CURRICULUM MAP (Long term plan)

SUBJECT : Design Technology **YEAR GROUP: 5**

	Cycle 1 **Autumn:** **Gumball Dispensing Machine**	**Cycle 2** **Spring:** **Bridges**	**Cycle 3** **Summer:** **Shakespeare's Globe**
Substantive knowledge – Essential knowledge & conceptual understanding of the National Curriculum	**Designing** ***Understanding contexts, users and purposes*** Working within a context Explain key features of products (e.g. rockets) Designing to a brief, context and for a particular user Discussing the purpose of their product ***Generating, developing, modelling and communicating ideas*** Designing to a brief Generate realistic ideas Discussing ideas Annotated sketches **Making** ***Planning*** Select tools, materials and components appropriate for the task Justify materials used according to properties Keep a manufacturing diary ***Practical skills and techniques*** Follow health and safety practices Measure, mark out and shape materials (corrugated card) with some accuracy	**Designing** ***Understanding contexts, users and purposes*** Working within a context Explain how bridges work Designing to a brief, context and for a particular user ***Generating, developing, modelling and communicating ideas*** Designing to a brief Generate realistic ideas that take account of resources available Prototyping and modelling ideas Discussing ideas **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 Measure, mark out and shape materials (corrugated card) with some accuracy Assemble & combine a range of materials and apply finishes with some accuracy	**Designing** ***Understanding contexts, users and purposes*** Working within a context Develop own design criteria ***Generating, developing, modelling and communicating ideas*** Designing to a brief Generate realistic ideas that take account of resources available Prototyping and modelling ideas Discussing ideas **Making** ***Planning*** Select tools, materials and components appropriate for the task Justify materials used according to properties Order stages of manufacturing ***Practical skills and techniques*** Follow health and safety practices Measure, mark out and shape a range of materials with some accuracy Assemble & combine materials and apply finishes with some accuracy **Evaluating** ***Own ideas and products***

	Assemble & combine materials and apply finishes with some accuracy **Evaluating** ***Own ideas and products*** Evaluate completed gumball dispenser machine to set criteria Peer evaluation of their work ***Existing products*** Evaluate existing gumball dispensing machines to set criteria **Technical Knowledge** ***Making products work*** Use of mechanical systems to create movement Use maths learning when manufacturing gumball dispenser Aesthetic and functional properties of corrugated card Making a strong and stiff shell structure Use DT technical knowledge/vocab in context and correctly	**Evaluating** ***Own ideas and products*** Identify strengths and areas for development in bridge designs ***Existing products*** Evaluate/investigate existing bridges ***Key events and individuals*** The impact of bridge design and development on humans **Technical Knowledge** ***Making products work*** Use science and maths learning in bridge designing and manufacturing Combining materials to increase strength and properties Making strong and stiff shell structures Use DT technical knowledge/vocab in context and correctly	Identify strengths and areas for development in ideas for set designs ***Existing products*** Discuss key features of existing set designs ***Key events and individuals*** Shakespeare **Technical Knowledge** ***Making products work*** Use maths learning when manufacturing Globe model and set design Combining materials to increase strength and properties Making a stiff shell structure Use DT technical knowledge/vocab in context and correctly
Disciplinary knowledge - what skills are practiced?	Measuring, marking out, assembling and finishing material accurately Sketching and annotating ideas Analysing existing products Keeping manufacturing records that includes technical language How to operate and handle tools and equipment with some accuracy How to work safely when in DT	Measuring, marking out, assembling and finishing material accurately Sketching and annotating ideas How to strengthen materials Analysing existing products How to operate and handle tools and equipment with some accuracy How to work safely when in DT	Measuring, marking out, assembling and finishing material accurately Sketching and annotating ideas Sketch modelling How to operate and handle tools and equipment with some accuracy How to work safely when in DT Evaluating and testing completed product against set criteria

	Evaluating and testing completed product against set criteria	Evaluating and testing completed product against set criteria	
Key questions (What is the learning about?)	Can I manufacture an air powered rocket? Can I understand DT health & safety practices? Can I analyse existing products? Can I create design ideas for my gumball dispenser? Can I measure and mark out gumball dispenser pieces accurately? Can I cut out and shape my gumball dispenser pieces accurately? Can I assemble my gumball dispenser accurately? Can I test and evaluate my completed product?	Can I create free standing and stable structures? Can I make a model to show a triangle's strength? Can I explore ways in which pillars and beams are used to span gaps? Can I explore ways in which trusses can be used to strengthen bridges? Can I explore ways in which arches are used to strengthen bridges? Can I understand how suspension bridges are able to span long distances? Can I develop criteria and design a prototype bridge for a purpose? Can I analyse and evaluate products according to design criteria? Can I demonstrate the knowledge I have gained for this project?	Can I recognise key areas of the Globe Theatre? Can I understand the setting for Shakespeare's The Tempest? Can I create a model of Shakespeare's Globe? Can I create a model of the Globe's stage? Can I generate set design ideas for The Tempest? Can I make set design models?
Assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Completed product assessed EoT assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Completed product assessed EoT assessment	Live marking (theory & practical) Verbal feedback in lessons Whole class feedback Completed product assessed EoT assessment
Literacy (L),**Numeracy** (N), **Oracy** (O) **opportunities**	**Literacy** Using subject specific terminology.	**Literacy** Using subject specific terminology. Completing analysis, annotating of ideas and evaluating tasks.	**Literacy** Using subject specific terminology. Annotating of ideas and evaluating tasks.

	Completing analysis, a manufacturing diary, annotating of ideas and evaluating tasks. **Numeracy** Measuring and making out using the metric system. **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others	**Numeracy** Measuring and making out using the metric system. Weight Designing to scale **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others	**Numeracy** Measuring and making out using the metric system. **Oracy** Sharing and discussing ideas with teacher/class/peers Supporting/guiding others
Cross Curricular Opportunities	**Maths** Measuring and making out using the metric system **English** Range of written activities Acronyms **Science** Making an air powered rocket – the key elements of rocket design **Art** Freehand sketching	**Maths** Measuring and making out using the metric system Weight (grams) Scale **English** Range of written activities **Science** The strength of triangles and arches Compression/tension Modern construction materials Material properties Effects of gravity on bridge design **History** Development of bridges through time e.g. from Roman / Greek time **Art** Freehand sketching	**Maths** Measuring and making out using the metric system **English** The Tempest play Discussion on Skakespeare **History** Elizabethan era **Art** Freehand sketching
Super Curriculum (personal development)	Cadbury's World Trip Links with other STEM subjects Some groups taught by subject specialists	Links with other STEM subjects Some groups taught by subject specialists	Links with other STEM subjects Some groups taught by subject specialists
Careers	chocolatier How do you become a chocolatier	Site engineer How to become an apprentice site engineer: Zoe's story - BBC Bitesize	actor How to become an actor: Aedan Duckworth'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 SMSC Character Education	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. 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.