Durham Lane Primary School: Topic Planning

Topic: Robots **Term:** Year A Spring 2 **Class:** 3/4 **Teacher:** Miss Drew/Mrs Wheatley

Subjects	Objectives	Key Knowledge/Key Concepts/Key Elements	Key Vocabulary	Skills	Activities/ Tasks
Geography	2. Understand geographical similarities and differences through the study of human geography of a region of the United Kingdom or South America.	Climate • To identify and compare different sources of energy • To understand what global warming is • To identify ways global warming can be combatted • To compare Eaglescliffe to Curitiba Human features • To understand how humans impact climate change • To understand what can be done to combat global warming	Global warming Climate Curitiba Brazil Eaglescliffe Great Britain South America Climate change Europe Compare Case study Initiatives Recycling Transport	**Geographical Enquiry** • Use NF books, stories, atlases, pictures/photos and internet as sources of information • Ask and respond to questions and offer their own ideas • Extend to satellite images, aerial photographs • Collect and record evidence with some aid • Analyse evidence and draw conclusions e.g. make comparisons between locations using photos/pictures/ maps/temperatures	• Introduce children to different types of electricity (e.g. solar, wind, water power). • Talk about global warming etc. • Children research and compare how eco-friendly Eaglescliffe is to a region in South America (Curitiba)
Science	4.15 Identify common appliances that run on electricity 4.16 Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 4.17 Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery 4.18 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit 4.19 Recognise some common conductors and insulators, and associate metals with being good conductors	• To identify appliances that run on electricity at home and at school • To understand the difference between battery and mains • To understand the components of a simple circuit (cell, wire, crocodile clips, bulbs, switches, buzzers) • To know whether a circuit will work • To understand a switch opens and closes a circuit • To know what a conductor is • To know what an insulator is • To identify common conductors and insulators • To associate metals with being good conductors	Conductor Insulator Metal Electricity Circuit Cell Bulb Battery Buzzer Motor Crocodile clips Switch Wire Mains Appliance Simple circuit	**Asking Questions & Planning Enquiries** • Raise their own relevant questions about the world around them • Should be given a range of scientific experiences including different types of science enquiries to answer questions. • Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions. **Testing, Measuring & Recording** Set up simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up. Make systematic and careful observations. 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. Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data. **Concluding** • Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. • With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. • Use relevant simple 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. **Evaluating** • With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.	• KWL grid • Sort pictures of appliances based on whether they run on electricity or not (mains, battery or both) • Safety around electricity – make poster • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. o Sweet circuits (page 136) – children choose sweets to represent electrical components and make circuits using them. Could photograph them and label them in their books. o Working towards an electrical qualification challenge 1 and 2 (page 136/137) ▪ Challenge 1 – look at different components of circuits and sort them. Give children a 'tool kit' and ask them to put a component next to relevant picture on tool kit. ▪ Challenge 2 – children build simple circuits. Allow them to investigate different circuits by providing them

Durham Lane Primary School: Topic Planning

Topic: Robots **Term:** Year A Spring 2 **Class:** 3/4 **Teacher:** Miss Drew/Mrs Wheatley

					with questions to work through. ▪ Draw pictorial representation of circuit • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. o Challenge 3 (page 138) – inspecting circuits – show children circuits which would be unsuccessful and children explain why they would be unsuccessful. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. o Challenges 4a and 4b – children connect switches in circuits and think about the effect of those. In 4b, children make their own switches from a range of materials – nice investigative lesson • Look at conductors and insulators o Challenge 5 – test materials to see which conduct electricity.
Art	1) To create sketchbooks to record their observations and use them to review and revisit ideas. 2) To improve their mastery of art and design techniques, including sculpture 3) Learn about great sculptors in history	Exploring, evaluating and developing ideas • To be able to make decisions about what looks best. • To be able to review and evaluate art work. • To evaluate existing sculptures. Artists • To know who Leo Sewell is and how he creates his sculptures. Form • To be able to identify some ways that materials can be joined • To know which pieces of equipment are appropriate for the task • To understand the importance of size and aesthetics when creating a sculpture	Artist Leo Sewell Sculpture Recycled material Aesthetics Size Evaluate Equipment Joining Methods	**Exploring/ Evaluating and developing ideas** • Create sketch books to record their observations and use them to review and revisit ideas • Select and record from observation, experience and imagination and explore ideas for different purposes • Record and explore ideas using a variety of ways including digital cameras and iPads • Question and make thoughtful observations about starting points and select ideas for use in their work • Begin to use artistic/visual vocabulary to discuss work • Experiment with a wider range of materials • Think critically about their art and design work • Plan, refine and alter their work as necessary • Plan, design, make and adapt models from observation or imagination **Form** • Use the equipment and media with increasing confidence • Shape, form, model and construct from observation and/ or imagination with increasing confidence • Have an understanding of different adhesives and methods of construction • Experiment with constructing and joining recycled, natural and manmade materials • Begin to have some thought towards size • Simple discussion about aesthetics • Plan and develop ideas in sketchbook and make informed choices about media	• Look at skills regarding joining materials • Plan robots • End piece: robot building day • Review end piece using reflective form Artist – Leo Sewell

Durham Lane Primary School: Topic Planning

Topic: Robots **Term:** Year A Spring 2 **Class:** 3/4 **Teacher:** Miss Drew/Mrs Wheatley

				• Work safely to organise working area and clear away • Discuss own work and work of other sculptors with comparisons made	
DT	1b) generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 2a) select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately 2b) 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 3b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 4a) apply their understanding of how to strengthen, stiffen and reinforce more complex Structures 4c) understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] 4d) apply their understanding of computing to program, monitor and control their products.	Design, make and evaluate • To be able to make decisions about what looks best. • To be able to review and evaluate design work. • To evaluate existing sculptures. • To know whether you have been successful at creating a computer programme Structures • To know how to join materials together • To know how to carefully make, measure and cut • To know how to make a product strong Electrical Systems • To understand the components of a simple circuit (cell, wire, crocodile clips, bulbs, switches, buzzers) • To know whether a circuit will work • To understand a switch opens and closes a circuit Computing a programme • To know how to programme a computer system accurately	Robot Beebot Probot Measure Cut Component Join Material Stiff Strong Circuit Recycled Structure Bulb Wire Crocodile clip Switch Cell Battery Compute Programme	**Design** * use research for design ideas * describe purpose of product * show design meets a range of requirements and is fit for purpose *follow a given design criteria and then begin to create own design criteria *have at least one idea about how to create product and suggest improvements for design. * produce a plan which shows order, equipment and tools and explain it to others *include an annotated sketch *make and explain design decisions considering availability of resources *explain how product will work **Make** * select suitable tools and equipment, explain choices in relation to required techniques and use accurately *select appropriate materials, fit for purpose; explain choices * work through plan in order. * realise if product is going to be good quality * measure, mark out, cut and shape materials/components with some accuracy *assemble, join and combine materials and components with some accuracy *apply a range of finishing techniques with some accuracy **Evaluate** *refer to design criteria while designing and making *use criteria to evaluate product * begin to explain how I could improve original design *evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * discuss by whom, when and where products were designed * research whether products can be recycled or reused * know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products **Technical knowledge – Materials/textile/structures** *work accurately to make cuts and holes *measure carefully to avoid mistakes *attempt to make product strong *continue working on product even if original didn't work *make a strong, stiff structure *explain how to join things in a different way **Technical knowledge – Mechanism** *select most appropriate tools / techniques *explain alterations to product after checking it *grow in confidence about trying new / different ideas. *use levers and linkages to create movement *use pneumatics to create movement **Technical knowledge – Electrical systems/IT Computer control and monitoring** use a number of components in circuit *program a computer to control product	•

Durham Lane Primary School: Topic Planning

Topic: Robots **Term:** Year A Spring 2 **Class:** 3/4 **Teacher:** Miss Drew/Mrs Wheatley

English			See skills progression sheet	Use Literacy Shed 'Powerless' as a focus • Descriptions (lots of opportunity for description in this so could just pick something to describe) • Narrative writing – retell the story (focus on building up tension to link to the music) • Write a dialogue between the two fairies and between the man and the robot. • Write instructions for building a robot. • Create own model robots to star in their own narratives and use to make own animations. • Compare and contrast with Pinocchio story? Children write another fairytale in futuristic style?