



Marie M. Daly, the Circulatory System, and Healthy Lifestyles

(Animals including humans)

BIOLOGY



Overview and rationale:

Exploring animals, including humans, is a constant thread throughout the children's primary education and by the time they get to Year 6, they are ready for the wealth of knowledge that they are about to acquire about the human body. Not only do the children become accustomed to using key anatomical vocabulary, but they develop an acute understanding of how the heart and lungs work together with the help of the thousands of miles worth of veins, arteries and capillaries. The children are taken on a journey through the circulatory system, finding out all sorts of facts along the way, and use and apply their enquiry skills to look at the effects that exercise can have on their bodies, both short and long term. This leads the children to consider the importance of healthy lifestyles and how diet and fitness are just one part of the 'heathy body, healthy mind' partnership, something that Mary M. Daly's ground-breaking work helped to clarify. Year 6's chosen charity is the children's mental health charity, Place2Be, and important links between physical and mental health are made throughout the year.

SCIENCE LEARNING STATEMENTS

Area of Learning

Knowledge and Skills

Scientific Enquiry and applying knowledge in context

- I can use my science experience to explore ideas and raise relevant questions of different kinds.
- I talk about how different scientific ideas have developed over time giving specific examples.
- I select and plan the most appropriate type of scientific enquiry I might use to answer questions and give justifications.
- I recognise when and how to set up comparative and fair tests. I explain which variables need to be controlled and why.
- I use and develop more complex keys and other information records to identify, classify and describe living things and materials. Identify patterns that might be found in natural environments
- I can recognise which secondary sources will be most useful to research my ideas; separate opinion from fact and give justifications for their reasoning
- I make their own decisions about what observations to make, what measurements to use and how long to make them for.
- I can look for causal relationships in my data and identify evidence that refutes or supports my ideas.
- I choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. I can take repeat measurements where appropriate and give justifications for their choice.
- I can decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs, use multiple methods where appropriate.
- I can identify scientific evidence that has been used to support or refute ideas or arguments, begin to form opinions about validity of these.

MATHS AND SCIENCE ACROSS THE CURRICULUM – Data Handling and Statistics

Science NC: recording data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs (and pie charts)

NATIONAL CURRICULUM OBJECTIVES

1. identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
2. recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
3. describe the ways in which nutrients and water are transported within animals, including humans



KEY VOCABULARY

heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cardiovascular, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle, Marie M Daly, cholesterol, veins, arteries

'CORE' KNOWLEDGE		'ADDITIONAL' KNOWLEDGE		School Value	Topic relevance: How/when/where/why is it needed?
1) I can identify and name the main parts of the Human circulatory system	a) I can name body part names vs medical terminology: Aorta – main artery leading from the heart; Right Atrium – Left Atrium – Right Ventricle – Left Ventricle are the four chambers in the heart; Arteries carry oxygenated blood; Veins carry de-oxygenated blood.			Resilience	- The human body shows tremendous resilience and has done through its evolution. - We need to show resilience at times in looking after our bodies when recognising the impact that diet, exercise, drugs and lifestyle can have on them.
	b) I know that the heart is a muscular pump.				
	c) I know the difference between veins and arteries.				
	d) I can draw an annotated diagram of the circulatory system.				
2) I can describe the functions of the heart, blood vessels and blood. PLAN: DO: SET UP ENQUIRY: Heart rate poses	a) I know that red blood cells carry oxygen through the body by its haemoglobin, and white blood cells fight disease.				
	b) I know that venous valves in veins and arteries make blood flow in a one-way cycle.				
	c) I can describe possible circulatory problems – heart attack – caused by lifestyle (the heart goes into spasm and doesn't beat regularly), Cardiac arrest – electrical problem within the body that stops the heart or causes spasms, sickle cell – not enough red blood cells to carry oxygen and iron, blood poisoning – bacteria or infection in the blood which causes further illness, cholesterol – fatty deposits that block veins and arteries.				
3) I know that Scientist Marie M. Daly, the first woman to get a chemistry degree, discovered that high cholesterol is linked to hyper-tension in the heart.	a) I know what a good plate of food would look like and know the importance of a balanced diet.			Respect	- We should have respect for our bodies and the incredible ways in which they work. - We show respect for each other's differences as we grow and our bodies change.
	b) I can suggest lifestyle improvements for a healthy body and mind and I recognise the impact that diet, exercise, drugs and lifestyle have on the way our bodies function.				
	c) I know the difference between legal and illegal substances and can name some of these.				
4) I can describe the ways that nutrients and water are transported in animals	a) I know the link between the digestive system, liver, kidneys and blood.			Responsibility	- We need to take responsibility for looking after our bodies and think about the ways in which we can keep them fit and healthy.
	b) I know that blood cells carry food, water, oxygen and carbon dioxide.				
	c) I can describe what happens to body with a lack of food or water, or vitamins.				
5) I know that de-oxygenated blood enters the heart, which sends it to the lungs to be oxygenated, goes back to the heart, which then pumps it round the body.	a) I can describe how the body collects, uses and disposes of oxygen and carbon dioxide			Happiness	- Healthy body, healthy minds! - Donating blood and organs greatly helps others in need. The joy of giving and the joy of receiving/ saving lives is wonderful.
	b) I know that all this happens but we aren't even thinking about it...our bodies just do it in an 'unconscious cycle'.				
	c) I know average heart rates and breathing rates in humans, at rest and during exercise (and I can use pulse and oxygen readers.				
Possible Enrichment activities	Links to PE activities and ICT recording	Possible 'higher order' questioning			
		Remember	What carries blood to and from the heart? Name the chambers of the heart.		
	Understand	Why are the lungs so important? How do they work with the heart?			
	Apply	How do valves work in the body?			
	Analyse	What causes a heart attack?			
	Evaluate	What would happen if the Vena Cava valve stopped working? What impact does exercise have on our bodies?			
Children as blood cells activity	Create	Can you create an investigation to test the impact that diet has on our energy levels?			
				Pride	- Our bodies are amazing miracles: we should be proud of ourselves and our bodies. We should all realise that we are all unique and different and this is to be celebrated.

Possible Enrichment activities	Links to PE activities and ICT recording	Possible 'higher order' questioning			
		Remember	What carries blood to and from the heart? Name the chambers of the heart.		
	Understand	Why are the lungs so important? How do they work with the heart?			
	Apply	How do valves work in the body?			
	Analyse	What causes a heart attack?			
	Evaluate	What would happen if the Vena Cava valve stopped working? What impact does exercise have on our bodies?			
Children as blood cells activity	Create	Can you create an investigation to test the impact that diet has on our energy levels?			