Science Theme Weeks (3 Week Project)

Title: The Great Exhibition (Research, design and Make Project)

Cross curricular links with DT

Year: 4 Gangsta Granny		
Teaching Ideas	Subject	National Curriculum Objectives
Pupils should learn how to make simple series circuits using a range of components and identify when a circuit will / will not work and why, including using switches. They should be able to represent series circuits in drawings with labels (conventional circuit symbols are introduced at Year 6 but may be introduced to most able scientists) Pupils could investigate different ways to make switches and appropriate materials to make switch from. Pupils should carry out an investigation to discover materials which are electrical conductors or insulators. Pupils should be set a problem to solve: To protect the Queen's Crown Jewels from an infamous cat burglar (Ben's Granny!) Pupils should use their knowledge of electrical circuits to design and make a model of the Tower of London and an alarm system to protect the crown jewels (e.g. pressure pad switch to turn on lights; circuit break; switch which turns on buzzer) Pupils should make prototypes first to test their ideas. The project will culminate in a demonstration stall (e.g. in their classroom) during the 'Great Exhibition' of their work, with pupils explaining to visitors how their security systems work.	Electricity Literacy links: Class novel: Gangsta Granny (David Walliams) Letter writing (formal letters – letter to the Queen or author explaining their ideas, with photos/designs included etc) Rap (linked to class novel)	• Set up simple practical enquiries • Make systematic and careful observations • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings • Identify common appliances that run on electricity • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • 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 • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • Recognise some common conductors and insulators, and associate metals with being good conductors Design and Technology: • Use research and develop design criteria to inform the design of innovative and functional products that are fit for purpose • Generate, develop, model and communicate their ideas through discussion, annotated sketches, exploded diagrams and prototypes.

		• Investigate and analyse a range of existing products • Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors)