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| **Subject : DT** | **Year: 1** |
| **AUTUMN** | **SPRING**  | **SUMMER**  |
| **Half term 1** | **Half term 2** | **Half term 3** | **Half term 4** | **Half term 5** | **Half term 6** |
| **Theme/ topic:****Engineering: Sweet dispenser.** | **Theme/ topic:** **Textiles: Fleece hat** | **Theme/ topic:****CAD/CAM: Mobile phone holder** | **Theme/ topic:** **Typography & drawing skills** | **Theme/ topic:** **Electronics and soldering.****Angle poise lamp** | **Theme/ topic:** **Recycling****(Material dependent)** |
| By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): |
| Using a combination of wood/plastic, create a mechanism to dispense sweets.Using workshop tools and equipment safely and accurately. | Working with a man made fabric. Properties of materials.Pattern making. | Build on their woodworking knowledge, marking, measuring and finishing accurately.Use of a client for the CAD/CAM aspect of the project. | Isometric, oblique and orthographic drawing.Use of fonts and their meanings.Logos and the impact of advertising.Investigating the work of other artists and typographers. | Create an anglepoise lamp using found materials. Learn how to solder LED connections and switch.Use of stock components. | Pupils will have enough skills to analyse a given material and create feasible. Innovative design ideas to give them a second life. (previous projects have included a staircase and a bed frame) |
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| They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  |
| Select from and use specialist tools, techniques, processes, equipment and machinery precisely.Understand how more advanced mechanical systems used in their products enable changes in movement and force. | Identify and solve their own design problems and understand how to reformulate problems given to them.Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups. | Use a variety of approaches to generate creative ideas and avoid stereotypical responses.Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. | Develop drawing techniques, planning, layout and development of ideas. | Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.Investigate new and emerging technologies.Understand how more advanced mechanical systems used in their products enable changes in movement and force. | Use research and exploration, such as the study of different cultures, to identify and understand user needs.Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. |
| They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): |
| Combine wood and plastic knowledge with previous engineering knowledge. Focus on quality of finish. | Use textiles and textiles based machinery safely and be able to form products using a pattern | Build of previous wood based project to build on skills for a more technically skilled project. | Key drawing techniques. Pupils will know how to read a technical drawing and when is an appropriate time to use them. | Introduction to CAD, use of 2D design as a design and make tool.Understand basic engineering principles. | Use basic workshop materials to design and make a wood based product. |
|  |  |  |  |  | Link to prior learning |
| Combines knowledge from previous RM projects and engineering principles. | Prior use of hand sewing and machine sewing skills. | Measuring, marking and cutting techniques.Advanced use of CAD/CAM | Builds upon basic drawing skills from Year 7. | Links to engineering projects. Previous knowledge of tools, equipment and stock forms. | All year 7 projects will have given transferable skills which can be used. |

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| **Subject : DT** | **Year: 2** |
| **AUTUMN** | **SPRING**  | **SUMMER**  |
| **Half term 1** | **Half term 2** | **Half term 3** | **Half term 4** | **Half term 5** | **Half term 6** |
| **Theme/ topic:** **RM – Wood – Icons****Noteroll holder** | **Theme/ topic:** **Engineering – forces** **Fairground Ride** | **Theme/ topic:****Textiles – Kawaii****Storage**  | **Theme/ topic:** **Metal – Aluminium jewellery** | **Theme/ topic:** **RM – Wood joints****Pencil box** | **Theme/ topic:** **CAD/CAM** |
| By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): | By the end of this half term pupils will know ( key knowledge, including tier 3 vocabulary): |
| Basic workshop safety rules.Research skills.Properties of wood.Safe use of tools and equipment.Measuring and marking techniques.Self evaluation. | Group work.Planning and adapting designs.Engineering principles, levers, pulleys, gears.Model making.Recycling.Plastics and properties of plastics. | Research around a brief.Ideas generated in the Kawaii style.Properties of textiles.Dye sublimation.Safe use of transfer dyes and heat press. Basic hand sewing techniques.Safe use of sewing machine. | Properties of metals.Differences between ferrous and non- ferrous metals.Cutting and shaping aluminium safely.Stamping images into metal.Polishing metals.Use of jewellery findings. (stock forms) | Properties of soft woods.Wood joining techniques.Logo design for a client.CAD/ CAM introduction.Use of hand tools and mitre saw.Finishing techniques. | Introduction to 2D design and CAD/CAM.Safe use of laser cutter.Isometric and orthographic drawing. |
| They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  | They will understand (key concepts):  |
| Use research and exploration, such as the study of different cultures, to identify and understand user needs.Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. | Identify and solve their own design problems and understand how to reformulate problems given to them.Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.Understand how more advanced mechanical systems used in their products enable changes in movement and force. | Use a variety of approaches to generate creative ideas and avoid stereotypical responses.Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. | Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. | Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture | Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.Investigate new and emerging technologies. |
| They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): | They will know how to ( key skills including speaking, reading and writing in this subject): |
| Use basic workshop materials to design and make a wood based product. | Understand basic engineering principles. | Use textiles and textiles based machinery safely and be able to print and sew fabrics. | Use equipment and machinery safely to cut and shape metal. | Build of previous wood based project to build on skills for a more technically skilled project. | Introduction to CAD, use of 2D design as a design and make tool. |
| Link to prior learning |  |  |  |  |  |
| Assume no prior learning. | Research and evaluation techniques. | Safe workshop use.Use of tools and equipment from previous projects. | Safe use of tools and equipment.Research and analysis tasks. | Build on knowledge from project 1, build on tool and techniques used in Term 1. | Assume no prior learning. |