



DESIGN AND TECHNOLOGY DEPARTMENT SCHEMES OF WORK



PROJECT: LED Acrylic Stand (Electronics /RM) YEAR: KS3 (Year 8)

OVERALL AIM: To design and make an LED Acrylic Stand.

	Intent				Implement		Impact	
Lesson No	Concept	Resources	Learning objective	Starter activity	Learning activities	Possible differentiation activities	AFL	Suggested links with school learning policies (Literacy, Numeracy, SMSC, ERIC)
1 (50 mins)	Introduction to LED Acrylic Stand.	LED Acrylic Stand PP. Pupil PP. One touch screen.	To research and form personal opinions about existing LED acrylic stands.	Show examples online and discuss likes / dislikes.	<ul style="list-style-type: none"> Use the internet to research LED Acrylic Stands. State what you like / dislike about each design. Complete the spider diagram looking at design options. 	<ul style="list-style-type: none"> Potential to produce individual research. Development of spider diagram / analysis 	YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Literacy – New subject specific terminology (Brief, Research, materials) SMSC – ERIC – Researching LED Acrylic Stands online.
2 (50 mins)	Start product manufacture	LED Acrylic Stand PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand. Use Tech-soft 2D to create a design for the acrylic stand. To write a specification identifying the materials and overall look of the product.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Panel saw Mitre Block Sand paper Files 2D design 	<ul style="list-style-type: none"> Start manufacture of wooden base. Measure out and cut the frame for the base. File / sand to remove rough edges. Use 2D to create a design using either vector or bitmap images. Cut on the laser cutter. Complete the specification points on the PP. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed. YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Product dimensions Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Cultural interests / chosen theme ERIC – Read the design brief to support answering specification.
3 (50 mins)	Continue manufacture of LED Acrylic Stand.	LED Acrylic Stand PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand. Use Tech-soft 2D to create a design for the acrylic stand. To write a specification identifying the materials and overall look of the product.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Panel saw Mitre Block Sand paper Files 2D design 	<ul style="list-style-type: none"> Start manufacture of wooden base. Measure out and cut the frame for the base. File / sand to remove rough edges. Use 2D to create a design using either vector or bitmap images. Cut on the laser cutter. Complete the specification points on the PP. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed. YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Product dimensions / lid / base Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Cultural interests / chosen theme ERIC – Read the design brief to support answering specification.

4 (50 mins)	Continue manufacture of LED Acrylic Stand.	LED Acrylic Stand PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Panel saw Mitre Block Sand paper Files 2D design 	<ul style="list-style-type: none"> Continue manufacture of wooden base. Measure out, cut and glue the frame. Tape to hold in place. Measure the top and bottom of the frame. Draw out the size on 2D ready for the laser cutter. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Product dimensions / lid / base Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Cultural interests / chosen theme ERIC –
5 (50 mins)	Continue manufacture of LED Acrylic Stand.	LED Acrylic Stand PP Pupil PP. One touch screen. Variety of workshop tools and materials.	To be able to use a soldering iron safely.	Demonstrate tools and discuss / recap workshop H & S. <ul style="list-style-type: none"> Soldering iron Solder Wire cutters Wire 	<ul style="list-style-type: none"> Introduction / recap soldering technique. Use wire to practice soldering - making a wire person. Copy 2D work on to the e-folio and complete pupil feedback. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	YP will be judged on a variety of success criteria including www/ebi.	Numeracy – Measuring out wire.. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – ERIC – Follow instructions to create own wire person.
6 (50 mins)	Continue manufacture of LED Acrylic Stand.	LED Acrylic Stand PP Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand.	Recap soldering techniques and safety. Discuss glue gun safety.	<ul style="list-style-type: none"> On the frame measure and file a hole for power lead. Cut two small batons to hold the LED strip in place. Stick the LED strip in place and solder the connector. Hot glue gun the batons over the strip. Test the LED strip. Begin manufacturing diary. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. Individual YP will be putting in order and writing about each step. Teacher or LSA to support both higher and lower abilities. 	YP will be judged on a variety of success criteria including www/ebi.	Numeracy – Power lead measurements. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – ERIC – Read example manufacturing diaries
7 (50 mins)	Continue manufacture of LED Acrylic Stand.	LED Acrylic Stand PP Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand.	Recap how to use pillar drill and attaching the base.	<ul style="list-style-type: none"> Mark out drill holes on the lid. Drill using either the pillar of hand drill. Make pilot holes in the frame. Screw the base on. Place the acrylic in the top and test. Cont. with manufacturing diary. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. Individual YP will be putting in order and writing about each step. Teacher or LSA to support both higher and lower abilities. 	YP will be judged on a variety of success criteria including www/ebi.	Numeracy – Marking out drill holes. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – ERIC – Read example manufacturing diaries
8 (50 mins)	Complete the manufacturing diary and reflect on finished product.	LED Acrylic Stand PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to make an LED acrylic stand.	Using example work explain expectation for manufacturing diary and evaluation.	<ul style="list-style-type: none"> Using photos taken during the manufacturing process, describe and put in order how the product was made. Individual evaluation Peer evaluation Self-reflection 	<ul style="list-style-type: none"> Individual YP will be putting in order and writing about each step. Teacher or LSA to support both higher and lower abilities. 	YP will be judged on a variety of success criteria including www/ebi.	Numeracy – Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – Reflecting on creative development. ERIC – Read example manufacturing diaries



DESIGN AND TECHNOLOGY DEPARTMENT SCHEMES OF WORK



PROJECT: Maze Project (RM / CAD CAM) YEAR: KS3 (Year 8)

OVERALL AIM: To design and make a Maze and Laser Cut Storage Box.

	Intent				Implement		Impact	
Lesson No	Concept	Resources	Learning objective	Starter activity	Learning activities	Possible differentiation activities	AFL	Suggested links with school learning policies (Literacy, Numeracy, SMSC, ERIC)
1 (50 mins)	Introduction to Maze Project.	Maze Project PP. Pupil PP. One touch screen.	To research and form personal opinions about existing Mazes. To write a specification identifying the materials and overall look of the product.	Show examples online and discuss likes / dislikes.	<ul style="list-style-type: none"> Use the internet to research Maze Projects. State what you like / dislike about each design. Complete the specification points on the PP. 	<ul style="list-style-type: none"> Potential to produce individual research. Development of spider diagram / analysis 	YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Literacy – New subject specific terminology (Brief, Research, materials) SMSC – ERIC – Research Maze Projects online. Read the design brief to support answering specification.
2 (50 mins)	Start product manufacture	Maze Project PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	Use Tech-soft 2D to create a range of ideas for the middle section of the maze. Use Tech-soft 2D to create a range of ideas for the acrylic sections of the maze.	Demonstrate tools on 2D and discuss different design options. <ul style="list-style-type: none"> 2D design 	<ul style="list-style-type: none"> Use 2D to create a design using either vector or bitmap images. Copy files onto e-folio and write up. Cut the design on the laser cutter. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed. YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Maze dimensions Literacy – New subject specific terminology (Acrylic, Laser Cutter, CAD/CAM) SMSC – Cultural interests / chosen theme ERIC –
3 (50 mins)	Continue manufacture of Maze Project.	Maze Project PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	Use Tech-soft 2D to create a range of ideas for the middle section of the maze. Use Tech-soft 2D to create a range of ideas for the wooden sections of the storage box.	Demonstrate tools on 2D and discuss different design options. <ul style="list-style-type: none"> 2D design 	<ul style="list-style-type: none"> Use 2D to create a design using either vector or bitmap images. Copy files onto e-folio and write up. Cut on the laser cutter. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed. YP will be judged on a variety of success criteria including www.ebi .	Numeracy – Storage box dimensions Literacy – New subject specific terminology (Vector, Bitmap, Laser Cutter) SMSC – Cultural interests / chosen theme ERIC –
4 (50 mins)	Continue manufacture of Maze Project.	Maze Project PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To use tools and equipment accurately and safely to construct the storage box and maze.	Demonstrate tools and equipment, discuss how to construct the box.	<ul style="list-style-type: none"> Glue the sides to the base. Measure and cut the insert for the lid. Using nuts and bolts construct the maze. Continue to design 2D work if not completed. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Dimensions for insert of lid. Literacy – New subject specific terminology (Brief, Research, materials) SMSC – Cultural interests / chosen theme ERIC –

<p>5 (50 mins)</p>	<p>Continue manufacture of Maze Project.</p>	<p>Maze Project PP Pupil PP. One touch screen. Variety of workshop tools and materials.</p>	<p>To use tools and equipment accurately and safely to construct the storage box and maze.</p>	<p>Demonstrate tools and equipment, discuss how to construct the box.</p>	<ul style="list-style-type: none"> • Measure and cut the insert for the lid. • Using nuts and bolts construct the maze. • File the sides for the magnetic strip. • Begin to write up the manufacturing diary 	<ul style="list-style-type: none"> • Individual YP will be making their product allowing teacher support and stretch for more able students. 	<p>YP will be judged on a variety of success criteria including www.ebi.</p>	<p>Numeracy – Dimensions for insert of lid, magnetic strip. Literacy – New subject specific terminology (manufacturing diary, magnetic strip) SMSC – Cultural interests / chosen theme ERIC –</p>
<p>6 (50 mins)</p>	<p>Continue manufacture of Maze Project.</p>	<p>Maze Project PP Pupil PP. One touch screen. Variety of workshop tools and materials.</p>	<p>Peer assess the completed maze. Reflect on the overall success of the project.</p>	<p>Recap how to complete the box. Discuss reflection and e-folio expectations.</p>	<ul style="list-style-type: none"> • Measure and cut the insert for the lid. • File the sides for the magnetic strip. • Complete writing up the manufacturing diary. • Peer assess • Complete the reflection 	<ul style="list-style-type: none"> • Individual YP will be making their product allowing teacher support and stretch for more able students. • Individual YP will be putting in order and writing about each step. • Teacher or LSA to support both higher and lower abilities. 	<p>YP will be judged on a variety of success criteria including www.ebi.</p>	<p>Numeracy – Literacy – New subject specific terminology (Reflect, Peer assess) SMSC – Cultural interests / chosen theme ERIC –</p>

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4 (50 mins)	Continue manufacture of wooden plane.	Wooden Plane PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083, 039	To be able to identify and know how use tools, equipment to make the wooden plane.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Tenon saw Coping saw Sanding disc Sandpaper Files Pillar drill 	<ul style="list-style-type: none"> Continue manufacture of Wooden Plane. Cut and shaping wings Cut doweling Cut the tail parts File the ridge for the top part of the tail. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf
5 (50 mins)	Continue manufacture of wooden plane.	Wooden Plane PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083, 039	To be able to identify and know how use tools, equipment to make the wooden plane.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Tenon saw Coping saw Sanding disc Sandpaper Files Pillar drill 	<ul style="list-style-type: none"> Continue manufacture of Wooden Plane. Cut the tail parts File the ridge for the top part of the tail. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf
6 (50 mins)	Continue manufacture of wooden plane.	Wooden Plane PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083, 039	To be able to identify and know how use tools, equipment to make the wooden plane.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Tenon saw Coping saw Sanding disc Sandpaper Files Pillar drill 	<ul style="list-style-type: none"> Continue manufacture of Wooden Plane. Cut the tail parts File the ridge for the top part of the tail. Cut and sand the front and back supports Glue in place Cut the nose & propeller 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	Numeracy – Marking out of materials and dimensions. Literacy – New subject specific terminology (Tools, Equipment, materials, resources) SMSC – DT RA CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf

								http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf
7 (50 mins)	Continue manufacture of wooden plane.	Wooden Plane PP. Pupil PP. One touch screen. Variety of workshop tools and materials. MRAT: 073, 179, 083, 039	To be able to identify and know how use tools, equipment to make the wooden plane.	Demonstrate tools and discuss / recap workshop H&S. <ul style="list-style-type: none"> Tenon saw Coping saw Sanding disc Sandpaper Files Pillar drill Hammer 	<ul style="list-style-type: none"> Continue manufacture of Wooden Plane. Cut and sand the front and back supports Glue in place Cut the nose & propeller Sand the nose & propeller Nail the propeller & nose in place. 	<ul style="list-style-type: none"> Individual YP will be making their product allowing teacher support and stretch for more able students. 	Individual photographs will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	<p>Numeracy – Marking out of materials and dimensions.</p> <p>Literacy – New subject specific terminology (Tools, Equipment, materials, resources)</p> <p>SMSC –</p> <p>DT RA</p> <p>CLEAPPS: http://dt.cleapss.org.uk/Resource-File/MRAT-073-Hand-Saws-for-Wood.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf http://dt.cleapss.org.uk/resource-file/mrat-083-belt-bobbin-and-disc-sanders.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-039-Pillar-and-Bench-Drilling-Machines.pdf</p>
8 (50 mins)	Create a manufacturing diary of practical work.	Wooden Plane PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To recognise tools and how to use them correctly when cutting and shaping materials.	Show examples of pupils previous manufacturing diaries.	<ul style="list-style-type: none"> Using photos taken during the manufacturing process, describe and put in order the steps to show how the wooden plane was made. Complete the table show how successful each tool was used in the manufacturing process. 	<ul style="list-style-type: none"> Individual YP will be putting in order and writing about each step. Teacher or LSA to support both higher and lower abilities. 	YP will be judged on a variety of success criteria including www/ebi.	<p>Numeracy – Marking out of materials and dimensions.</p> <p>Literacy – New subject specific terminology (Tools, Equipment, materials, resources)</p> <p>SMSC –</p> <p>ERIC – Read example manufacturing diaries</p>
9 (50 mins)	Evaluation of project success	Wooden Plane PP. Pupil PP	To be able to self-reflect on the success of your wooden plane.	Q & A - Why evaluation is important?	<ul style="list-style-type: none"> Individual evaluation Comparison against specification. Peer evaluation Self-reflection 	<ul style="list-style-type: none"> Varying levels of self-reflection. 	Peer and self-assessment as well as teacher comments	<p>Numeracy</p> <p>Literacy – New subject specific terminology (Evaluation and specifications)</p> <p>SMSC –</p>