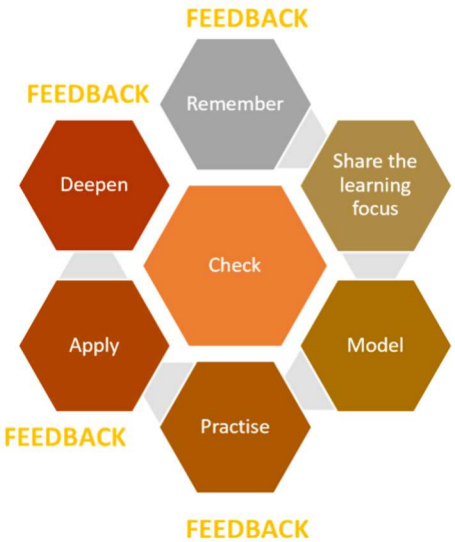
Year Two Science: Habitats

Scientific enquiry types covered in this topic	
	Classifying, identifying and grouping
	Comparing and Fair Testing
	Pattern Seeking
	Research
	Observing over time

Knowledge of working scientifically covered in this topic		
	Making predictions	Children consider in advance what might happen or what they might find and know this is called a prediction
	Ask and answer questions	Ask questions that include scientific language, recognising they can be answered in different ways. Use secondary sources to answer questions
	Observing	Use simple equipment to observe closely including changes over time
	Measuring	Begin to measure in standard units using equipment with simple scales
	Recording data	Gather data to help answer questions including secondary sources
	Performing simple tests	Perform simple tests
	Presenting results	Communicate ideas and findings in a variety of ways
	Drawing conclusions	Explain what happened, what was found out and why

Lesson Structure

- Build on **prior learning**
- Encourage students to **recall** that prior learning
- **Make** the new **learning** in each lesson succinct, **clear** and meaningful
- **Share/model/instruct** the new knowledge to students in small manageable steps
- **Check** they are with you throughout and are grasping the knowledge
- Provide opportunity to recall and **practise** the knowledge
- Provide live **feedback** during practise
- Provide opportunity to **apply** that new knowledge in a slightly different context
- Encourage students to **deepen** their understanding with challenging tasks that requires thinking, reasoning and explaining.
- **Check** students have secured the new knowledge with a quiz



Knowledge Organiser: Year Two Science

How do brilliant scientists understand what habitats are?

Prior learning: In Year One, children learnt about animals such as amphibians, fish, reptiles, birds and mammals, comparing their structure and whether they are carnivores, herbivores or omnivores

Meet some brilliant scientists…

Charles Darwin was s one of the world's most famous scientists. He devised the theory of evolution and how animal's adaptations help them to survive.

Gerald Durrell was a conservationist who spent his childhood in Corfu learning about animals. He lived in Bournemouth and wanted to set up a zoo in Upton but eventually set up Jersey zoo.

What are are living things?

We will learn about the seven characteristics of living things (movement, respiration, senses, growth, reproduction, excretion and nutrition) by hearing the story of Mrs Gren. We will then sort a variety of objects according to whether they are living, dead or have never been alive. https://tinyurl.com/mrsgrensfilm

sticky knowledge *I know the characteristics of living things*

What do animals and plants need to survive?

We will learn that animals need food, water, air and shelter to survive. We will play the 'oh deer!' game to help use remember the requirements for survival and consider where humans and animals get the things they need to survive.

sticky knowledge *I know what living things need to survive*

What animals and plants live around our school?

We will learn about different habitats, such as ponds, woods and rockpools and the different animals and plants that live in them.

We will learn about the term 'microhabitat' and explore the different microhabitats around the school grounds, recording the animals and plants that we find there.

sticky knowledge *I can identify and name a variety of living things in their habitats*

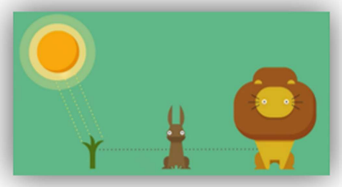
How are animals and plants suited to their habitats?

We will listen to the story 'Sports Day' to learn that animals have different adaptations that make them well suited for their environment. We will learn how different animals are suited to different habitats.

sticky knowledge *I can describe how animals are adapted to their habitats*

How do animals and plants get their food?

We will learn what producers and consumers are, and learn that plants make their food from the sun. We will learn that animals obtain their food by eating plants or other animals and learn about simple food chains.



sticky knowledge *I know what a food chain is and can describe one*

What is a woodlouse's microhabitat like?

We will carry out an investigation to find out what a woodlouse's favourite microhabitat is.

WOODLOUSE INVESTIGATION

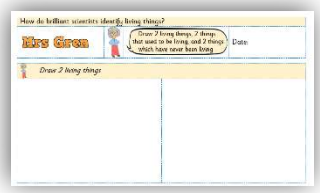
sticky knowledge *I can describe what a woodlouse needs to survive*

Key vocabulary

observation	movement	habitat	minibeast
prediction	reproduction	survival	adaptation
research	sensitivity	shelter	food chain
fair test	growth	food	prediction
grouping	respiration	air	conclusion
nutrition	excretion	water	microhabitat

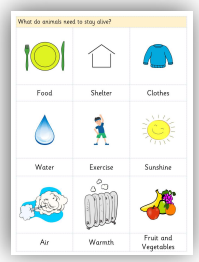
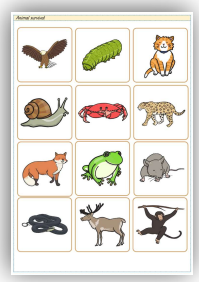
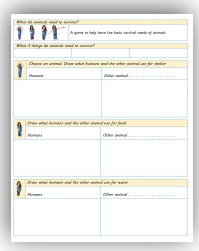
	Year Two Science: Habitats	Session 1: What are living things?	

	'Sticky' Substantive Knowledge	I know the characteristics of living things
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval	  Introduce key zoologists Charles Darin and Gerald Durrell– explaining these are scientists who studied animals. Describe Darwin's theory of natural selection. Explain that over the next few weeks we are going to be 'biologists' looking at animals and plants and where they live.
Share knowledge and vocabulary	 Introduce idea that we are going to be learning about living things. Ask children what living things they can think of. If they don't mention plants or trees, ask if they thing these are living. Ask children for ideas of what they think a living thing is. Ask for them to share their ideas, then introduce the vocabulary movement, respiration, senses, growth, reproduction, excretion, nutrition using the vocabulary cards. Tell children we will watch a video to find out more: https://tinyurl.com/mrsgrensfilm. Recap on the language following the video. movement reproduction sensitivity growth respiration excretion nutrition
Model	Sit children in a circle. Have a number of items in a bag (e.g. pen, branch, plant, sea shell such as limpet, a minibeast in a pot such as a woodlouse). Sort into groups of living things / things that were living / things that have never been living.
Do and Check Including scaffolding	 Show children the picture cards. Ask children to work on their tables to sort the pictures into groups – living things / things that were living / things that have never been living. After 5 minutes, ask children to sit in a circle. Agree which item should go in which group, referring back to Mrs Gren's characteristics of living things. Can the children think of any other tings to go in any of the categories?
Apply in context Including scaffolding	 Children to complete their own activity sheet to draw and name two living things, two things that were living and two things that have never been living. Challenge children to explain how they know these things are living.
Reflect and review	 Recap on the learning by showing the video: https://tinyurl.com/livingordead

	Year Two Science: Habitats	Session 2: What do animals need to survive?	

	'Sticky' Substantive Knowledge	I know what living things need to survive
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval	 Remind children of yesterday's learning. Can children remember the characteristics of living things? Put up a picture of Mrs Gren and write up the letters of her name. What does each letter stand for? Children to complete Quick Check activity. Recap on previous work in the topic on humans.
Share knowledge and vocabulary	 Ask children what they think animals need to survive. Watch the BBC Bitesize video 'What do animals need to survive?' https://tinyurl.com/animalsurvival Agree on the three requirements for animal survival: food, water, air and shelter. Teach children actions for these three requirements, as described in the 'Oh Deer!' game. Introduce the key vocabulary. survival shelter food air water Play the 'Oh Deer!' game. In a large space, (such as the hall or netball court), play the game about a dozen times.
Model	 Print out the pack of cards. Take a card and discuss, using examples of animals to prove or disprove whether or not it is an essential for survival. When it comes to discussing water / air / shelter / food, discuss some specific animals.
Do and Check Including scaffolding	 In groups, children to take it in turns to take an animal picture, discussing how that animal gets its food and water and what it uses for shelter.
Apply in context Including scaffolding	 Children to complete own task, describing different animals and how their food, water and shelter requirements are met. Provide word bank of animal names to scaffold. Where necessary, children can record only pictorially.
Reflect and review	Recap on learning from today's lesson. Play a game of corners, where children go to one of four corners labelled water, food, shelter, air. If teacher make corresponding action, children in that corner are out.

	Year Two Science: Habitats	Session 3: What living things can be found in the local environment?	

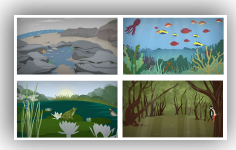
	'Sticky' Substantive Knowledge	I can identify and name a variety of living things in their habitats
	'Sticky' Disciplinary Knowledge	I can record data in a table and pictogram
	Scientific Enquiry Type	Classifying, identifying and grouping

Recap / Retrieval

Recap learning from previous sessions. Use 'talk like an expert' for children to talk in pairs about key concepts so far (Mrs Gren, shelter, survival, food, water, air).

Complete Quick Check activity.

Share knowledge and vocabulary



Recap on what a habitat is. What habitats can children name? Explore some of the different habitats on the BBC Bitesize link: https://tinyurl.com/habitattypes

Look at different habitat types – what living things could be found there?

habitat

minibeast

microhabitat

Model

Introduce the term 'microhabitat', explaining that around the school there are different microhabitats such as the woods, under stones and logs, in the trees, in long grass etc.

Explain that today we will be investigating different microhabitats, identifying the minibeast found there and using a table to record our results. Model completing filling in a table.

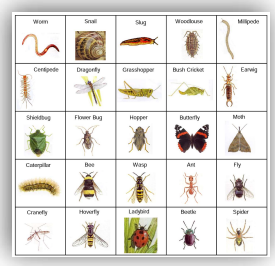
Do and Check

Including scaffolding

Explore the different microhabitat types around school using magnifying glasses and collecting pots, recording the different living things found. Use simple minibeast identification sheet to assist.

Apply in context

Including scaffolding



Record as a tally for each habitat type.

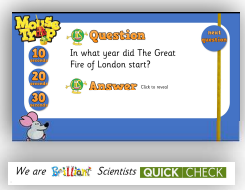
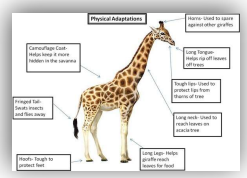
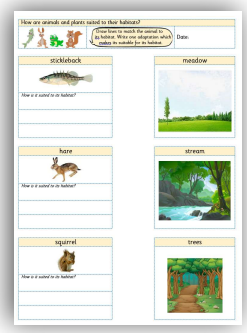
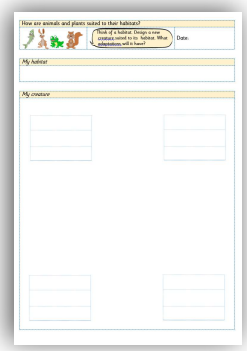
Children to transfer tally to a pictogram, using squared paper.

Reflect and review

Recap on the learning from the session. What have we found out about the different microhabitats?

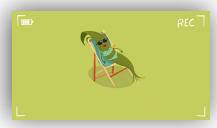
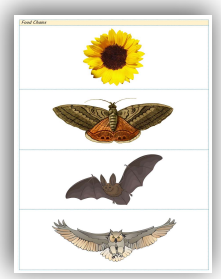
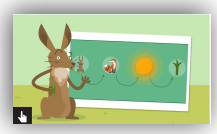
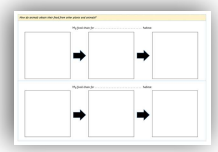
Year Two Science: Habitats	Session 4: How are animals and plants suited to their habitats?	

‘Sticky’ Substantive Knowledge	I can describe how animals are adapted to their habitats
‘Sticky’ Disciplinary Knowledge	I can use secondary sources to answer questions
Scientific Enquiry Type	Research

Recap / Retrieval		Quiz children on learning so far. Remind children of yesterday’s learning. Complete Quick Check activity.
Share knowledge and vocabulary	 adaptation	Introduce the work ‘adaptation’. Ask if anyone has any idea what it means. Explain that it means how animals are suited for the place they live – their habitat. Ask if a polar bear is well suited for life in the desert. Why not? How is it suited for life in the Arctic? Play the video sports day https://tinyurl.com/sports-day Discuss how the various animals were suited for each race, and link this to how they are suited to their habitat – the environment in which they live.
Model		Model describing how a giraffe is suited for it’s savanna environment by having long necks for reaching high leaves, long legs for running from predators, and patterned skin to camouflage to hide from predators
Do and Check Including scaffolding		Recap knowledge from Year One about animal types and body types. Following on from the discussion, children to match the animals to the environment in which they are found and describe how they are suited to living in that environment. Scaffold where needed - teacher to discuss with children and scribe ideas on their sheets.
Apply in context Including scaffolding		Model choosing a habitat, such as a rock pool. Talk about what it would be like to live in the rock pool (e.g. what food to eat, predators, how to prevent from being swept away, how to breathe etc). Extension: Model using scrap paper to jot down some adaptions your own imagined creature might have to live in a rock pool. Model transferring these ideas to designing own animal, labelling with at least 4 adaptations the creature has to life in its habitat.
Reflect and review		Recap today’s learning and the key vocabulary. Children to share their animals and the adaptations to life in their habitats.

	Year Two Science: Habitats	Session 5: How to animals obtain their food?	

	‘Sticky’ Substantive Knowledge	I know what a food chain is and can describe one
	‘Sticky’ Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval		Children complete ‘Quick Check’ to check how animals are suited to their habitat.
Share knowledge and vocabulary	 	Explain that today we are going to find out where animals and plants get their food. Ask children what they know about how plants get their food / energy. Introduce vocabulary ‘food chain’. Watch the Bitesize video: https://tinyurl.com/food-chain Ask how does a bat get its food? How does it find the moth? Explain the rules of ‘Bat Moth’ and play several games, ideally in a large space like the hall. Discuss where moth gets its food (e.g. sunflower nectar) and what eats a bat (e.g. owl). Cut up the food chain pictures and share with the children. As a class put the organisms into order to create a food chain  
Model		Reinforce learning using the activity on https://tinyurl.com/food-chain Model creating a food chain selecting organisms from the images (below).
Do and Check Including scaffolding		Provide each table with cut up versions of the animals and plants. Give children time to look and them and discuss
Apply in context Including scaffolding		Challenge children to create their own food chains (using the pictures to help where necessary). What habitat is the food chain for? Children use the pictures to hep to make two food chains
Reflect and review		Recap today’s learning and the key vocabulary. Children to share food chains.

	Year Two Science: Habitats	Session 6: What do woodlice need to survive?	

	‘Sticky’ Substantive Knowledge	I can describe what a woodlouse needs to survive?
	‘Sticky’ Disciplinary Knowledge	I can make predictions and draw conclusions
	Scientific Enquiry Type	Pattern seeking

Recap / Retrieval	 Recap previous learning, particularly regarding microhabitats and requirements of animals for survival. Children complete Quick Check - complete a food chain.
Share knowledge and vocabulary	prediction conclusion Introduce key vocabulary. Explain that we are going to be carrying out a scientific enquiry to look for patterns in woodlice microhabitats. Link what we know about animals requirements for survival to setting up microhabitats in a controlled environment.
Model	Discuss how we could create different microhabitats with a container for woodlice, with one complete with all requirements and others with one of these missing. Also consider whether woodlice would like to have a light or dark microhabitat. Model how to make a prediction based on the knowledge we have.
Do and Check Including scaffolding	Children to set up microhabitats based on what they know about requirements and add woodlice to the controlled environment. Make predictions about which will be the most popular microhabitat and why, based on knowledge of survival needs. Scaffold using a stem sentence ‘I think… because…’
Apply in context Including scaffolding	The next day – record the number of woodlice in each habitat. Model drawing conclusions based on what we have seen and why. Draw conclusions about which was the most popular microhabitat and why, based on knowledge of survival needs. Use stem sentence ‘The most popular microhabitat was… because…’ to scaffold.
Reflect and review	 Recap learning from topic with a quiz.

Brilliant Scientists: Animals and Habitats **QUICK CHECK**

1 In each of the boxes below, draw something which…

…is alive	…was alive	…has never been alive

sticky knowledge *I know the characteristics of living things*

2 Label these pictures to show the four things animals need to survive




sticky knowledge *I know what living things need to survive*

3 Draw one name two animals which could be found in these microhabitats in school

The woodland	Under the logs

sticky knowledge *I can identify and name a variety of living things in their habitats*

4 Describe 2 ways that a hare is suited to its habitat


Hare

1.

2.

sticky knowledge *I can describe how animals are adapted to their habitats*

5 Draw the plants and animals in the correct places to create a food chain




sticky knowledge *I know what a food chain is and can describe one*

observation

prediction

research

fair test

grouping

nutrition

movement

reproduction

sensitivity

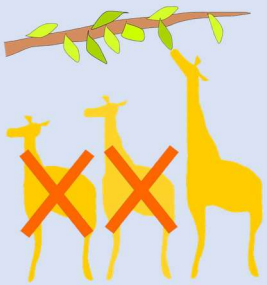
growth

respiration

excretion

habitat

survival



shelter

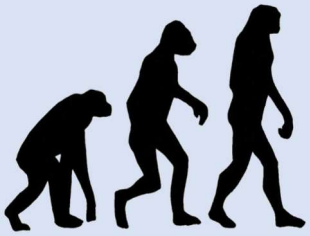
food

air

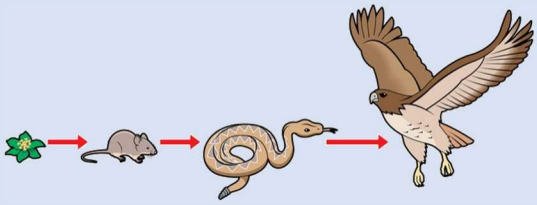
water

minibeast

adaptation



food chain

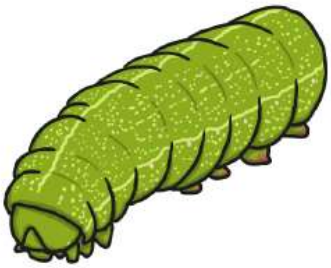


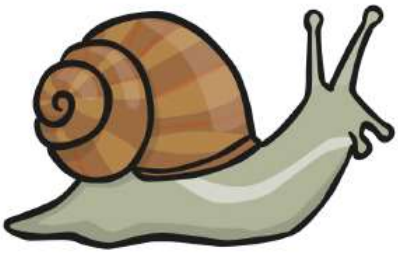
prediction

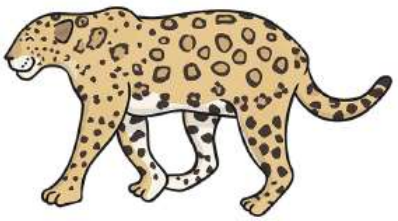
conclusion

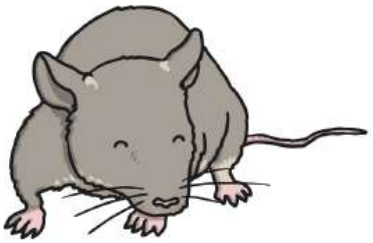
microhabitat

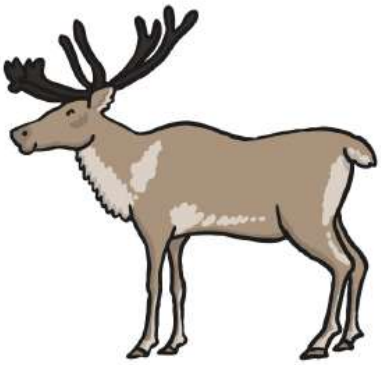
Animal survival











Minibeast Identification Sheet

Worm 	Snail 	Slug 	Woodlouse 	Millipede 
Centipede 	Dragonfly 	Grasshopper 	Bush Cricket 	Earwig 
Shieldbug 	Flower Bug 	Hopper 	Butterfly 	Moth 
Caterpillar 	Bee 	Wasp 	Ant 	Fly 
Cranefly 	Hoverfly 	Ladybird 	Beetle 	Spider 

Cut up and sort the items below

How do brilliant scientists identify living things?

Mrs Gren

Draw 2 living things, 2 things that used to be living, and 2 things which have never been living

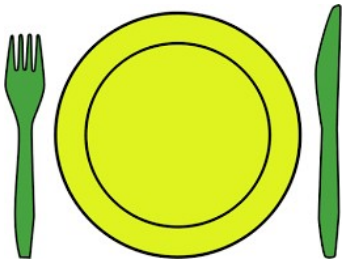
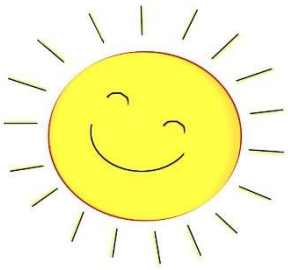
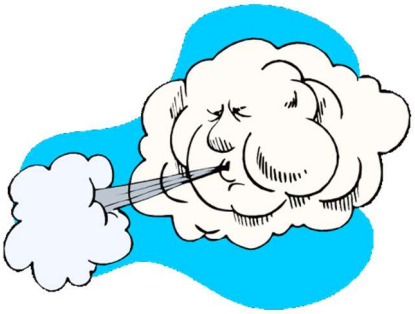
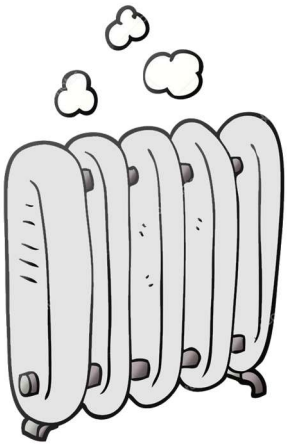
Date:

Draw 2 living things

Draw 2 things which used to be living

Draw 2 things which have never been alive

What do animals need to stay alive?

		
Food	Shelter	Clothes
		
Water	Exercise	Sunshine
		
Air	Warmth	Fruit and Vegetables

Oh Deer!

A game to help learn the basic survival needs of animals

Shelter	Food	Water	Air
			

How to Play

• Mark two parallel lines on the ground 10 to 20 yards a part (or either side of e.g. the netball court). Ask students to count off in fives. The ones become the "deer" and line up behind one line with their backs to the other students. The other students become habitat components necessary to survive (food, water, air and shelter) and line up behind the other line with their backs to the "deer".

• Explain that the deer need to find food, water, and shelter in order to survive in their environment. If they do not then they will die.

• In this activity when the "deer" is looking for food, it should clamp its hands over its stomach. When a "deer" is looking for water, it should put its hand over its mouth. When a "deer" is looking for shelter, it holds its hands together over its head. When a "deer" requires air it puts its arms out like it is floating.

• A "deer" can choose to look for any one of its needs during each round of the activity. Emphasize that the "deer" cannot change what it is looking for during a round. It can only change what is looking for at the beginning of each round.

• The other students are the food, water, and shelter. Students get to choose what they want to be at the beginning of the round. They show their choice in the same way as the "deer" have. Emphasize to these students that they cannot change what component they are during a round. They can only change at the beginning of each round.

• The teacher should begin the first round by asking all students to make their signs—hand over stomach, mouth, or head. Emphasize that students should choose one of these symbols before turning around to face the other group.

• When the students are ready tell them to "GO!". At this time each "deer" and each "habitat component" turns to face the opposite group continuing to hold their sign clearly.

• When the "deer" see the "habitat component" that matches what they need, they are to run to it. Each "deer" must hold the sign of what it is looking for until getting to the matching "habitat component."

• Once the "deer" find their correct component they should take it back to their line, and the "habitat component" becomes a "deer". Any "deer" who fails to find its "habitat component" dies becomes a "habitat component" on the other side and becomes available as food, water, or shelter to the "deer" who are still alive.

• "Habitat components" not taken by a "deer" continue to be "habitat components".

What do animals need to survive?

What do different animals use for food, water and shelter?

Date:

What 3 things do animals need to survive?

Choose an animal. Draw what humans and the other animal use for shelter

Humans

Other animal . . . . . .

Draw what humans and the other animal use for food

Humans

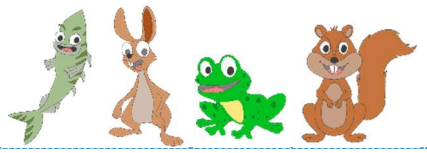
Other animal . . . . . .

Draw what humans and the other animal use for water

Humans

Other animal . . . . . .

How are animals and plants suited to their habitats?



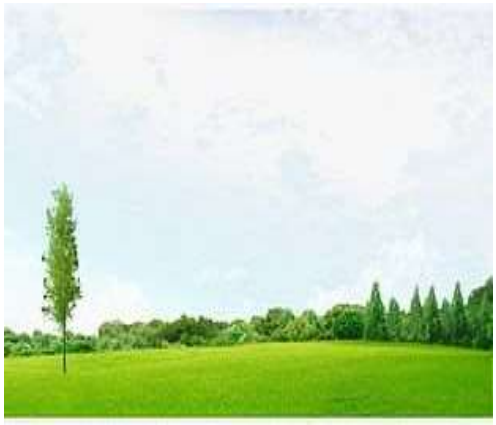
Draw lines to match the animal to its habitat. Write one adaptation which makes its suitable for its habitat.

Date:

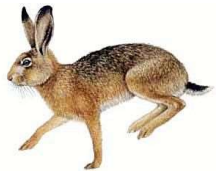
stickleback

How is it suited to its habitat?

meadow



hare



How is it suited to its habitat?

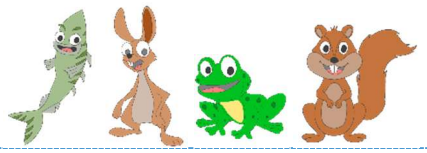
stream

squirrel

How is it suited to its habitat?

trees

How are animals and plants suited to their habitats?



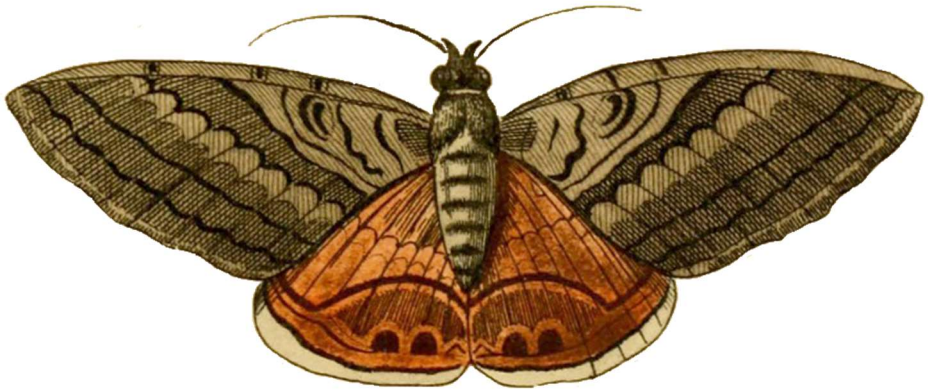
Think of a habitat. Design a new creature suited to its habitat. What adaptations will it have?

Date:

My habitat

My creature

Food Chains



How do animals obtain their food from other plants and animals?

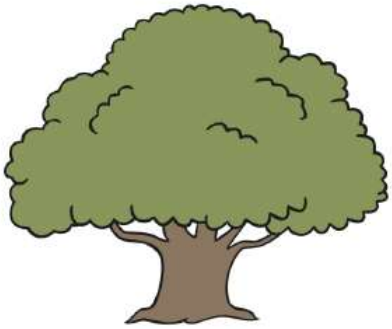
A game to learn how bats find their food

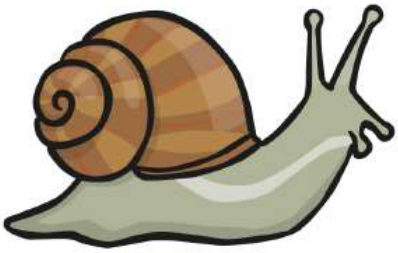
What you will need

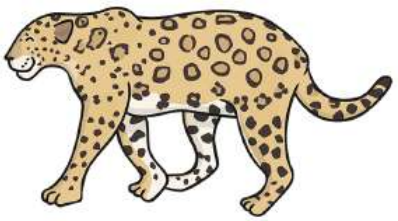
- Blindfold e.g. a dark scarf
- At least one other person to play the game with.

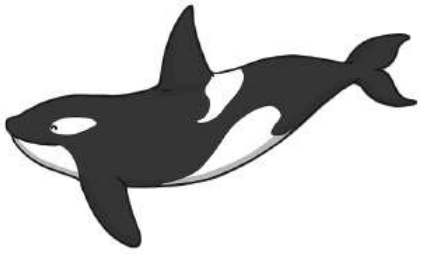
How to play

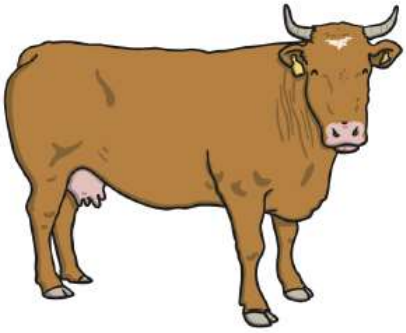
- Choose one person to be a bat. This person wears the blindfold.
- Everyone else is a moth.
- The person who is a bat stands in the centre and calls out “bat” to those who are moths.
- When the bat calls, the moths reply “moth.”
- The bat has to try to catch the moths, and the moths should do their best to “fly” away from the bats.
- Everyone is able to move around, with the bat continually calling out “bat” and the moths replying “moth.”
- Take it turns to be the bat and see how long it takes each bat to catch a moth.

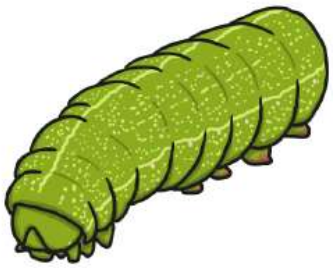


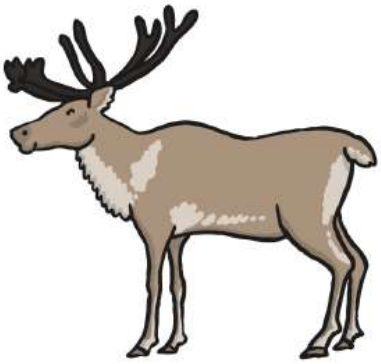


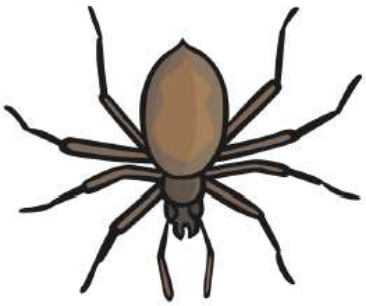


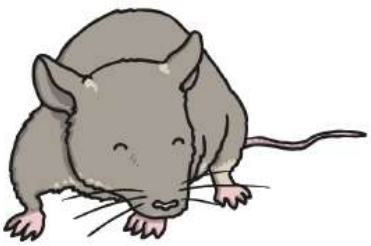






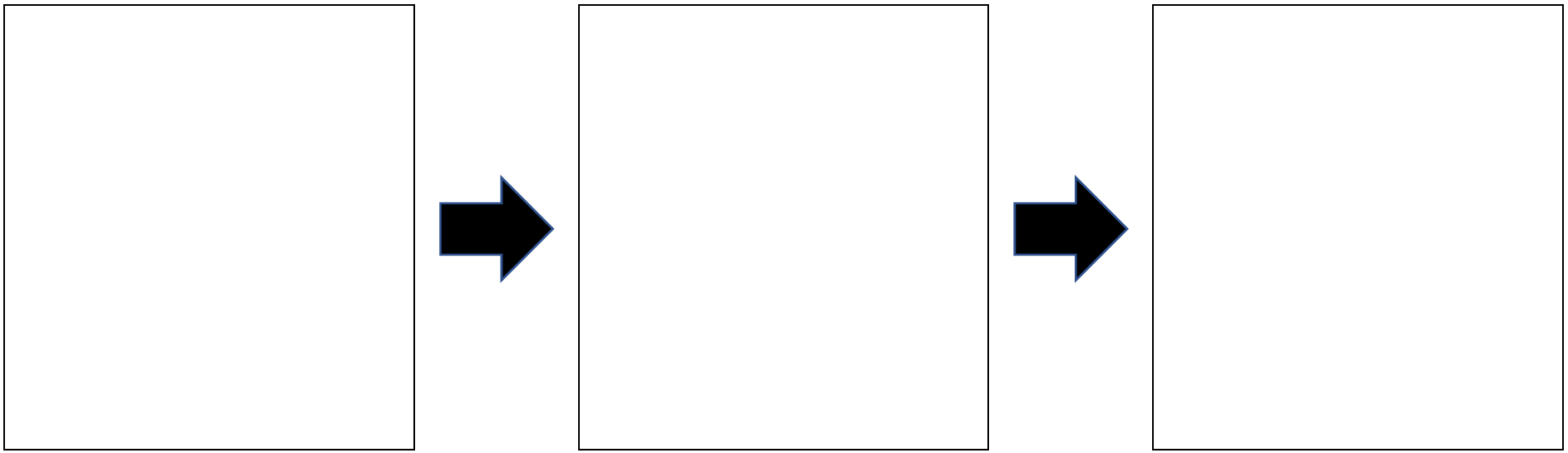






How do animals obtain their food from other plants and animals?

My food chain for . . . . . habitat



My food chain for . . . . . habitat