CURRICULUM MAP (Long term plan)

SUBJECT : **DT** **YEAR GROUP: 6**

	Cycle 1 **Autumn:** **LED Torch Project**	**Cycle 2** **Spring:** **Viking Longships**	**Cycle 3** **Summer:** **Chinese Inventions**
Substantive knowledge – Essential knowledge & conceptual understanding of the National Curriculum	**Designing** ***Understanding contexts, users and purposes*** Working within a context Explain how key features of their product work Discussing the purpose of their product Carry out research ***Generating, developing, modelling and communicating ideas*** Discussing ideas Annotated sketches Technical drawings Take account of constraints when designing **Making** ***Planning*** Select tools, materials and components appropriate for the task Justify materials used according to properties Formulate step by step plans ***Practical skills and techniques*** Follow health and safety practices Measure, mark out and shape materials with accuracy	**Designing** ***Understanding contexts, users and purposes*** Working within a context Explain how key features of their product work Discussing the purpose of their product Carry out research ***Generating, developing, modelling and communicating ideas*** Discussing ideas Sketching ideas 3D modelling/prototyping (inc. manikins) Take account of constraints when designing **Making** ***Planning*** Select tools, materials and components appropriate for the task Justify materials used according to properties Formulate step by step plans ***Practical skills and techniques*** Follow health and safety practices Measure, mark out and shape materials with accuracy	**Designing** ***Understanding contexts, users and purposes*** Working within a context Explain how key features of their product work Discussing the purpose of their product Carry out research Identify needs of a user Develop a simple specification ***Generating, developing, modelling and communicating ideas*** Discussing ideas Annotated sketches that draw on research Take account of constraints when designing Sketch modelling / prototyping **Making** ***Planning*** Select tools, materials and components appropriate for the task Justify materials used according to properties ***Practical skills and techniques*** Follow health and safety practices

	Assemble & combine materials and apply finishes with accuracy Use techniques involving a number of steps Demonstrate resourcefulness when tackling the problem **Evaluating** ***Own ideas and products*** Critically evaluate the manufacture of the LED torches to set criteria Peer evaluation of their work ***Existing products*** Evaluate existing LED torches to set criteria (inc. sustainability) ***Key events and individuals*** The Industrial Revolution **Technical Knowledge** ***Making products work*** Use maths and science learning when manufacturing LED torches Aesthetic and functional properties of materials (MDF) Using electronic circuits and components to create functional products Evaluation of the use of LEDs in modern day products Use DT technical knowledge/vocab in context and correctly	Assemble & combine materials and apply finishes with accuracy Use techniques involving a number of steps Demonstrate resourcefulness when tackling the problem **Evaluating** ***Own ideas and products*** Critically evaluate the manufacture of the Viking longship model to set criteria Peer evaluation of their work ***Existing products*** Evaluate the work of Giacometti ***Key events and individuals*** Giacometti **Technical Knowledge** ***Making products work*** Use maths learning when manufacturing Viking longship Aesthetic and functional properties of materials (card and aluminium foil) Use DT technical knowledge/vocab in context and correctly	Measure, mark out and shape materials with accuracy Assemble & combine a range of materials and apply finishes with accuracy Use techniques involving a number of steps Demonstrate resourcefulness when tackling the problem **Evaluating** ***Own ideas and products*** Critically evaluate the manufacture of their kites against specification Peer evaluation of their work ***Existing products*** Evaluate ancient Chinese inventions ***Key events and individuals*** Key ancient Chinese inventions **Technical Knowledge** ***Making products work*** Use maths and science learning when manufacturing Mechanical systems and components Movement types through mechanical systems and components Aesthetic and functional properties of materials Use DT technical knowledge/vocab in context and correctly
Disciplinary knowledge - what skills are practiced?	Measuring, marking out, cutting, shaping, assembling and finishing material accurately Sketching and annotating ideas	Measuring, marking out, cutting, shaping, assembling and finishing material accurately Sketching and annotating ideas	Measuring, marking out, cutting, shaping, assembling and finishing material accurately Sketching and annotating ideas

	Technical drawing Analysing and evaluating existing products Generating step by step plans that includes technical language How to operate and handle tools and equipment with accuracy How to work safely when in DT Evaluating and testing completed product against set criteria	Working to scale and proportion Model making Analysing and investigating the work of key individuals Generating step by step plans that includes technical language How to operate and handle tools and equipment with accuracy How to work safely when in DT Evaluating and testing completed product against set criteria	Working to scale and proportion Model making / prototyping / sketch modelling Formulating design criteria / specification Testing materials and recording results How to operate and handle tools and equipment with accuracy How to work safely when in DT Evaluating and testing completed product against set criteria
Key questions (What is the learning about?)	Can I understand the health & safety rules in a DT workshop? Can I understand the importance of the Victorian Era on the development of inventions? Can I draw a torch's key parts and understand their purpose? Can I use a simple circuit to make a LED torch? Can I use ACCESSFM to analyse torches? Can I recognise and name basic electronic components? Can I create a range of design ideas for an LED torch?	Can I make my own manikins? Can I sketch manikins in various poses? Can I research Giacometti & analyse his Walking Man II sculpture? Can I create a Giacometti style sculpture? Can I draw a range of Viking / Beowulf research sketches? Can I make a model of a Viking longship? Can I make a Viking warrior sculpture in the style of Giacometti?	Can I explain how great Chinese inventions affected the world? Can I investigate water-powered machines? Can I build and test prototype kites? Can I design a kite based on design criteria? Can I manufacture my designed kite? Can I test and evaluate my kite? Can I demonstrate the knowledge I have gained from this project?

	Can I mark, shape, cut out and assemble a membrane torch? Can I test and evaluate my membrane torch? Can I demonstrate the knowledge I have gained from the LED torch project?	Can I test and evaluate my Viking longship? Can I demonstrate the knowledge I have gained from this project?	
Assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Peer assessment Completed product assessed EoT assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Peer assessment Completed product assessed EoT assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Peer assessment Completed product assessed EoT assessment
Literacy (L),**Numeracy** (N), **Oracy** (O) **opportunities**	**Literacy** Using subject specific terminology. Written tasks - step by step plans, annotating of ideas and evaluating tasks. **Numeracy** Measuring and marking out using the metric system. Drawing to scale and proportion **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others	**Literacy** Using subject specific terminology. Written tasks – evaluating the work of a key individual, step by step plans, annotating of ideas and evaluating tasks. Comprehension task **Numeracy** Measuring and marking out using the metric system. Model making to scale and proportion Nets/tessellation **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others	**Literacy** Using subject specific terminology. Written tasks – devising tests, recording results, generating design criteria, step by step plans, annotating of ideas and evaluating tasks. **Numeracy** Measuring and marking out using the metric system. Measuring time / timekeeping (compass task) **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others
Cross Curricular Opportunities	**Maths** Measuring and marking out using the metric system Drawing to scale and proportion	**Maths** Measuring and making out using the metric system Working to scale and proportion	**Maths** Measuring and making out using the metric system Measuring time / timekeeping

	English Range of written activities **Science** Electronic components Electricity Electron flow Conductors and insulators **History** The Victorians The Industrial Revolution **Art** Freehand sketching	Nets Patterns/tessellation **English** Range of written activities Beowulf novel **Science** Buoyancy / water displacement **History** Vikings WW2 (Giacometti) **Geography** Origins of the Vikings Countries visited / conquered by the Vikings **Art** Giacometti Freehand sketching Sculpture	**English** Range of written activities **Science** Testing materials for qualities Magnetic north / compasses Material properties Mechanisms/mechanical movement Motion/movement Cogs, gears, pulleys, cams Lift, weight, drag and thrust (kite) **History** Ancient China Impact of key Chinese inventions **Geography** China / Asia location Neighbouring countries to China
SMSC / Character/Careers (C) (personal development)	**Social** Teamworking, supporting peers, following rules (within a workshop), mutual respect and tolerance for the views/work/ideas of peers **Moral** The impact (positive/negative) of the Industrial Revolution? The consequences at the time, now and in the future To develop an awareness of the duty designers have on developing and designing environmentally friendly and sustainable products. **Culture** Through product analysis and work on the Industrial Revolution pupils can reflect on ingenious products and	**Social** Teamworking, supporting peers, following rules (within a workshop), mutual respect and tolerance for the views/work/ideas of peers **Moral** The impact of WW2 The impact and legacy of the Vikings Why did the Vikings do what they did? Where they a moral race? How did Viking longships help them accomplish their aims? **Culture** The inspiration for the Giacometti and who he inspired inspiration Exposure to the inventiveness and mindset of the Vikings Viking names	**Social** Teamworking, supporting peers, following rules (within a workshop), mutual respect and tolerance for the views/work/ideas of peers **Moral** The impact on the world by the invention of paper, gunpowder, the compass and printing Use of water and wind as a power source (sustainability) – where do we see these today? Did the ancient Chinese think of renewable energy before the rest of the world? How kites were used for military purposes by the Chinese **Spiritual** What was ancient China like?

	inventions that have come about as a result of the Industrial Revolution Exposure to the inventiveness of mankind **Character/Careers** Developing key (transferable) characteristics of resilience, problem solving, patience, resourcefulness and being innovative	**Character/Careers** Developing key (transferable) characteristics of resilience, problem solving, patience, resourcefulness and being innovative	The influence of ancient China on the modern world **Culture** The inventiveness of the ancient Chinese people and how their inventions have continued impacting modern products
Super Curriculum (personal development)	DT Club Links with other STEM subjects Some groups taught by subject specialists	DT Club Links with other STEM subjects Some groups taught by subject specialists	DT Club Links with other STEM subjects Some groups taught by subject specialists
Careers	HT 1 jewellery designer Running a jewellery business - BBC Bitesize	HT1 Archaeologist Pathways into Archaeology	HT1 art historian How to become an art historian: Joe's story - BBC Bitesize
Equality and Diversity Gender Disability Religion Race Sexuality	Diverse representation used with slides presented to pupils. Project is not gender biased/gender themed (traditionally DT seen as a subject for male pupils) Mutual respect for all modelled by teacher and expected from pupils Equal Engineers	Diverse representation used with slides presented to pupils. Project is not gender biased/gender themed (traditionally DT seen as a subject for male pupils) Mutual respect for all modelled by teacher and expected from pupils Why Diversity is Key to The Future of Engineering - UC Riverside	Diverse representation used with slides presented to pupils. Project is not gender biased/gender themed (traditionally DT seen as a subject for male pupils) Mutual respect for all modelled by teacher and expected from pupils IN DEPTH: How can a more diverse workforce benefit the UK catering equipment sector?
Local Community Links			
British Values Democracy The rule of Law Individual Liberty Mutual Respect and Tolerance of others	Children at our school are asked for their views about DT lessons and feedback is welcomed by both the staff and the subject lead. This is often in the form of a pupil voice questionnaire. Children work together to support each other in lessons and children that are more able can be given the opportunity to lead with their own examples of their work. Children take turns both in speech and practically with others. Children understand that it is not always possible or right to have their own way and understand the value of compromise. Children must take the views and opinions of others into account but still have the right to make their own choices.		

SMSC Character Education	Children follow general class and school rules during their DT lessons. Children understand the importance of safety rules when using tools. They are taught the specific skills within the subject allowing them to develop their skills in following the 'rules' of DT. Children also understand and accept that if these rules are not followed that there are consequences to this. Children are encouraged to develop their own self knowledge through our creative subjects such as DT. Children are taught that DT is a very subjective and personal subject which provides an opportunity to express themselves. The children are encouraged to make decisions with their own design choices, style and sometimes media choice. Children are expected to take responsibility for all of the equipment used when working in DT. Children understand that it is important to listen to others but they make their own ideas and design choices in D.T. Children accept that others ideas may not be the same as their own. Children understand that many great design ideas originate from other cultures. When completing the food and nutrition units, food from different cultures are discussed as well as food that is accepted in different faiths. Children listen carefully and are reminded to treat each other equally and with respect regardless of abilities. Children are able to take turns during discussions to resolve difficulties or make decisions. Children are given many opportunities to critique each other's work in a positive and constructive manner whilst showing respect for the opinions and beliefs of their peers which may differ from their own.