Whole School Overview for Science
Autumn Term 2018/2019

Year 1

Science	Design and Technology
Everyday materials	**Link to Materials**
Knowledge base • Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties **Work scientifically** • Ask simple questions about the world around me • perform simple tests • Gather and record information to help answer questions (including using photographs and drawings)	**Design** • Design products that have a clear function and an intended user. **Making** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] **Evaluating** • Explore and evaluate a range of existing products and evaluate their ideas and products against design criteria

Year 2

Science	Design and Technology
Everyday materials	**Link to Materials**
Knowledge base • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching **Work scientifically** • Ask questions and suggest a possible way to answer them • Observe carefully • Identify what is need to measure in a test • Identify similarities and differences	**Design** • Design products that have a clear function and an intended user. **Making** • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluating** • Explore and evaluate a range of existing products and evaluate their ideas and products against design criteria

Year 3

Science	Design and technology
Forces and magnets	**Link to Materials**
Knowledge base • Compare how things move on different surfaces • Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing **Working Scientifically** • Ask relevant scientific questions • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language	**Design** • Gather and review information and resources relating to ideas. **Making** • Develop practical skills by experimenting with, and testing the qualities of a range of different material and techniques. **Evaluating** • Reflect upon likes and dislikes of a piece of work, in order to improve it.

Year 4

Science	Design and technology
States of matter	**Linking to States of matter**
Knowledge base • Compare and group materials together, according to whether they are solids, liquids or gases • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees celsius (°c) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature **Working Scientifically** • Make systematic and careful observations • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language • Use straightforward scientific evidence to answer questions or to support his/her findings	**Design** • Use planning and research to improve understanding, inform ideas and plan for an outcome (e.g. sketchbooks will show several different versions of an idea and research has led to an improvement in outcome). **Making** • Investigate the qualities of different materials and processes systematically. **Evaluating** • Regularly reflect upon their own work, and use comparisons with the work of others to identify how to improve.

Year 5

Science	Design and technology
Properties and changes of materials	**Linking to Properties and changes of materials**
Knowledge base • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. •	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **Making** • Select and use relevant resources and references to develop ideas. **Evaluating** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Working Scientifically • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment • Record data and results • Report and present findings	

Year 6

Science	Design and technology
Electricity	**Linking to Electricity**
Knowledge base • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • Use recognised symbols when representing a simple circuit in a diagram **Working Scientifically** • Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results • Use test results to make predictions to set up further comparative and fair tests Report and present findings from enquiries	**Designing** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups **Making** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **Evaluating** • Evaluate the design of products so as to suggest improvements to the user experience