have heard. It tends to be used when talking about the life cycle of moths. A cocoon is a silky protective covering that forms around the pupa of certain insects such as moths.

Lesson 3

Growing Up

The stages in the human life cycle used in this lesson match those suggested in the non-statutory notes and guidance of the science national curriculum: baby, toddler, child, teenager and adult.

Pupils return to the human life cycle in year 5 where they will describe more stages and learn about adolescence and puberty.

Human growth can be separated into the following stages (some content here would not be appropriate for year 2 but is provided for your scientific knowledge):

- **Fertilisation:** The male and female sex cells fuse together.
- **Prenatal:** The cells develop and grow into a foetus inside the mother's uterus. After around nine months, the baby is born.
- **Infancy:** Rapid growth and development. Children may learn to walk and talk.
- **Childhood:** Children learn new skills and become more independent.
- **Adolescence:** The body starts to change over a few years. The changes occur to enable reproduction during adulthood.
- **Early adulthood:** The human body is at its peak of fitness and strength.
- **Middle adulthood:** Ability to reproduce decreases. There may be hair loss or hair may turn grey.
- **Late adulthood:** Leading a healthy lifestyle can help to slow down the decline in fitness and health which occurs during this stage.

This lesson focuses on different activities that humans can do at different stages in their life cycles. As people are all different and may do these activities at different times or not do them at all (including things like walking and talking), this lesson has been worded carefully to acknowledge this. This can also be addressed through further discussions with children. For example, some may think that everyone goes to university after school and it is important to discuss the fact that although many people do, there are also lots of other career paths and life choices that can be made at this stage.

Children may bring up elements of puberty in discussions (perhaps voice changes or changes in skin). However, puberty isn't referenced in the science curriculum until year 5 and the lesson does not cover this topic. Any comments regarding puberty from children should be handled in line with your school's policies on this topic.

Lesson 4

Survival

All animals need oxygen (although the term 'oxygen' is used in this unit, it is not essential for covering the curriculum aims). Animals use this oxygen in their cells for a process called respiration (specifically aerobic respiration).

Respiration is a chemical reaction that provides energy for an organism. In aerobic respiration, energy is released from glucose (which comes from food) by reacting with oxygen.

Note that breathing and respiration are not the same thing. Breathing is generally described as the process of getting air in and out of the lungs. However, different animals have different ways of breathing that may not involve lungs. Fish have gills to remove oxygen from the water. The amphibian group can use multiple different ways of breathing including gills, lungs and breathing through their skin.

Water, food and air are essential for us to stay alive but through discussion children should also be made aware of other things that we do need beyond these three absolute essentials (for example, education, appropriate shelter and exercise).

A misconception about fish not needing air and water is addressed in the [Lesson Presentation](#).

Lesson 5 Exercise

Information in this lesson is matched to NHS guidance on physical activity.

The NHS recommends that children and young people aged 5-18 should aim to do an average of at least 60 minutes of moderate intensity physical activity a day across the week.

Please see the NHS website for more detailed guidance on exercise requirements for children and young people aged 5-18 years, including the different types it should include.

See the [Awesome Offspring to Healthy Adults eBook](#) for detail on what happens to our bodies when we exercise.

Children may think that exercise (or physical activity) only involves team sports (like football) or organised activities (like PE lessons) but actually the NHS also recommends everyday activities such as walking to school and skipping with a rope.

Lesson 6 Healthy Living

Information in this lesson matches the government and NHS Eatwell Guide guidance. Please see the NHS and government Eatwell Guide webpages for more detailed information on this.

Nutrients are substances that living things need to stay alive and healthy. Children learn more about specific nutrients in our year 3 'Animals Including Humans' unit. Briefly, each group does the following:

- **Carbohydrates:** provide energy
- **Protein:** helps growth and repair
- **Fibre:** helps us digest the food that we have eaten
- **Fats:** provide energy
- **Vitamins and minerals:** keep us healthy (for example: help us grow, keep our bones strong, boost the immune system)
- **Water:** moves nutrients around our bodies and helps us to get rid of waste.

Food can be a sensitive issue and the lessons and eBook are worded carefully to reflect this. Adapt discussions as needed for your specific class and see the Eatwell Guide information for more detail on the current government/NHS guidance.

Animals Including Humans: Survival

<p>Aim Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Use their observations and ideas to suggest answers to questions. To research and describe what animals, including humans, need to survive.</p>	<p>It is estimated that this lesson will take approximately one and a half hours.</p> <p>90 mins Approx.</p>
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<p>Success Criteria I can explain what all animals need to survive. I can research the answer to a question. I can present the answer to a question clearly.</p>








<p>Standard School Equipment Supervised access to laptops/tablets/computers for viewing the eBook if this is not printed Any relevant non-fiction books</p>	<p>Preparation Awesome Offspring to Healthy Adults eBook on an electronic device or Survival eBook Printout – per child/pair Fact File Activity Sheets - per child, differentiated Budgerigar Fact File - *, as required Survival Word Mat - as required Reasoning Cards: Survival - as required</p>
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<p>Key Vocabulary Air, oxygen, breathe, water, food, diet, omnivore, herbivore, carnivore, care, survival, survive, budgerigar, chameleon, human, stick insect, reptile, bird, mammal.</p>

<p>Prior Learning: In year 1, children will have learnt that all animals have a specific diet and be familiar with the terms carnivore, omnivore and herbivore. In previous lessons, children will have learnt about animal life cycles.</p>

Learning Sequence

	<p>Remember It: Children complete the activities on the Lesson Presentation to check their retention of the key scientific content of the first three lessons of this unit.</p>	<p>10 mins</p>
	<p>Survival: Ask the question on the Lesson Presentation, 'What do all animals need to stay alive?'. Children identify the three basic things all animals need to survive (using the example of a dog). Discuss how some things are classed as basic needs to survive (air, water and food) and clarify that the other things are still important. Introduce the relevant section on the Knowledge Organiser. With a partner, children recap their knowledge of different animal dietary needs by discussing which animal matches which diet.</p> <p>Can children name the three basic needs for animals, including humans, to survive?</p>	<p>10 mins</p>
	<p>Please Look After My Pets! Share the context of the activity with the class and work through the prompts on the Lesson Presentation. Ask the children how they might find out information about how to care for these animals. Look at p.27 to p.36 of the Awesome Offspring to Healthy Adults eBook. Draw attention to the fact that the needs of an animal change depending on the stage of its development.</p> <p>Can children discuss ways to find the answer to a question?</p>	<p>10 mins</p>

	<p>Finding Out the Facts: Children use the information they have learnt about what animals need to survive and the Fact File Activity Sheets to produce a fact file about how to take care of either a chameleon, a budgerigar or a stick insect. Children can refer to the eBook (printed or on devices) and any relevant non-fiction books. A Survival Word Mat is also provided for support.</p> <p>Can children research the answer to a question?</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="245 282 592 524"> <p> Children first read the Budgerigar Fact File with an adult. They can then create their own fact file about the needs of a budgerigar using the outline provided in the Fact File Activity Sheets.</p> </div> <div data-bbox="624 282 970 730"> <p> Children can create their own fact file about the needs of a budgerigar using the outline provided in the Fact File Activity Sheets.</p> <p>They could then move onto using the eBook and the three star blank template from the Fact File Activity Sheets to write about the needs of either a chameleon or a stick insect.</p> </div> <div data-bbox="1002 282 1348 792"> <p> Children use the blank template in the Fact File Activity Sheets to create a fact file about their chosen animal.</p> <p>Encourage the children to include information about what the animal needs to survive.</p> <p>Children can use the eBook, any relevant non-fiction books and their own knowledge. You may wish to support children in carrying out their own research safely on the internet.</p> </div> </div>	
	<p>Pet Presentations: Children present their fact files to each other in small groups and give positive feedback using the sentence starter prompts provided on the Lesson Presentation. Finally, discuss the review questions provided on the Lesson Presentation to summarise their findings.</p>	

Explore it

Questionit: Invite a vet or animal handling expert to talk to the class about the needs of different animals in their care.

Researchit: Find out about how different animals survive in habitats around the world, such as deserts or rainforests.

Reason it

Children discuss **Reasoning Cards: Survival**. Children justify how they would order the given things from 'most needed' to 'least needed'.

Assessment

Science Knowledge	
<p>Working Towards the Expected Level</p> <p>Children can name the three basic needs of all animals to survive. With support, they can describe the specific needs of a given animal.</p>	Children:
<p>Working At the Expected Level</p> <p>Children can name the three basic needs of all animals to survive. They can describe the specific needs of a given animal.</p>	Children:
<p>Working At Greater Depth</p> <p>Children can name the three basic needs of all animals to survive. They can independently describe the specific needs of a given animal in detail.</p>	Children:

Working Scientifically	
Working Towards the Expected Level	Children:
With support, children use simple secondary sources to find answers and talk about their findings to an audience.	
Working At the Expected Level	Children:
Children use simple secondary sources to find answers and talk about their findings to an audience.	
Working At Greater Depth	Children:
Children use a range of secondary sources to find answers and confidently talk about their findings to an audience.	

Aim: To research and describe what animals, including humans, need to survive.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can explain what all animals need to survive.				Notes/Evidence					
I can research the answer to a question.									
I can present the answer to a question clearly.									
Next Steps									
<ul style="list-style-type: none"> _____ _____ 									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

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Next Steps									
<ul style="list-style-type: none"> _____ _____ 									

PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

Animals Including Humans | Survival

To research and describe what animals, including humans, need to survive.		
I can explain what all animals need to survive.		
I can research the answer to a question.		
I can present the answer to a question clearly.		

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