



Year Two Science: Humans



Scientific enquiry types covered in this topic

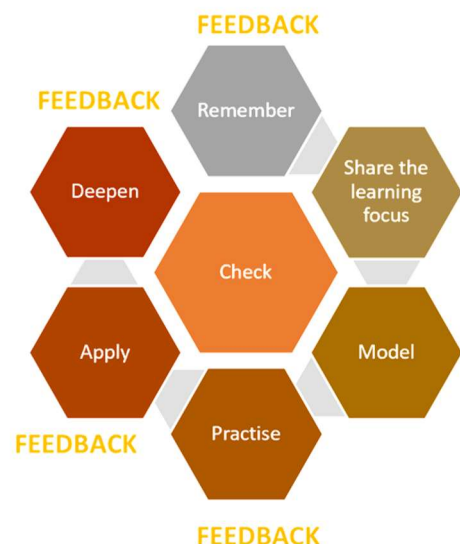
	Classifying, identifying and grouping
	Comparing and Fair Testing
	Pattern Seeking
	Research
	Observing over time

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: Humans How do **William** scientists understand know how and why humans keep healthy?

Prior learning: In Year One children learned the basic parts of the human body and about which part is associated with each of the five senses and about carnivores, herbivores and omnivores.



Meet some brilliant scientists...



Katalin **Karikó** is a Hungarian biochemist who was one of the people who created the first COVID vaccine.

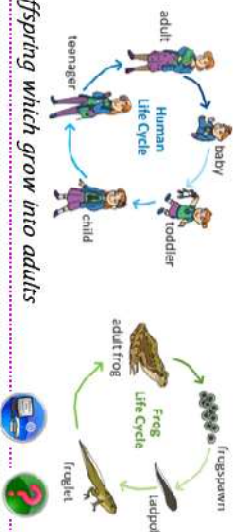


Dr John Harvey Kellogg was an American nutritionist. He became famous for inventing breakfast cereals

How do humans and animals reproduce?

We will learn that humans and other animals reproduce and that their offspring grow into adults. We will learn that some animals have live young and some lay eggs and that the young of some animals don't like the adults, as described in 'Monkey Puzzle' by Julia Donaldson.

I know that animals including humans have offspring which grow into adults



What do humans need to survive?

We will learn about the basic needs of humans and animals for survival.



water



air



food



carnivores eat meat



herbivores eat plants



omnivores eat meat and plants



I know that humans need food, water and air to survive

Key vocabulary: Glossary

air	The gas that animals need to breathe	gills	The part of animals e.g. fish that allow them to breathe	offspring	The young of a human or other animal
adult	A fully-grown animal or plant	herbivore	An animal that eats plants	omnivore	An animal that eats both meat and plants
carbohydrates	Food that include rice, pasta, bread and cereals	heart	The part of the body (organ) which pumps blood	proteins	The group of foods including meat and fish
carnivore	An animal that eats meat	hygiene	Something which is clean and healthy	survival	Being able to live in your environment
dairy	Foods which are made from milk, e.g. yoghurt	life cycle	The changes living things go through to become an adult	unhygienic	Something which is unclean and may lead to disease
diet	Foods that animals need to eat to give nutrients	lungs	The part of animals e.g. humans needed to breathe	vegetables	Foods including carrots, broccoli and peas
fats	Foods including oil, butter and margarine	nutrition	The food animals need to grow		

How and why do humans keep themselves clean?

We will learn that, to stay healthy, humans need to have good hygiene and keep clean. We will investigate the importance of keeping clean and the best way to wash our hands.

I know the importance of hygiene to keep healthy



How do scientists sort food into different groups?

We will learn about different food groups and why a balanced diet is important.



carbohydrates



proteins



fruit and vegetables



dairy



fatty and sugary food

I know what a healthy diet is and why it is important

How does exercise change our bodies?

We will learn about the importance of exercise and how, when we exercise, our bodies change in different ways. We will carry out a scientific enquiry to investigate this.



Our heart beats faster

We breathe more quickly

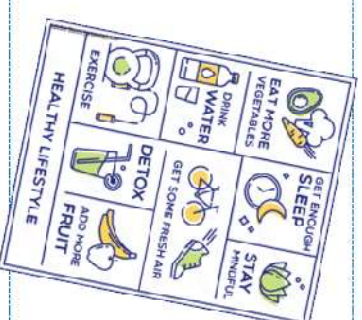
We get hot

We sweat

I know the effects of exercise and why it is important

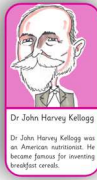
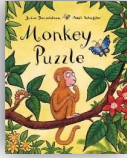
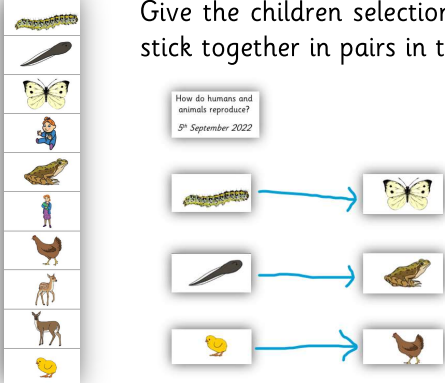
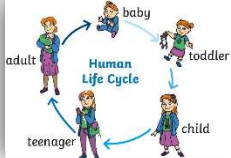
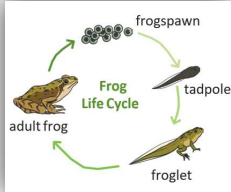
How do humans keep healthy?

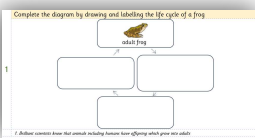
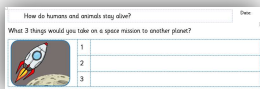
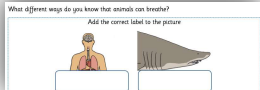
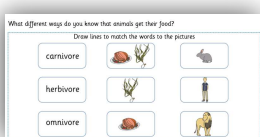
We will create healthy lifestyle posters to show all of the things we need to do to keep healthy, using all of the knowledge we have collected over the last few weeks.



	Year Two Science: Humans	Session 1: How do animals and plants reproduce?	
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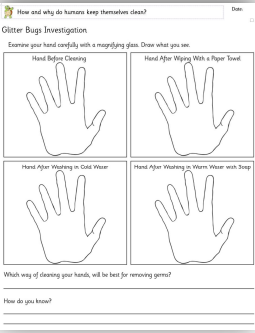
	'Sticky' Substantive Knowledge	I know that animals including humans have offspring which grow into adults
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval	  Explain to children that we are going to be scientists. Recap what scientists do, for example, carrying out investigations, planning fair tests, asking questions, observing carefully, making predictions. Introduce famous scientists such as Katalin Karikó and Dr John Harvey Kellogg and explain about the work that they have done. Introduce idea that we are going to be learning about humans. Ask children what they can remember from Year One (external parts of the body, senses).
Share knowledge and vocabulary	 Explain that we are going to be thinking about animal's offspring. Discuss this word and explain simply it's how animals have 'babies'. Read the story 'Monkey Puzzle' and ask if children can explain why the butterfly didn't know that the baby monkey looked like its parents. Can the children think of any other offspring which don't look like the adults?
Model	Sort animals into groups, using enlarged pictures from task 1, - those which look like their offspring and those that don't.
Do and Check Including scaffolding	Give the children selection of adult animal stickers and stickers of offspring to match and stick together in pairs in their books, e.g. 
Apply in context Including scaffolding	Introduce the term 'life cycle'. Discuss how babies grow into adults. Talk about the different stages that humans go through and how they develop e.g., from being unable to crawl, or talk, to crawling, toddling, walking etc.  Discuss the life cycle of frogs and the different stages that they go through before producing offspring of their own. Divide page into 2 halves – children use stickers to create human life cycle, as shown (display word bank to support), then use blank stickers to produce (draw and label) the life cycle of frog as shown. 
Reflect and review	Ask children what was the sticky knowledge from this session. Write on a lolly stick and place in the learning journey wallet on the working wall.

	Year Two Science: Humans	Session 2: What do humans need to survive?	
	'Sticky' Substantive Knowledge	I know that humans need food, water and air to survive	
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions	
	Scientific Enquiry Type	Research	
Recap / Retrieval	 Remind children of the learning from the last session. Children to complete 'Quick Check' to check understanding of reproduction		
Share knowledge and vocabulary	 Explain to children that we are going to pretend to go to and live on a new planet called 'Uptonia'. Show them a picture of a planet and explain the planet is a large rock with nothing else living on it, no other animals or pants. Ask children if they were an astronaut going to live on 'Uptonia', what three things would they take with them? Ask them to discuss in groups and then jot down on their sheet what three things they would take. Ask groups to sit in a circle and feed back. As children offer suggestions, jot them down on strips of paper. Ask children which of the things suggested are 'needs' and which are 'wants'. Sort into two sets labelled wants and needs on anchor chart and draw out that humans need 3 things to survive – air, water and food. You may also want to discuss shelter as an additional need. The other things are 'wants' which make life nicer, but are not essential for humans and animals to survive.		
Model	 Discuss water, air and food: Discuss where we get water from (tap, bottle, drinks, food). Discuss how we get air. Show children the video about how your lungs work: https://www.youtube.com/watch?v=0giiDDBJVQU. Make a model of the body and lungs to show how we breathe. (This video is for the teachers and shows how to make the model: https://www.youtube.com/watch?v=vRv2zYH5p9k)		
Do and Check	 Explain that not all animals have lungs and that some animals, such as fish, have gills and they absorb air which is dissolved in the water. In groups, ask children to have a go at sorting animals into those with lungs (human, dolphin, cat) and those with gills (fish, snails, crabs). Once they have had a go, get together and sort correctly, explaining those with lungs need to breathe air, those with lungs absorb it. Ask children to complete and label their sheets, labelling lungs and gills as appropriate. (Provide word bank for appropriate children)		
Apply in context	Discuss how animals get their food. Ask where we get our food. Introduce terms carnivores, herbivores and omnivores, explaining each type and showing examples of each from the collection attached. Sort into groups, discussing what they eat. Children to complete sheet to show understanding.		
Including scaffolding	You may want to use the 'Basic Needs' PowerPoint to help with the above		
Reflect and review	Recap on what we have learnt so far. Ask children to complete their ideas again at the bottom of the sheet to explain what three things they would take with them to their planet.		
Highlight sticky knowledge on knowledge organiser pink / yellow / green as appropriate.			

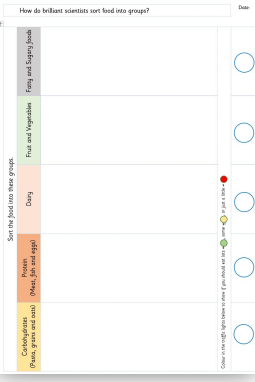
	Year Two Science: Humans	Session 3: How and why do humans keep themselves clean?	
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	'Sticky' Substantive Knowledge	I know the importance of hygiene to keep healthy
	'Sticky' Disciplinary Knowledge	Recording using pictures
	Scientific Enquiry Type	Observing over time

Recap / Retrieval	 Remind children of the learning from the last session. Children to complete 'Quick Check' to check understanding of human survival		
Share knowledge and vocabulary	Ask what children understand by germs. What are germs? How do they spread? Show this video to explain a bit more: https://www.youtube.com/watch?v=uMbCZfb5k3M		
Model	 Explain that we are going to carry out an investigation into how germs spread, making careful observations. (This video will help to explain the investigation for teachers: https://www.youtube.com/watch?v=cbFjcAdsADg)		
Do and Check	Put some of the glitter / Vaseline mix on a child's hand. Explain the glitter represents germs. Ask them to e.g. use a door handle. Ask another child to touch the door handle then e.g. pick up a pencil. Ask another child to pick up the pencil etc.. See how far the germs spread.		
Apply in context	Put glitter on children's hands. Working in small groups, ask children to clean their hands in a variety of ways. Each time, children to make careful observations and draw what they see using the recording sheet.		
Reflect and review	 Ask children to explain which was the best way to remove germs. Highlight sticky knowledge on knowledge organiser pink / yellow / green as appropriate.		

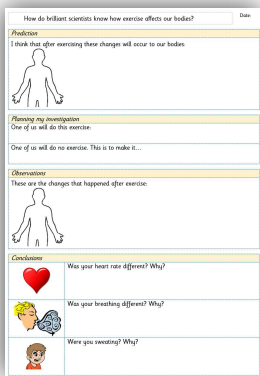
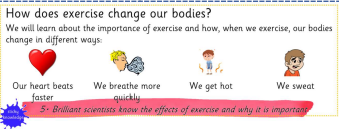
	Year Two Science: Humans	Session 4: How do scientists sort food into groups?	
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	'Sticky' Substantive Knowledge	I know what a healthy diet is and why it is important
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval	 Remind children of the learning from the last session. Children to complete 'Quick Check' to check understanding of hygiene Recap on learning so far.		
Share knowledge and vocabulary	 Ask what do children know about healthy diet? Look at BBC Bitesize page: https://www.bbc.co.uk/bitesize/topics/zjr8mp3/articles/zhkbn9q		
Model	Model sorting some items of food into groups, discussing the groups and what kinds of food would be in that group.		
Do and Check	Sit in circle on carpet. Place set rings in middle. Using pictures of food (or actual items / packages), sort into groups – children to sit in a circle and each take a picture / item. Add their item in turn to the correct set ring.		
Including scaffolding			
Apply in context	Children then to complete own diagram.		
Including scaffolding			
Reflect and review	 Discuss why each food group is important. Highlight sticky knowledge on knowledge organiser pink / yellow / green as appropriate.		

	Year Two Science: Humans	Session 5: How does exercise change our bodies?	
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	'Sticky' Substantive Knowledge	I know the effects of exercise and why it is important
	'Sticky' Disciplinary Knowledge	Careful observation
	Scientific Enquiry Type	Pattern seeking

Recap / Retrieval	 Remind children of the learning from the last session. Children to complete 'Quick Check' to check understanding of nutrition Recap previous learning about what humans need to stay healthy.		
Share knowledge and vocabulary	Introduction Ask why children think it is important to exercise. What happens during exercise? How can we find out what changes happen during exercise? Agree we will carry out an investigation to find out what happens.		
Model	 Introduce the investigation and the observations that need to be taken, Prediction Ask children to predict what might happen to their body during exercise. What changes might happen? Complete their prediction by labelling a picture of the body. Model using an enlarged diagram to record.		
Do and Check	Planning their test Ask children to decide what exercise they are going to do. How long will they do it for? Decide upon exercise such as running for e.g. 10 minutes. How will they know if their body has changed? Agree that they will need to observe their bodies before and after exercise. Also, introduce the idea of using 2 people, one who exercises, one who doesn't so they can compare to make it a fair test. Ensure that both people wear the same clothes, go to the same place but only one exercises.		
Apply in context	Children then carry out their investigation. Observations Immediately after the exercise, both people make observations about their body again (heat, sweating, breathing, heart rate, tiredness etc.) Conclusion As a class, share their observations. Why do we think these things happened? Discuss the changes, then children complete their investigation sheets.		
Reflect and review	 Highlight sticky knowledge on knowledge organiser pink / yellow / green as appropriate.		

	Year Two Science: Humans	Session 6: How do animals and plants reproduce?	
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	'Sticky' Substantive Knowledge	I know that animals including humans have offspring which grow into adults
	'Sticky' Disciplinary Knowledge	I can use secondary sources to answer questions
	Scientific Enquiry Type	Research

Recap / Retrieval	 Remind children of the learning from the last session. Children to complete 'Quick Check' to check understanding of exercise		
Share knowledge and vocabulary	Discuss what children have found out over the previous lessons. Recap on the importance of air, water and food – discuss the importance of a balanced diet and recapping the food groups. Recap on the importance of hygiene and the best way to wash your hands. Discuss why exercise is important and how it can affect your body. Also talk about the importance of sleep.		
Model	Model creating own poster on anchor chart, drawing on all the information discussed		
Do and Check	Children to design own leaflets (show an example) to share with Year One children to show how to be healthy humans. Fold piece of A4 paper into thirds, (e.g. a page for a cover, water, balanced diet, exercise, hygiene, sleep). When complete, children to share with Year One children and stick in books		
Including scaffolding			
Apply in context			
Including scaffolding			
Reflect and review	Reflect on all learning. Carry out quiz.		

In each of the boxes below, draw something which...

...is alive

...was alive

...has never been alive

1

sticky knowledge

I know the characteristics of living things

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

2

sticky knowledge

I know what living things need to survive

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

The woodland

Under the logs

3

sticky knowledge

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

Describe 2 ways that a hare is suited to its habitat

4



Hare

1.

2.

sticky knowledge

I can describe how animals are adapted to their habitats

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

5



sticky knowledge

I know what a food chain is and can describe one

observation



prediction



research



fair test



grouping



life cycle

