

How Does Dina Asher-Smith Run So Fast? (Animals, including humans) **BIOLOGY**

SCIENCE LEARNING STATEMENTS

Skills and Knowledge

Area of Learning

Scientific Enquiry and applying knowledge in context

- I can raise my own relevant questions about the world around me.
- I can be given a range of scientific experiences including different types of scientific enquiry.
- I can start to make my own decisions about the most appropriate type of scientific enquiry I might use to answer questions.
- I can set up simple practical enquiries, comparative and fair tests. I can recognise when a simple fair test is necessary and help decide how to set it up.
- I can talk about criteria for grouping, sorting and classifying; use simple keys, with some help.
- I can recognise when and how secondary sources might help me to answer questions that cannot be answered through practical investigations.
- I can make systematic and careful observations. I can help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.
- I can begin to look for naturally occurring patterns and relationships; begin to decide what data to collect to identify them.
- With help, I can take accurate measurements using standard units, learn how to use a range of equipment, such as data loggers and thermometers, appropriately.
- I can collect and record data from my own observations and measurements in a variety of ways: notes, bar charts, tables. I can use standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse the data.
- With help, I can look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.
- I can use relevant scientific language to discuss my ideas and communicate my findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions.
- With support, I can identify new questions arising from their data, making predictions for new values within or beyond the data they have already collected and finding ways of improving what I have already done.

NATIONAL CURRICULUM OBJECTIVES

1. identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
2. identify that humans and some other animals have skeletons and muscles for support, protection and movement

MATHS AND SCIENCE ACROSS THE CURRICULUM – Data Handling and Statistics

Science NC: recording findings using simple scientific language; classification keys

KEY VOCABULARY

nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints



Overview and rationale:

This topic is all about building on our prior knowledge of what we already know about our bodies. Whereas in the infants, children have looked at growth and the basic needs of the body, in Year 3 children get to the 'bones' of what our bodies are all about. They look at the importance of the skeleton for humans and indeed all animals and how muscles work with the skeletal system to help us move, and just stand up! We start to look in much greater depth about the importance of looking after ourselves and **respecting** our bodies and the effect that a healthy, well-balanced diet can have on our physical and mental state, as well as the extent to which keeping active can have a positive impact on not only our physical wellbeing but our mental wellbeing too! The children here deepen their knowledge and understanding of how the body works, investigating the reasons why, and understanding that we have a **responsibility** to be **kind** and look after ourselves...and how we can do it!

'CORE' KNOWLEDGE	'ADDITIONAL' KNOWLEDGE	School Value	Topic relevance: How/when/where/why is it needed?		
1) I know the difference between a vertebrate and an invertebrate.	a) I know the vertebrates are animals with a backbone such as humans and dogs. They are known as endoskeletons as their skeletons are on the inside.	Resilience	- Animals in certain environments need great resilience in getting the food they need – predators in harsh environments need great patience and resilience in stalking their prey. - Humans need resilience in the way they eat (many in third world countries in particular may struggle through malnutrition). - Looking after our bodies and keeping fit and healthy through what we eat, drink and how we stay fit through exercise and keeping active often requires resilience. - Dina Asher-Smith has needed tremendous resilience in training and improving and to be her best!		
	b) I know that invertebrates are animals without a backbone. Animals with exoskeletons have their skeletons on the outside of their body - e.g. a crab.				
	c) I know that animals with a hydrostatic skeleton don't have any bones. Instead, they have a fluid filled body - e.g. worm. These are also invertebrates.				
2) I know the functions of the human skeleton are to support, protect and move. ASK QUESTIONS AND PLAN ENQUIRY: PLAN: Investigating skeletons	a) I know that the skeleton supports us and keeps us up straight.			Respect	- We must show great respect for our bodies and how they work and in doing so, look after them in what we eat, drink and how we stay fit and active.
	b) I know that the skull protects the brain and the ribs protect the heart and lungs.				
	c) I know that the skeleton uses joints and muscles to allow it to move.				
3) I can name some of the bones in the human skeleton - e.g. skull, ribs, back bone.	a) I know that a baby has around 300 bones and an adult has 206.	Responsibility	- We have a responsibility to look after our bodies and give them what they need to thrive and stay fit and healthy.		
	b) I know some of the scientific names for bones in the human skeleton - e.g. femur, tibia, mandible				
4) I know that a joint is a point of attachment of 2 bones.	a) I know that there are 360 joints in the human body.	Happiness	- We can understand that exercise releases chemical endorphins in the brain which make us feel good and make us happier! We can then make others happy with our happiness!		
	b) I know the name of the joints and how they work - e.g. pivot, hinge and ball and socket joints.				
	c) I know that joints are found at the hip, shoulders, elbows, knees, wrists and elbows.				
5) I know that skeletal muscles are attached to the skeleton to enable movement.	a) I know that muscles are attached to the bones by tendons.	Responsibility	- We have a responsibility to look after our bodies and give them what they need to thrive and stay fit and healthy.		
	b) I know that there are 600 muscles in the human body.				
	c) Muscles work in pairs to move a joint. Whilst one muscle contracts, the other relaxes.				
6) I know why it is important to eat a balanced diet to stay healthy.	a) I know that there are 5 main food groups. These are carbohydrates, dairy, proteins, fats and sugars, fruit and vegetables.	Happiness	- We can understand that exercise releases chemical endorphins in the brain which make us feel good and make us happier! We can then make others happy with our happiness!		
	b) I know that humans can't make their own food. They get nutrition from what they eat.				
	c) I know that alongside a balanced diet, exercise is important to keep us healthy.				

Possible 'higher order' questioning	
Remember	Can you name the biggest bone in the human body? What links muscle to bone and helps them work together?
Understand	Why is the skeleton so important? Do all animals have skeletons? How do muscles help us move?
Apply	Why do we need to eat a healthy and balanced diet? What would happen if we didn't?
Analyse	Compare your body with a friend's. What are the differences? Is it always due to diet? What about exercise? What about just nature and genes?
Evaluate	What would be the impact if one person ate nothing for a week and another person ate just McDonalds? Who'd be healthier?
Create	Can you create an investigation to test the impact that diet has on our energy levels?

ART AND DESIGN			
Exploring and Developing			
Exploring and developing ideas	Explore ideas for different purposes. Question and make thoughtful observations. Explore the roles and purposes of artists, craftspeople and designers working in different times and cultures.		
Evaluating and developing work	Adapt their work according to their views and describe how they might develop it further. Annotate work in sketchbook.		
Drawing Using a Variety of Materials (Recap)			
National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<i>Use their sketchbooks to collect and record visual information from different sources. Use different media to achieve variations in line, texture, tone, colour, shape and pattern.</i>	- Begin to use the side of the pencil to add shading to detail. -Begin to use shape and colour to represent reflection. -Plan, refine and alter their drawings as necessary. - Recognise the difference between hatching and cross-hatching. -Sketch lightly, know that there is no need to use a rubber to correct mistakes - Use a sketchbook to plan, collect and develop ideas. Record media explorations and experimentations as well as try out ideas.	-Know how to show basic facial expressions (happiness, sadness) in art and observe the composition and proportion of a range of people's different facial features. -Know how to use different grades of pencil to shade and to show different tones and texture. -Know that H pencils are lighter and B pencils are darker. -Know how to apply the techniques of hatching and cross hatching when drawing.	Cross hatching, hatching, contour hatching, lighter shading effect, pressure, angles, different pencil densities, dimension, observe, H pencils lighter, B pencils darker, depth, dimension, observe
Artist/Style/Activities			
<i>Sketching runner poses in the style of Aaron Blaise</i>			