



Who on Earth is Mrs GREN? (Living things — Variation and Classification)

BIOLOGY



Overview and rationale:

In looking at the habitats of various organisms, our children build further on what they learnt in Year 4. Then, it was all about food chains, predators, prey, producers and consumers. But now the knowledge that the children gather becomes much more complex as they look further into classifying mammals, amphibians, fish, birds, reptiles, vertebrates, invertebrates, even looking at and bacteria and other micro-organisms of Planet Earth. The children learn skills of predicting, justifying, observing, recording and the importance of collating reliable evidence. The Year 6 team make use of the links with the 'Evolution and Inheritance' topic and another Y6 text, 'The Hunger Games' is used as a contextual stimulus as is the work of Carl Linnaeus, the botanist who published Systema Naturae, which was the first classification of animals and plants which paved the way for other scientists.

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, carrol and venn diagrams and classification keys

NATIONAL CURRICULUM OBJECTIVES

1. describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
2. give reasons for classifying plants and animals based on specific characteristics

KEY VOCABULARY

vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering, micro-organisms, branching key, classify, Carl Linnaeus, Systema Naturae

'CORE' KNOWLEDGE		'ADDITIONAL' KNOWLEDGE	
1) I know the key characteristics of living things: Mrs Gren Movement, Reproduction, Sensitivity, Growth, Respiration, Excretion, Nutrition		a) I know that plants don't breathe, they respire like humans do. It is the exchange of gasses.	
		b) I know that plants can make their own food whereas animals can't: I know how Photosynthesis works!	
		c) I know that nutrition isn't the physicality of eating, it's the absorption of life-sustaining vitamins and minerals.	
2) I know that living things can be grouped/classified firstly as either plants or animals, but there are other living things that do not fit – e.g. micro-organisms such as bacteria, yeast/toadstools and mushrooms.		a) I know the difference between vertebrates and invertebrates. REVIEW: INTERPRET AND REPORT: Invertebrate research	
		b) I know the difference between flowering and non-flowering plants.	
		c) I know the sub-groups, with their characteristics, for animals: fish, amphibians, reptiles, birds and mammals.	
3) I understand and can follow a branching key to classify a species of plant or animal. REVIEW: INTERPRET AND REPORT: Living things		a) I know what a branching key is and I can create my own one for a set of animals or plants.	
		b) I can use information about the characteristics of an unknown animal or plant to assign it to a group.	
		c) I can present classification in a range of ways: venn diagram, carroll diagrams and keys.	
4) I know that Carl Linnaeus was a botanist from the 1700s.	a) I know Carl Linnaeus was a botanist who developed the modern system of taxonomy.		
	b) I know he published Systema Naturae, which was the first classification of animals and plants which paved the way for other scientists.		
	c) I know that he was the first person to group apes and humans together. I can explain why he did this.		

ART AND DESIGN

Exploring and Developing

Exploring and developing ideas	Select and record from first hand observation, experience and imagination and explore ideas for different purposes, including the use of ICT.
	Question and make thoughtful observations about starting points and select ideas to use in their work.
Evaluating and developing work	Explore the roles and purposes of artists, craftspeople and designers working in different times and cultures.
	Compare ideas, methods and approaches in their own and others' work and say what they think and feel about them.
	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
-Develop ideas using different or mixed media, using a sketchbook. -Manipulate and experiment with the elements of art; line, tone, pattern, texture, form, space colour and shape.	-Use shading and perspective to create form and texture. -Observe the positions of people in action. -Develop ideas using different or mixed media. - Use sketchbooks to collect and record visual information from different sources as well as planning and collecting source material. -Adapt their work according to their views and describe how they might develop it further. -Annotate work in sketchbook.	-Know that holding the pencil at varying angles and applying pressure will create different light and hatching effects and experiment with this. -Know that light can affect the appearance of people and objects from different directions. -Know that shadows add depth and dimension to drawn objects -Identify the differences between all drawing techniques and their appropriateness to the task and media e.g. hatching, crosshatching, contour hatching and stippling. -Discuss when it is suitable to choose a particular technique. -Identify the differences between pencil grades and select for effect when producing sketches. -Know that other media (charcoal, pastel, chalk) can be applied in a range of ways to create different effects (e.g. dashing, feathering, scumbling, blending, smudging)	Dashing, feathering, scumbling, embossing, angles, pressure, silhouette, depth, dimension, blending, movement, depth, shadow, hatching, crosshatching, contour hatching, stippling, stippling, smudging

Artist/Style/Activities

Drawing Using a Variety of Materials: Stephen Park, Carol Gillan, Richard Symonds, Wayne Westwood: Charcoal and white chalk shading. Observational drawing – fossils, etc.

Possible 'higher order' questioning		School Value	Topic relevance: How/when/where/why is it needed?	Possible Enrichment activities	Hunger Games – Jabbajay and Mockingbird evolution/hybrids Habitat search
Remember	What are the five types of vertebrates?	Resilience	- Each organism adapts to its environment and its characteristics help it to survive. Each part of the food chain from producers, to prey, to predators, play their part and are tremendously resilient in their survival.		
Understand	Can you explain the main differences between plants and animals?				
Apply	How do reptiles get their energy? How do they survive if they can't get that energy?	Respect	- Environments and habitats can change greatly, some naturally and some due to human impact...we must respect our world and raise awareness of the need to look after it.		
Analyse	Why do we have backbones? Can you say why a particular species thrives without one?				
Evaluate	What effect does bacteria have on ecosystems? How does the Earth benefit?	Responsibility	- It is our responsibility to look after the world and every species and UPS do so by supporting the WWF through sponsoring an Amur Leopard.		
Create	Can you create a new species? How would you classify it according to its unique characteristics?				