Progression in Science

Animals including Humans

Aston St Mary's Primary School

Science at Aston St Mary's School

- Science at Aston St Mary's School is taught in individual year groups following the National Curriculum objectives. Knowledge and scientific skills are revisited and built upon progressively year on year.

- This document outlines the progression within the biology strand 'Animals including humans', specifically humans, from Early Years up to Year 6.

EYFS

- Pupils begin their science education in the early years foundation stage. This involves learning foundational knowledge primarily through the ‘understanding the world’ and 'Personal, social and emotional development' areas of learning. This is provided through a number of rich contexts, in both child-initiated learning and adult-led teaching, for pupils to learn a wide range of vocabulary. These words form the beginnings of scientific concepts that will be built on in Year 1 and beyond.

A special visitor -

"This is my baby sister. She can't walk yet. She has baby food. She can't say words. She just makes noises"

Doctors and Nurses Role play -

"I can hear your heart beating. It means you are alive!"

"This is some medicine. It's going to make you feel better"

Baby Role play -

"This is my baby. She needs milk. I'm her Mummy so I have to take care of her. She's only little."

Germs -

The children learnt the importance of hand washing using soap to kill germs. They observed this through an experiment using pepper and water!

Handwashing -

"If we don't wash our hands, we might get sick from the germs. We learnt a song to help us remember how to wash our hands properly – over, under, round and through don't forget to add soap too!"

Dental Hygiene-

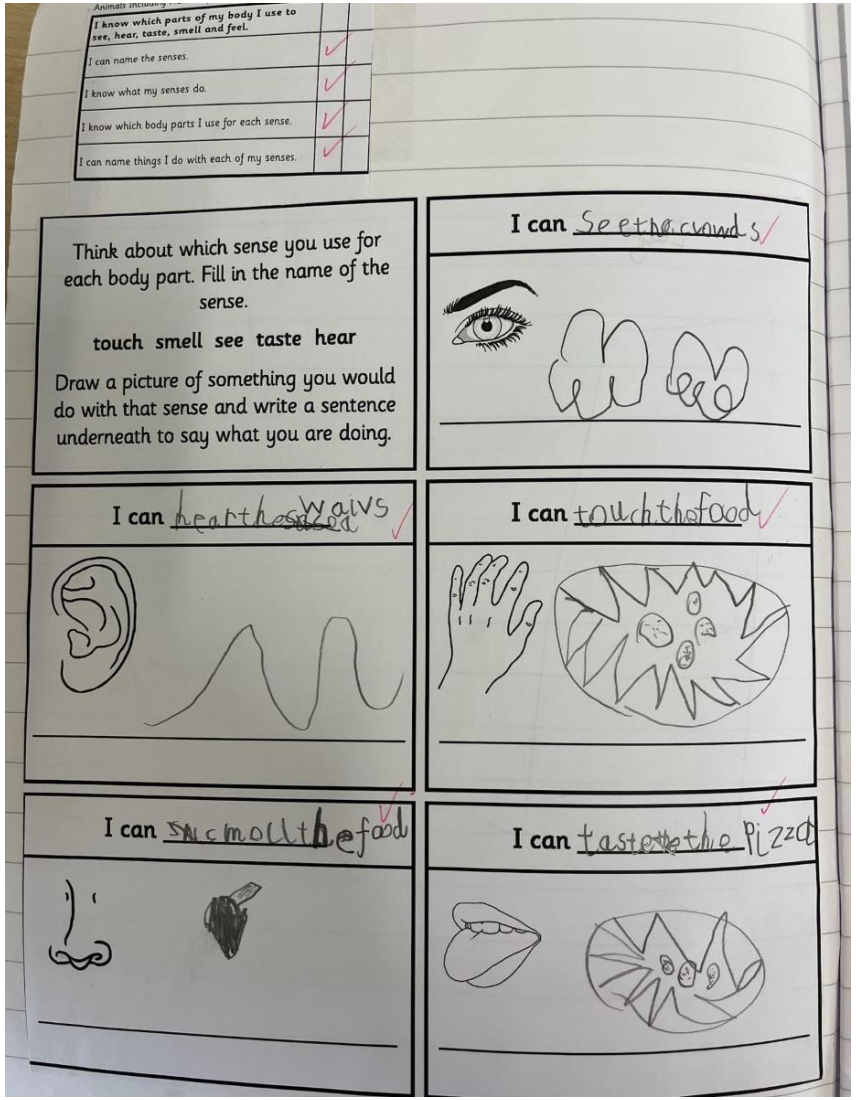
"We brush our teeth twice a day for 2 minutes. You need to scrub away the plaque. If you eat too many sweets, it's not good for your teeth"

A Healthy, balanced diet -

"We are making a vegetable soup! Vegetables are good for you and keep you strong and healthy!"

Year 1

- In year 1, children learn about five of the groups that scientists use to classify animals: mammals, fish, birds, reptiles and amphibians. They learn to identify the group an animal belongs to by its features and will classify animals according to their group. They also learn about the different diets animals eat. Children learn about the parts of the human body and have the opportunity to explore the five senses through an investigation.



I know which parts of my body I use to see, hear, taste, smell and feel.	
I can name the senses.	✓
I know what my senses do.	✓
I know which body parts I use for each sense.	✓
I can name things I do with each of my senses.	✓

Think about which sense you use for each body part. Fill in the name of the sense.

touch smell see taste hear

Draw a picture of something you would do with that sense and write a sentence underneath to say what you are doing.

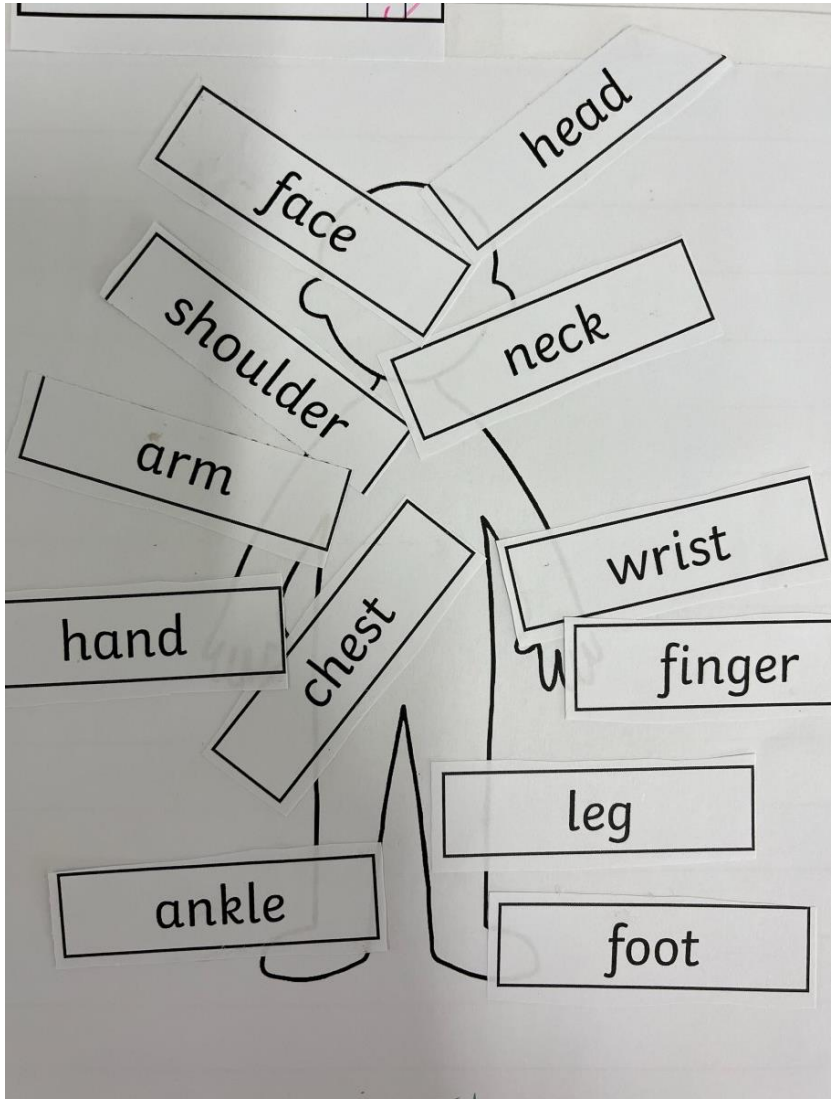
I can See the crowds ✓

I can hear the waivs ✓

I can touch the food ✓

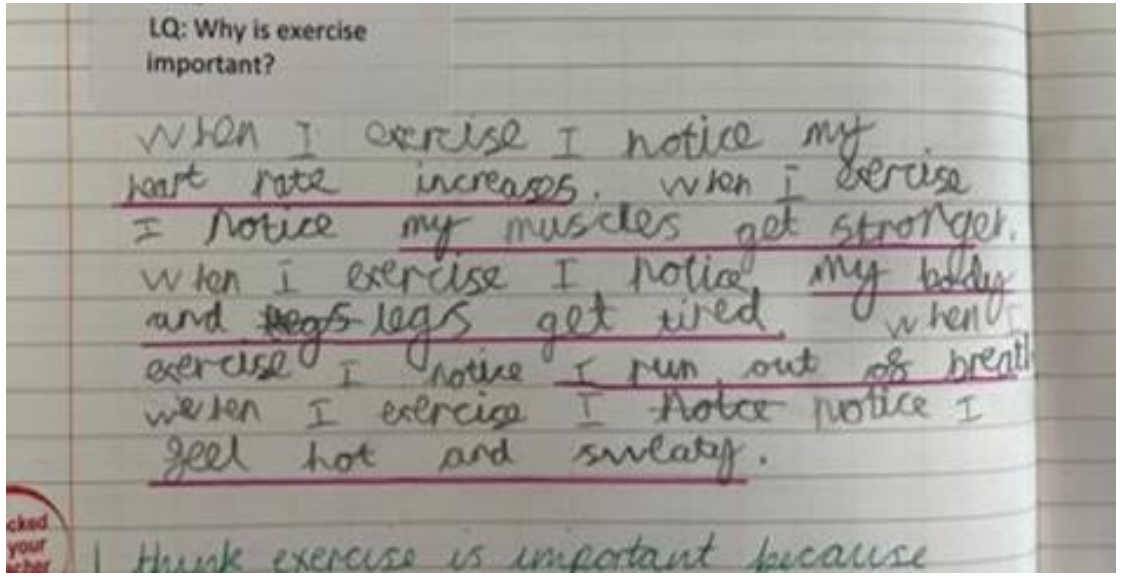
I can smell the food ✓

I can taste the Pizza ✓



Year 2

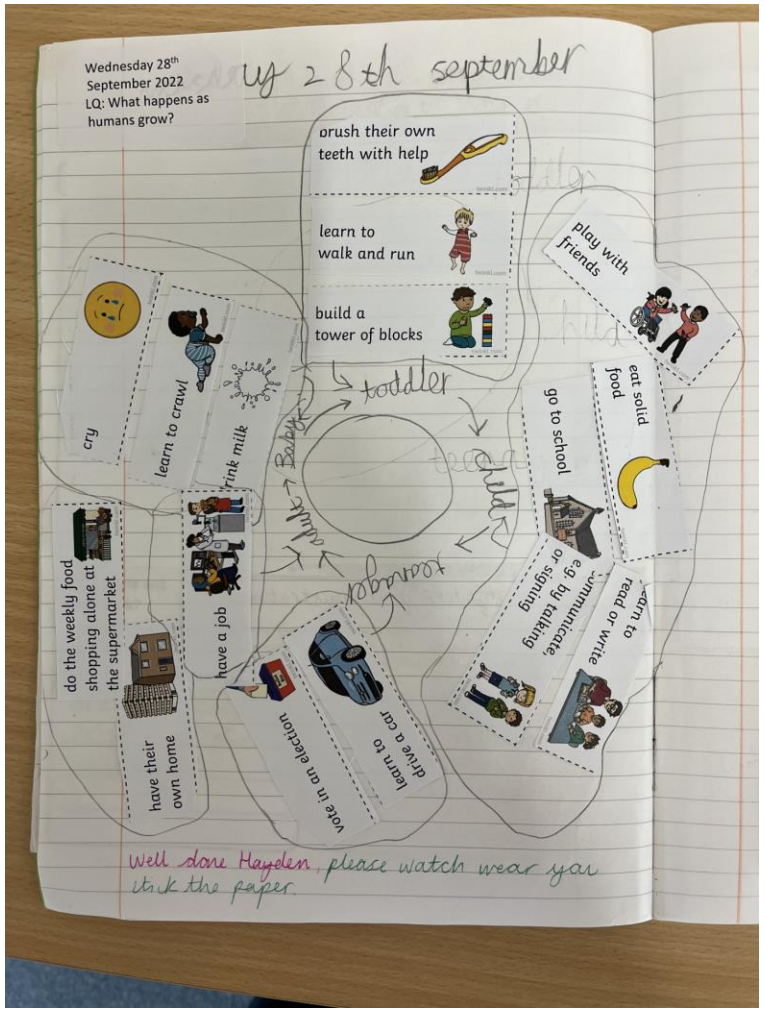
- In year 2, children will begin by looking at animal young and comparing them to their adults. They learn about how animals change as they grow up and be introduced to the life cycles of several varied common animals, including humans. They look in detail at how humans change as they grow older, drawing on their own observations. Children are introduced to the three basic needs of animals for survival (water, food and air). The unit ends with children looking at healthy lifestyles, including the importance of exercise, healthy eating and hygiene. These healthy living lessons develop ‘working scientifically’ skills through investigating the impact of exercise on our bodies and how handwashing is essential for good hygiene.



LQ: Why is exercise important?

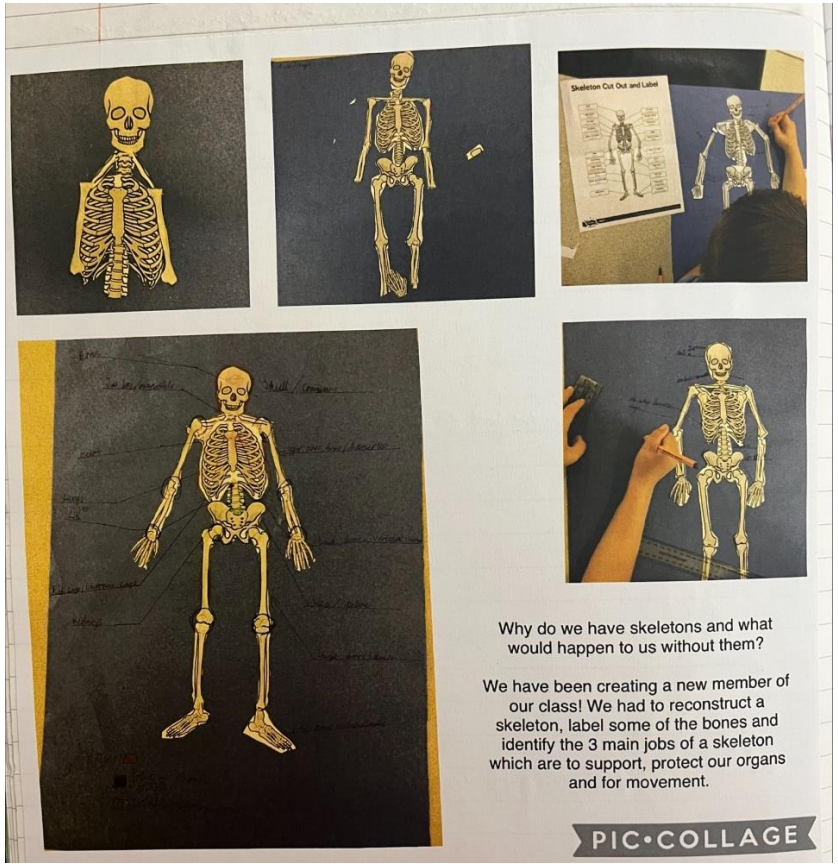
When I exercise I notice my heart rate increases. When I exercise I notice my muscles get stronger. When I exercise I notice my belly and legs get tired. When I exercise I notice I run out of breath. When I exercise I notice I feel hot and sweaty.

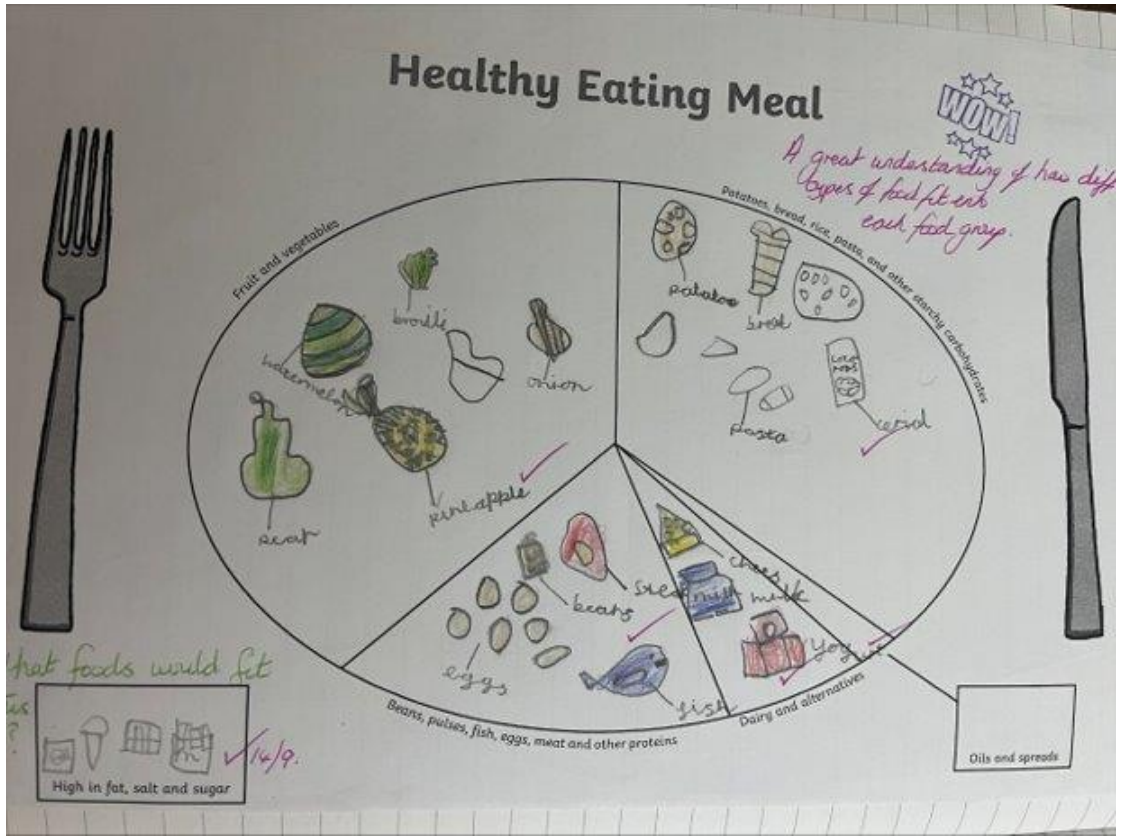
I think exercise is important because



Year 3

- This unit in Year 3 recaps the children's learning from year 2 about how animals survive and stay healthy and helps children to learn more about what makes a healthy, balanced diet. They learn about the nutrients that different foods provide and how these nutrients help our bodies. They also explore how different animals eat different types of foods and need different proportions of nutrients. In this unit, children also explore the different types of skeletons that animals have and compare these. They learn some names of bones in the human body.

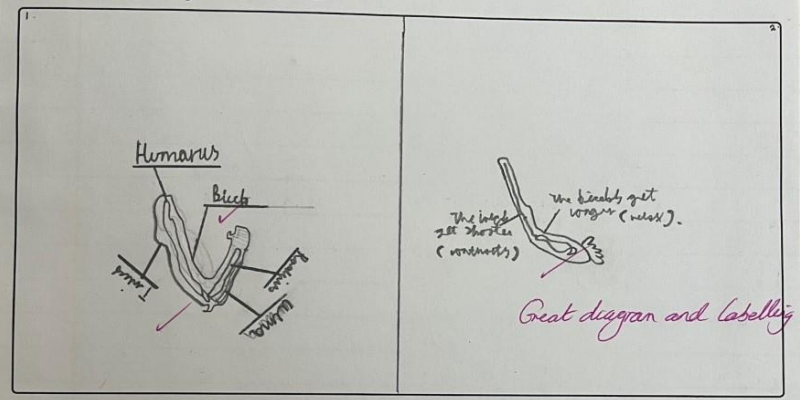




Describing How Muscles Work

To explain how bones and muscles work together to create movement.

- **Draw and label your model here.**



- **Next, explain how the biceps and triceps work, using the word bank to help you.**

Challenge: Can you try to use all the words from the word bank?

When I lift a heavy my bicep ~~contracts~~ and get shorter and my tricep gets longer ~~and relaxes~~. When you straighten your bicep your bicep gets longer and tricep gets shorter

Good understanding of how muscles work.

Word Bank

contracts	relaxes	~~biceps~~	triceps	raise
gets shorter	pairs	bone	lift	lower
straighten	gets longer	pulls	muscles	

Year 4

In Year 4, children expand on their learning from year 3 about how animals, including humans, need to get nutrition from what they eat. They explore the different organs of the digestive system in humans and the functions of teeth in both humans and animals. Firstly, children learn about the different types of teeth and the importance of good dental hygiene, before planning and carrying out an investigation into tooth decay. They then learn about the parts and functions of individual organs of the human digestive system and carry out their own scientific demonstration of the process. Children learn more about herbivores, carnivores and omnivores in the context of teeth, digestion and food chains. They extend their understanding of food chains from key stage 1 to include more complex chains, using the terms 'consumers' and 'producers' and compare food chains in different habitats. Finally, children compare the teeth of different types of animals and apply their understanding to make links with their role in the food chain.

La Why are dentists concerned about the amount of sugar in drinks?

P Plan
We are trying to find out which sugary drinks will eat away teeth the most. We will do this by leaving eggs shells in different types of drinks. We are using egg shells because it is very close to enamel that protects our teeth.

P Prepare
To start this experiment we need eggs, beakers and different types of liquids. To make this a fair test for our experiment we will leave all the eggs in the beakers for 1 week. We will put the same amount of liquid in each beaker. We will also have a control egg to see what a egg will do on its own.

P Predict
I predict the pepsi will eat the egg the most because it has a lot of sugar more than any of the liquids. I think water will not do any thing to the egg because it has no sugar at all.

O Observe

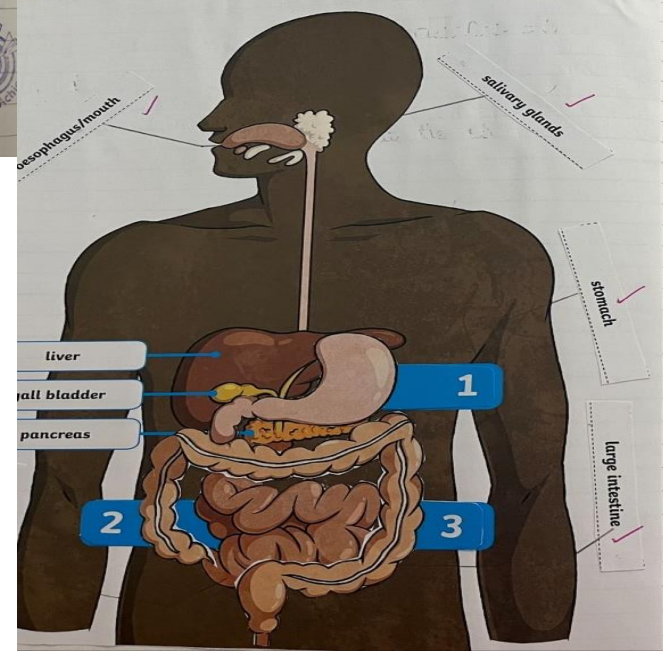
Liquid	Observations
Control	No change
Water	No change but wet.
Milk	No change
Pepsi	Brown colour freckles
Squash	Dark brown also bubbling
Vinegar	Gone bumpy and squishy shell is pelling

[redacted]

Prove
Vinegar Drinks that are fizzy sugary can do a lot of damage to your teeth. The vinegar did the most because its acidic and the water and Milk did nothing because they have no sugar and acid. This experiment isn't realistic because no is going to drink drinks in the their mouth for 1 week

Learning Objective Activ

Wednesday 28 January
La: What is the digestive system?



This is where digestion begins. The teeth help break down the food into smaller pieces. 1)

This tube connects the mouth and stomach. It has muscles within it that work in waves to move the food that has been eaten down into the stomach.

Oesophagus / mouth ✓

This is a long stretchy tube. It breaks down the food mixture even more so the body can absorb all the vitamins, minerals, proteins carbohydrates and fats. 2) 3.

small intestine ✓

This stretchy sack is where food is broken down by acids and enzymes. Once it is broken down, it becomes a substance called chyme. It also connects to other parts of the digestive system. 3) 2.

stomach ✓

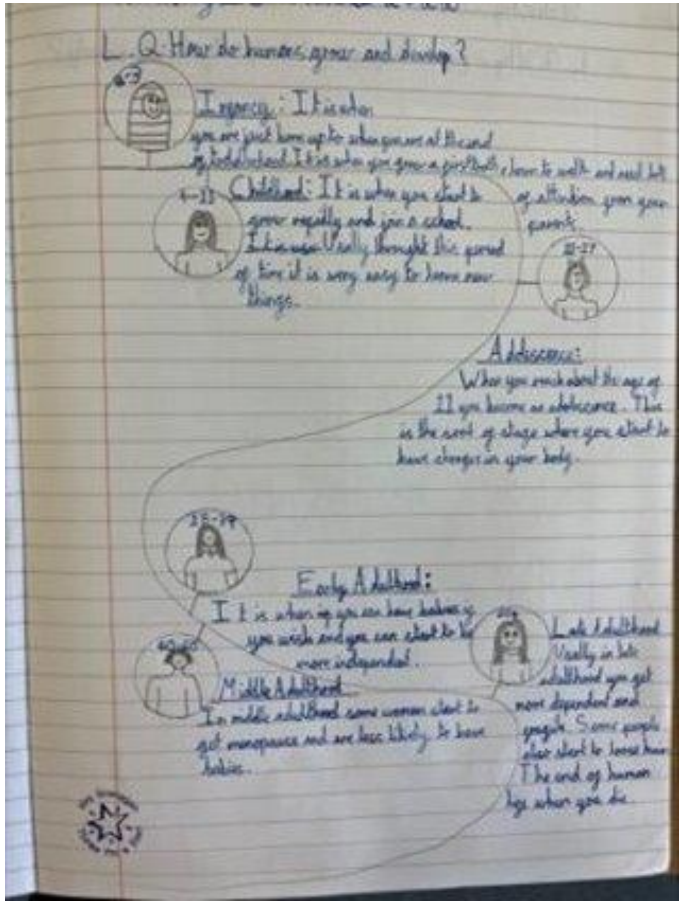
All the food material that is still unwanted passes through here. It is here that any last water or minerals are absorbed into the blood. 4)

large intestine ✓

Great learning

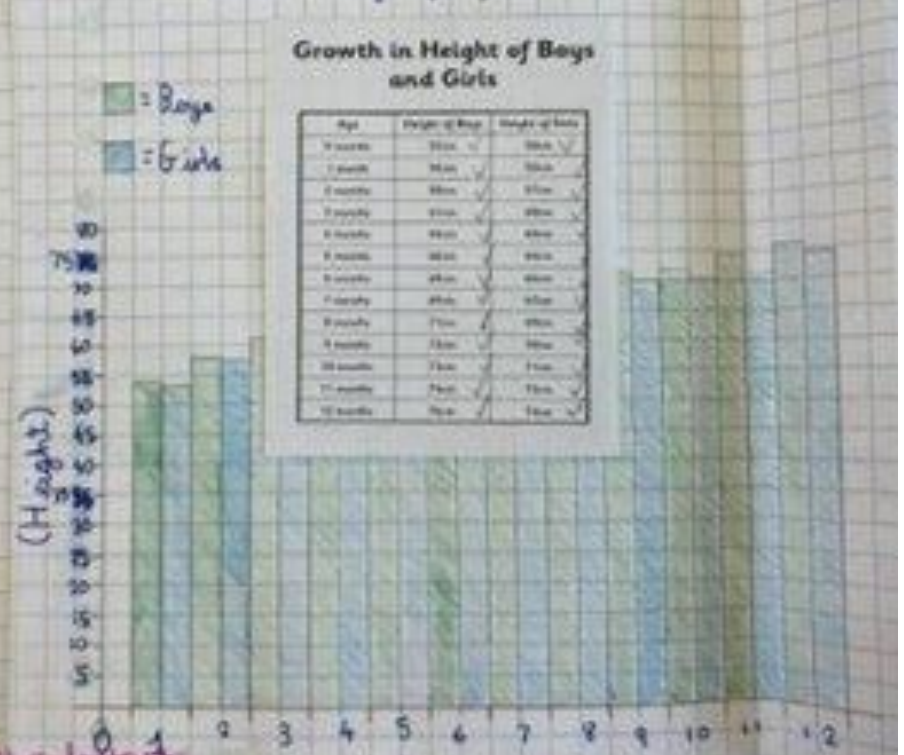
Year 5

Year 5 focuses on the changes that human beings experience as they develop to old age. Children learn about the life cycle of a human being. They investigate the development of babies and compare the gestation period of humans and other animals. They learn about the changes experienced during puberty and why these occur. The final investigation will be about the changes to the body as humans get older, as well as comparing the life expectancy of different animals.



L.Q.: Can I explain how babies grow and develop? Can I present data and interpret data?

Growth in Height of Boys and Girls



What a fantastic bar chart Poppy-Belle!

Yes, this is continuous data so a line graph would be more suitable

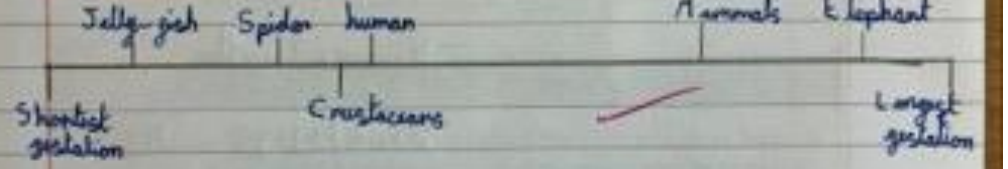
I chose to present the data using a bar chart, because it uses continuous data. However, I think it wouldn't use discrete data which would be better.

L.Q: What is meant by gestation period and how long is it for different animals.

The gestation period is the amount of time that a baby is inside the mothers womb.

I predict that animals who live in extreme temperatures have a longer gestation than ones in mild temperatures. What an interesting idea!

I predict that more complicated have a longer gestation period than less complicated animals.

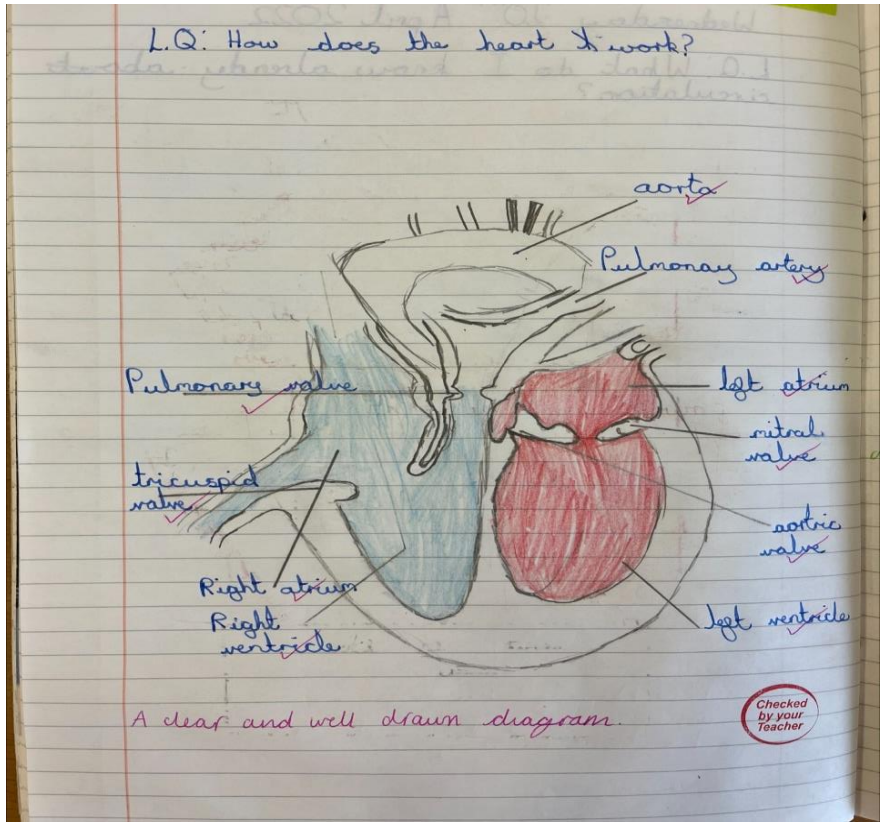


My first prediction I would say was true as the longest ones were from places like Africa.

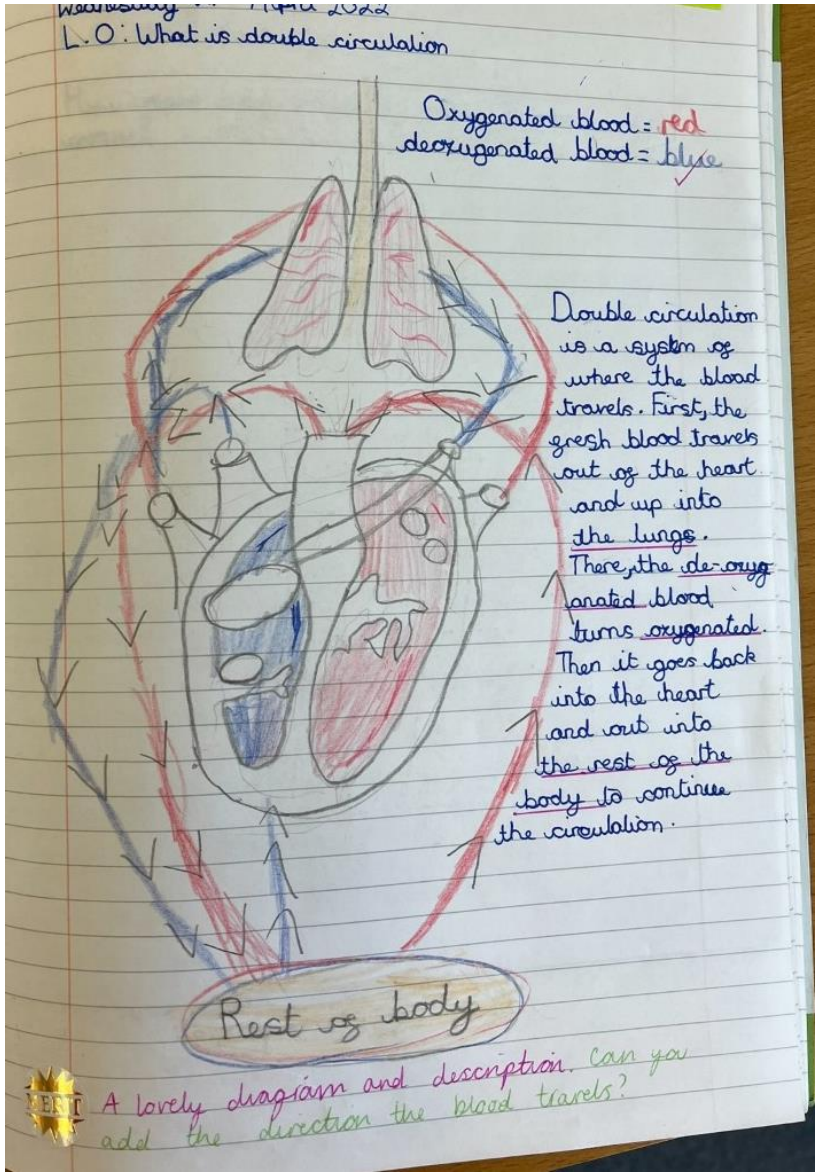
It really is wonderful to observe your level of engagement and interest Nyah.

Year 6

Year 6 recaps the children's learning from year 4 about how animals survive and stay healthy and helps children to learn more about how different organ systems work. They learn about the importance of diet, exercise and lifestyle in the way that bodies function. In this unit, they learn about the three main parts of the circulatory system and the job of the heart. Children also learn about what blood is comprised of and how it is transported around the body. Children carry out an investigation to explore how heart rate is affected by exercise. They discuss how to plan a fair test and measure and record accurately. Children learn the importance of exercise and how this can affect their bodies. Finally, children learn about drugs and alcohol and how they can have an impact on our bodies, specifically in relation to the circulatory system.




We modelled 'double circulation'. Four people represented the four chambers of the heart.
The heart pumps the blood. It is called double circulation because blood is pumped through the heart twice - to the lungs and to the rest of the body.
Two of us represented the lungs. Here the de-oxygenated blood receives oxygen. Carbon dioxide is removed from the blood.
Some of us were blood cells - we had to travel from the lungs to the heart and on to the rest of the body. We then had to go back to the heart to be pumped back to the lungs.
Another two children represented all other parts of the body - oxygen is taken from the blood so it becomes de-oxygenated.
PIC•COLLAGE


L.O: What is double circulation
Oxygenated blood = red
deoxygenated blood = blue
Double circulation is a system of where the blood travels. First, the fresh blood travels out of the heart and up into the lungs. There, the de-oxygenated blood turns oxygenated. Then it goes back into the heart and out into the rest of the body to continue the circulation.
Rest of body
BEST
A lovely diagram and description. Can you add the direction the blood travels?