Wangari Maathai: Planting, Peace and Park Life (Living things and their habitats)

BIOLOGY

KEY VOCABULARY

classification, classification keys, environment, habitat, human impact, environmentalist, conservation, Wangari Maathai, positive, negative, migrate, hibernate, herbivore, carnivore, omnivore, producer, predator, prey, food chain

NATIONAL CURRICULUM OBJECTIVES

1. recognise that living things can be grouped in a variety of ways
2. construct and interpret a variety of food chains, identifying producers, predators and prey
3. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
4. recognise that environments can change and that this can sometimes pose dangers to living things

Overview and rationale:

In this topic, children learn about their local parkland and its inhabitants. They discover and compare a number of different habitats and find out why the animals that live there thrive in such environments. They also learn about adaptations, initially across a broad range of animals that span the globe, then focussing in on local parkland animals, culminating in a design of their own, made-up animal in which children must justify the features they have given it. The children will have an opportunity to learn about micro habitats also and go on a mini beast hunt, using their mathematical skills to carry out surveys and tally charts, resulting in bar charts and graphs. After studying a range of living creatures, from the tiny to the large, children are then given the opportunity to sort them, using sorting keys and place them in food chains and webs thinking about which are the producers, the top consumers and everything in between! Finally, the children research the variety of plant life they may encounter in a local park, using this knowledge to write a letter to a warden suggesting possible improvements for this area. Children also use this topic to experience art in nature. Using Andy Goldsworthy as inspiration, they design and make their own sculpture in their environment using only natural objects they have found. Respect for our environment and responsibility for looking after it is the key message in a topic inspired by the efforts of African environmentalist, Wangari Maathai.

SCIENCE LEARNING STATEMENTS

Area of Learning	Knowledge and Skills
Scientific Enquiry and applying knowledge in context	I can raise my own relevant questions about the world around me and begin to look for answers.
	I am given a range of scientific experiences including different types of scientific enquiry to answer questions.
	I can start to make my own decisions about the most appropriate type of scientific enquiry I might use to answer questions and give justifications.
	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 and explain how they should be used.
	I can recognise when and how secondary sources might help me to answer questions that cannot be answered through practical investigations. I can use a selection of resources.
	I can make systematic and careful observations. I can 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 look for naturally occurring patterns and relationships; decide what data to collect to identify them.
	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 their own observations and measurements in a variety of ways: notes, bar charts, tables. I can select and use the most appropriate standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse the data.
	I can look for changes, patterns, similarities and differences in their data in order to draw accurate conclusions and answer further questions
	I can confidently use relevant scientific language to discuss their ideas and communicate their findings, in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions.
	I can identify new questions arising from my data, making predictions for new values within or beyond the data I have already collected and finding ways of improving what I have already done.

MATHS AND SCIENCE ACROSS THE CURRICULUM – Data Handling and Statistics

Science NC: recording findings using simple scientific language, drawings, labelled diagrams, tally and frequency charts classification keys, bar charts, and tables (and Venn/Carroll diagrams)

KNOWLEDGE (substantive)	
'Core'	**'Additional'**
1) I know that a habitat is the natural home or environment of an animal and that different habitats attract different animals and creatures. DO: Record: LIVING THINGS – LOCAL SURVEY	a) I can list a range of habitats in the UK (grassland, heathland, woodland, open water, wetland, inland rock, coastal and marine).
	b) I know a number of animals and creatures that live in these different habitats.
	c) I know geographical terms to describe these habitats and can locate them on an atlas or map.
2) I know that the term 'adaptation' means to change in order to improve the chance of survival.	a) I know that animals have adapted to suit their environment over time.
	b) I know examples of how at least three animals have adapted to suit their environment.
	c) I know that predators usually have forward or narrow facing eyes and prey have side or wide facing eyes.
3) I know that living things can be grouped in a variety of ways using keys and classification charts.	a) I know that classification keys help group, identify and name a variety of living things in their local and wider environment.
	b) I know that a 'minibeast' is an animal without a backbone (and invertebrate) – like including spiders, ants, termites, butterflies, bees, wasps, flies - and can identify them based on their features.
	c) I know that an exoskeleton is a bone structure on the outside of a creature's body.
4) I know that a food chain shows how plants and animals get their energy by showing 'what eats what'.	a) I know how to construct and interpret a variety of food chains.
	b) I know that a predator is an animal that naturally 'preys' and hunts other animals. I also know that a herbivore only eats plants and carnivore eats other animals.
	c) I know that a food chain always starts with a producer, then primary consumer and ends with a top consumer. I know the arrows in a food chain mean 'is eaten by'.
5) I know that the environment is the surroundings or conditions a person, animal or plant lives in.	a) I know that environments can change and that this can sometimes pose dangers to living things.
	b) I know who Wangari Maathai is and why she believed in the power of one.
	c) I know that humans are capable of impacting our physical and human environment positively and negatively and I can say how we can be responsible as we consider our future through sustainability and caring for our environment and for nature.

GEOGRAPHY LEARNING STATEMENTS	
Fieldwork	I use fieldwork to observe, measure and record some of the human and physical features in the local area using sketch maps and graphs.
	I can carry out a simple questionnaire.
	I can apply mathematical skills in data handling to geography fieldwork.
Use of basic geographical vocabulary	I am beginning to apply the vocabulary of other subjects such as maths and science when describing geographical features and processes.
Using globes, maps and plans	I can use a globe and maps and some OS symbols on maps (and digital mapping) to name geographical regions and identifying physical and human characteristics, including cities, rivers, mountains, hills, key topographical features, land-use patterns.
	I can use atlases to find places using an index and contents.
	I am beginning to understand scale and distance on a map, using and applying mathematical skills.
	I can use aerial photos and satellite images.
	I can use oblique aerial views.
Human and physical: enquiry skills and communication	I can describe and understand key aspects of physical geography and human impact on natural resources and habitats.
	I can describe key aspects of human geography including types of settlement and land use, economic activity and the distribution of some natural resources of the countries studied.

GEOGRAPHICAL VOCABULARY AND CONCEPTS	
Human Geography	settlement, urban, rural, country, county, river, food and farming
Physical Geography	landscape, biomes, climate zones, ecosystem, species, habitat, photosynthesis, climate change, natural resources
Geographical concepts and tier 2 vocabulary	Place: changed, developed Space: weather, climate, biomes, vegetation Scale: connections, impact Environment (physical and human processes: topography, changes over time, natural resources, settlement Interconnections: interdependent, ecological, break down Environmental impact and sustainability: interaction – human and natural, responsible, natural resources, modified, damage, Earth, globalisation, future, habitats Cultural awareness, diversity: lives, communities, similarities and differences, environmental resources

Possible Enrichment activities (including trips/visitors, etc)	Creating environmental art!
	A visit to the school garden.
	Now press play audio lesson (Climate Change).

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.		
	Question and make thoughtful observations about starting points and select ideas to use in their work.		
	Explore the roles and purposes of artists, craftspeople and designers working in different times and cultures.		
Evaluating and developing work	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.		
3d Form			
National Curriculum	**Additional Skills**	**Knowledge**	**Key Vocabulary**
Plan, design, make and adapt models. (clay/papier Mache/woodwork/choice for purpose)	-Cut complex shapes from different mediums. -Decorate, coil and produce marquettes (rough draft or scale model) -Make informed choices about the 3D technique chosen. -Show an understanding of shape, space and form. -Plan, design, make and adapt models. -Talk about their work, understanding that it has been sculpted, modelled or constructed	-Know how to use nets to make 3D shapes to use in models. -Know that colour can be added once papier mache is dry -Know that an armature can be used to build upon papier mache	Clay, natural materials, rolling, stretching, pressing, pulling, clay, sculpture, manipulate, form, air dried clay. Join, hatching, tools, texture, slip water, finish, patterns, texture, form, nets, 3D shapes, models, marquettes, draft, scale model, sculpt, construct
Artist/Style/Activities			
Andy Goldworthy: create a 3D sculpture using elements of nature sourced from a local area.			

School Value	Topic relevance: How/when/where/why is it needed?
Resilience	How do predators have to show tremendous resilience when hunting in difficult and treacherous habitats? Do plants show resilience too? Wangari Maathai fought for what is right and showed great resilience until she won the Nobel peace prize.
Respect	Environments and habitats can change greatly, some naturally and some due to human impact…how can we respect our world and raise awareness of the need to look after it? We'll see that when studying the Amazon next year!
Responsibility	It is our responsibility to look after the world and UPS! We do so by supporting the WWF through sponsoring an Amur Leopard.
Happiness	Nature can have a direct influence on our happiness – How could we create a beautiful local park which could make a huge difference to local people's wellbeing?
Kindness	Being kind to ourselves is important…how can we be kind to nature too and how does that affect our own happiness?
Pride	Having pride in our local environment can have a huge impact on the local community – litter picking is just one of the activities at UPS that help with this…are there any others?

Possible 'higher order' questioning	
Remember	Can you name some animals that call our local park land their home?
Understand	Can you explain how an animal may have adapted to its environment?
Apply	What changes can we make to help improve our own environment?
Analyse	What plants and flowers would make our local parkland more attractive to visitors? Why do you think this?
Evaluate	Take a look at the natural sculpture you created – how could you improve this to help it last longer?
Create	Can you create your own made up animal and explain how it has adapted to its habitat?