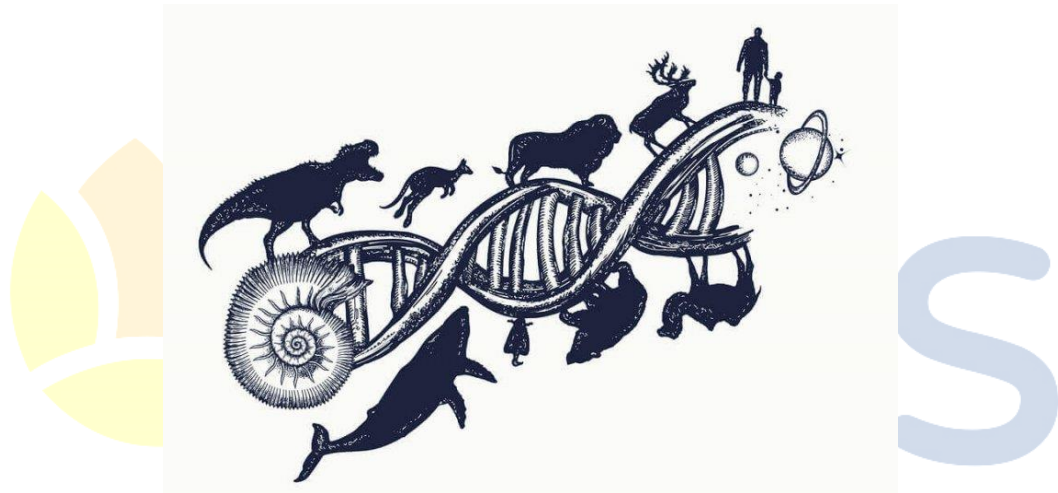


Darwin's Delights



Year Group: 5/6

Cycle A

Geography

Locational knowledge and physical geography

- describe and understand key aspects of:
- physical geography, including: climate zones, biomes and vegetation belts

Computing

- Programming

Science

- Evolution and Inheritance

Climate/Environment

- Extinction of the Dodo and other animals as a result of human activity

Design and Technology:

- Understand and use mechanical systems in their products: Mechanical animals (Nuffield DT project)

Science

National Curriculum (Knowledge and Skills): Pupils should be taught to:

Evolution and Inheritance

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Working Scientifically

- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Suggested Investigation Focus:

Who has the best beak? Understanding why birds have different beaks.

<https://www.stem.org.uk/resources/elibrary/resource/33665/education-pack-seeds-and-fruits-adaptation>

<https://www.tes.com/teaching-resource/bird-beaks-6267561>

Climate/Environment Link

- Children will learn about how habitat change/loss can lead to extinction
- They will learn that although animals have evolved over thousands of years to live in certain habitats, due to human activity and climate change their habitats are changing rapidly
- Many animals are unable to adapt quickly enough to their changing habitats, which leads to animals becoming endangered or extinct
- They will learn about how Dodos became extinct as a result of the introduction of non-native species by human settlers to their habitat

<https://blog.education.nationalgeographic.org/2015/05/01/where-are-animals-most-likely-to-go-extinct-due-to-climate-change/> (teacher resource)

<https://artsandculture.google.com/story/everything-you-ever-wanted-to-know-about-the-dodo%2%A0/IQKJWtqLgvEIA> (teacher resource)

Prior Learning

Forever Firs children working at ARE should already be able to:

Year 2 - Living Things and their Habitats

- explore and compare the difference between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including micro-habitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Year 4 - Living Things and their Habitats

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things

Key Vocabulary			
Tier 1	Tier 2		Tier 3
Change Time	Inhabit Inhabited Dinosaurs Skeleton Offspring Vary Identical Adapt Adapted Environment Evolution Extinct	Predict Enquiry Variable Report Present Explanation Information	Fossils Prehistoric Earth

Science Assessment			
Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE

Geography

National Curriculum: Pupils should be taught about:
describing and understanding key aspects of:

- physical geography, including: climate zones, biomes and vegetation belts

Key Lines of Enquiry

- Children will learn about different climate zones and biomes making links to their science learning on animal and plant adaptation to different environments.

<https://www.bbc.co.uk/bitesize/clips/zr7hyrd> (Climate Zones)

<https://www.bbc.co.uk/bitesize/topics/z849q6f/articles/zvsp92p> (Biomes)

Age Related Subject Skills (Progression Guidance):

Year 5

Using maps

- Compare maps with aerial photographs
- Select a map for a specific purpose
- Begin to use atlases to find out other information (e.g. temperature)
- Find and recognise places on maps of different scales
- Use 8 figure compasses, begin to use 6 figure grid references.

Map knowledge

- Locate the world's countries, focus on North & South America
- Identify the position and significance of lines of longitude & latitude

Making maps

- Draw a variety of thematic maps based on their own data
- Draw a sketch map using symbols and a key,
- Use and recognise OS map symbols regularly

Year 6

Using maps

- Follow a short route on an OS map
- Describe the features shown on an OS map
- Use atlases to find out data about other places
- Use 8 figure compass and 6 figure grid reference accurately
- Use lines of longitude and latitude on maps

Map knowledge

- Locate the world's countries on a variety of maps, including
- the areas studied throughout the Key Stages

Making maps

- Draw plans of increasing complexity
- Begin to use and recognise atlas symbols

Prior Learning Forever Firs children working at ARE should already be able to:

Year 5

Using maps

- Follow a route on a large-scale map
- Locate places on a range of maps (variety of scales)
- Identify features on an aerial photograph, digital or computer map
- Begin to use 8 figure compass and four figure grid references to identify features on a map

Map knowledge

- Locate Europe on a large-scale map or globe,
- Name and locate countries in Europe (including Russia) and their capitals cities

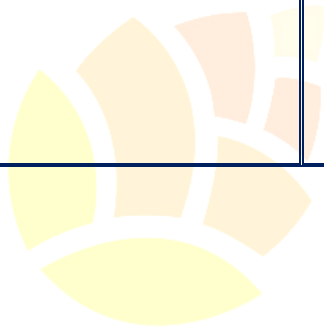
Making maps

- Recognise and use OS map symbols, including completion of a key and understanding why it is important
- Draw a sketch map from a high viewpoint
-

Year 6

See Year 5 Progression Statements (above)

Key Vocabulary		
Tier 1	Tier 2	Tier 3
	Desert Wildlife	Physical geography Climate zone Biome Vegetation belt Arctic climate Temperate climate Mediterranean climate Desert climate Tropical climate Equator Savannah Woodland Grassland Tundra Landscape Vegetation



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Geography Assessment

Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE
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Design and Technology

National Curriculum:

Pupils should be taught to:

- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
- select from and use a wider range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Key Line of Enquiry:

- Children will design, build and evaluate mechanical animal models based on the Nuffield DT project. (<https://www.stem.org.uk/resources/elibrary/resource/25895/how-will-your-beast-open-its-mouth>)

Age Related Subject Skills (Progression Guidance):

Design

- Carry out research, using surveys, interviews, questionnaires and web-based resources
- Identify the needs, wants, preferences and values of particular individuals and groups
- Develop a simple design specification to guide their thinking
- Recognise when their products have to fulfil conflicting requirements
- Generate innovative ideas, drawing on research
Make design decisions, taking account of constraints such as time, resources and cost
- Develop prototypes

Make

- Select tools and equipment suitable for the task
- Explain their choice of tools and equipment in relation to the skills and techniques they will be using
- Select materials and components suitable for the task
- Explain their choice of materials and components according to functional properties and aesthetic qualities
Order the main stages of making
- Produce detailed lists of tools, equipment and materials that they need
- Follow procedures for safety
- Use a wider range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components

Evaluate

- Identify the strengths and weaknesses of their ideas and products
- Consider the views of others, including intended users, to improve their work
- Refer back to their design criteria as they design and make
- Use their design criteria to evaluate their completed products
- Investigate - how well products have been designed, how well products have been made, why materials have been chosen, what methods of construction have been used, how well products work, how well products achieve their purposes and how well products meet user needs and wants
- Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
- Compare their ideas and products to their original design specification
- Investigate - how much products cost to make, how innovative products are and how sustainable the materials in products are

Technical Knowledge

- Understand how to use learning from science and maths to help design and make products that work
- Know that materials have both functional properties and aesthetic qualities
- Know that materials can be combined and

<ul style="list-style-type: none"> • Accurately measure to nearest mm, mark out, cut and shape materials and components • Accurately assemble, join and combine materials/ components • Accurately apply a range of finishing techniques, including those from art and design • Use techniques that involve a number of steps • Demonstrate resourcefulness, e.g. make refinements 	<ul style="list-style-type: none"> • mixed to create more useful characteristics • Know that mechanical and electrical systems have an input, process and output • Use the correct technical vocabulary for the projects they are undertaking • Understand how cams, pulleys and gears create movement • Know how to reinforce/strengthen a 3D framework
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Prior Learning

Forever Firs children working at ARE in Year 5 and 6 should already be able to:

Design

- Gather information about the needs and wants of particular individuals and groups
- Develop their own design criteria and use these to inform their ideas
- Research designs
- Share and clarify ideas through discussion Model their ideas using prototypes and pattern pieces
- Use annotated sketches, cross-sectional drawings and diagrams
- Use computer-aided design

Make

- Measure, mark out, cut and shape materials and components with some accuracy
- Assemble, join and combine materials and components with some accuracy apply a range of finishing techniques, include those from art and design, with some accuracy

Evaluate

- Identify the strengths and weaknesses of their ideas and products
- Consider the views of others, including intended users, to improve their work
- Investigate - who designed and made the products, where products were designed and made, when products were designed and made and whether products can be recycled or reused

Technical Knowledge

- Understand how levers and linkages or pneumatic systems create movement
- Know how to make strong, stiff shell structures

Key Vocabulary

Tier 1	Tier 2	Tier 3
	design construct evaluate design criteria diagram stiffen reinforce materials aesthetic function joining mechanical	design criteria gears pulleys cams levers linkage prototype

Design and Technology Assessment

Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE
 The logo for Firs Primary School is centered in the table. It features a stylized sun or flower icon on the left, composed of several overlapping semi-circles in shades of yellow and orange. To the right of the icon, the word "Firs" is written in a large, light blue, sans-serif font. Below "Firs", the word "Primary" is written in a slightly smaller, light blue, sans-serif font. At the bottom, the word "School" is written in a light blue, sans-serif font, flanked by two short horizontal yellow bars.			

Computing

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts § use sequence, selection, and repetition in programs; work with variables and various forms of input and output §use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Computing Strand: Programming

Topic Links: To create a game

Age Related Subject Skills (Progression Guidance - DDAT):

- *Pupils write a simple algorithm, for instance to create a basic traffic light sequence. They then use flowcharting software (such as Go or Flowgo) to create a simple program to control an onscreen icon. They are able to explain how their program works*
- *Pupils create a computer game, using a graphical language such as Scratch or Kodu*

Upper Key Stage 2

- Begin to think logically to analyse a simple game and discuss what the different algorithms should instruct.
- Begin to create a simple game between two sprites
- Create a game that uses a range of commands including sensing, movement, variables and IF THEN.
<https://simonhaughton.typepad.com/main/2013/02/scratch-20-resources-and-planning.html>

Other Key Areas of Learning:

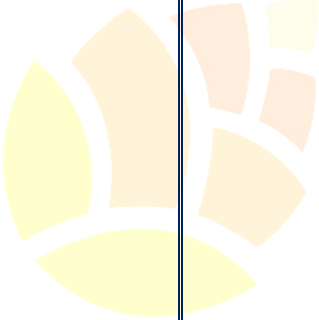
- To play games in scratch <https://www.tes.com/teaching-resource/scratch-game-packs-6257256> To begin to look at the algorithms and explain what they tell the sprites to do and the purpose in the game
- To choose the type of game they want to create <https://www.twinkl.co.uk/resource/tp2-i-017-planit-computing-year-5-scratch-developing-games-planning-overview>
- To understand the different parts of a game for each part of the algorithm: board/set up, character, how they move, scoring etc.
- To write instructions for the game
- <https://www.barefootcomputing.org/resources/make-a-game-project>
- To use other games as the inspiration. <https://www.bbc.co.uk/teach/class-clips-video/computing-ks1--ks2-programming-a-computer-game/zn8d7nb>

Prior Learning

Forever Firs children working at ARE should already be able to:

- Explain what an algorithm will do by reading the commands.
- Test my algorithm and recognise when to change it
- Navigate around Scratch (or similar)
- Create a repeat pattern that instructions motions by specifying the number of steps, direction and turn.
- Adds speech
- Make my sprite change colour
- Control what my sprite does using specified keys.
- Begin to break algorithms down to solve problems.
- Create a list of 5 commands which involve movements and looks.
- Use costumes
- Use two sprites and two algorithms
- Use sound
- Begin to use sensing to create a command
- Begin to use timings to control movements and speech between characters

Key Vocabulary					
Tier 1		Tier 2		Tier 3	
Game Command Score	Instructions Instruct	Sprite Algorithms		Sensing Movement Variables 'IF' 'THEN'	Analyse

Computing Assessment			
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