

Holy Family Catholic School

Curriculum Overview Year 7 – Technology (Design Tech)



	Curriculum Content	Suggested Reading or Extension Activities
Half Term 1 (Sept-Oct)	<u>HEALTH & SAFETY</u> Pupils will learn workshop rules and routines. They will research H&S signs and detailed discussions on safety in the workshop. This aspect will conclude, for assessment, with the creation of an A3 size poster to promote correct H&S at Holy Family Catholic School <u>Bottle opener</u> • Discuss and show e.g. to show anthropometrics and ergonomics. • Discuss use of levers in daily life. • Demo use of 2 lengths of B.O to show leverage • Discuss different classes of levers • Worksheet on 4 initial designs for BO • Transfer best design onto modelling card • Use odd-leg callipers to get the centre line. • Transfer card design onto metal. • Demo clamping and filing technique. Two methods-draw/cross filing. • Demo filing of finger grips-half round file • Draw the tangents • Complete polishing process and use the polisher. • Mask off area not to be dip coated using masking tape. • Heat opener and dip coat. • Remove masking tape • Refine the edge of plastic using a craft knife. • Remove adhesive and polish using brasso metal polish. • Evaluate use and mark practical	• Development of a complex card design • Creation of a unique and complex final design • Creation of a unique CLAW that is different but works to open a bottle. • YoutubeVideo on 'How to solder', • www.howitworks.com • www.bbcbitsize.co.uk
Half Term 2 (Nov-Dec)	<u>Bottle opener</u> (continued) • Draw the tangents • Complete polishing process and use the polisher. • Mask off area not to be dip coated using masking tape. • Heat opener and dip coat. • Remove masking tape	• Development of a complex card design • Creation of a unique and complex final design • Creation of a unique CLAW that is different but works to open a bottle. • Video on 'How to solder',

	● Refine the edge of plastic using a craft knife. ● Remove adhesive and polish using brasso metal polish. ● Evaluate use and mark practical	● www.howitworks.com ● www.bbcbitsize.co.uk
Half Term 3 (Jan-Feb)	<u>Pop up cards (paper Engineering) using Techsoft 2D 6 weeks</u> ● Pupils will design and make a range of pop up cards to a chosen celebration theme ● Pupils will learn to draw simple pop up mechanisms using a 2D drawing software –Techsoft 2D Design. ● Use a range of drawing tools on Techsoft 2D ● How to convert cutting lines in to red ● How to make cuts in the middle of card by deleting unwanted lines ● Pupils will draw 4 designs using 4 different card mechanisms by hand ● Draw the best 2 on computer using Techsoft 2D ● Using CNC machines cut out their best design. ● Add colours using a variety of manual techniques ● Add decorations and fonts/writing a message ● Draw an envelope using Techsoft 2D to match with card size ● Print this out on paper and cut using scissors	● Uniqueness of final design ● Creation of different card engineering types by hand and using computer.- complexity of design. ● Creation of final product with a variety of rendering techniques by hand and using software. ● Produce a professional finish to match with the theme to the final product ● use of correct materials, size, colour, proportions, use of shadow. Show fine detail of the design to make it appear as real as possible ● Download the ONSHAPE (3D software)online version- It's free, just register with your school email and start drawing! https://www.onshape.com/en/education/
Half Term 4 (Feb-Mar)	<u>Sketchup : Night Light 5 weeks</u> ● Learn Basic concepts and the function of drawing tools in the software-' How to sheets' ● Mini assessment on a basic design of a house ● Adding texture/materials/importing of designs ● Final Assessment: Pupils draw the Night light by using most of the functions of Google sketchup NB: Google sketchup may be downloaded free from the internet	● Download the ONSHAPE (3D software)online version- It's free, just register with your school email and start drawing! https://www.onshape.com/en/education/ ● Watch youtube tutorials on how to use ONSHAPE 3D effectively ● Pupils may produce a 3D architectural model of a fully built house- use ONSHAPE(3d software). ● Complete peer assessment with correct terminology ● Creation of interesting and challenging card models(Bottle opener/ key tag/night light) to ensure that making is a success ● Draw realistic designs using Techsoft 2D Design tools

		Some evidence of disassembly or use of components of a simple circuit. Application of learnt processes in future related projects. Pupils can confidently communicate their designs with members of the class and use of tools and machinery to create unique designs. Problem solving skills are continuously displayed
Half Term 5 (Apr-May)	<u>Night Light</u> Research – analysis of existing products/ basic circuit written out Card designs stuck on moulds Colour chosen and moulds placed on Selected Polystyrene sheet. On bordered paper, copy out the working drawing of the base. Vac form moulds as they draw their sheets Use Gerbil to remove mould from sheets. Discuss the position of the support bracket and therefore the position of the hole. Mark out acrylic blanks according to the worksheet. Add the centre for the shade. Use of marking out tools Drill holes	- Unique and makeable design - Multiple layer of card - Finish off the edges of the acrylic - Vacuum forming – demonstrate to peers - Excellent finish of edges when completing the project - Watch videos on youtube for inspiration NIGHTLIGHT projects ‘How to solder’ on youtube
Half Term 6 (Jun-Jul)	<u>Night Light(continued)</u> Drill holes File edges of the acrylic Glass paper edges Use polisher to achieve a shiny finish Line bend the acrylic when finish is achieved. The distribution of components. Discuss the use of each component. Demo wire stripping, Do a dry assembly. Demo soldering Solder components together Complete soldering and assemble project. Glue bracket to shade Write an evaluation of their project on bordered paper.	- Unique and makeable design - Multiple layer of card - Finish off the edges of the acrylic - Vacuum forming – demonstrate to peers - Excellent finish of edges when completing the project - Watch videos on youtube for inspiration NIGHTLIGHT projects ‘How to solder’ on youtube

Examples of Home Learning Tasks	<u>Bottle opener project</u> - Worksheet on levers - Do research and find 5 facts on mild steel - Initial and final design - Using diagrams, show the difference between cross and draw filing - Write out safety rules for using the pillar drill. - W/sheet on polishing your work - W/sheet on use of polisher - W/sheet on dip coating
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	• Write out a detailed evaluation. Good points bad points and changes to be made. • What are tangents? <u>Paper engineering & 2d/3d Software</u> • Research on existing pop up mechanisms with annotation. • Worksheet on different paper engineering • Complete 4 design ideas for pop up cards. • Complete the adding colours on final design • Draw 3 designs for matching envelopes • Flowchart symbols and their meanings <u>Night Light</u> • Research on existing products to get inspiration • Draw 4 Initial Designs • Draw 1 Final design – use colour and in 3D • Worksheet on vacuum forming, soldering, H&S for the polisher • Safety rules when using the pillar drill • Worksheet on ‘How to solder’ - pupils to watch a video and answer questions
Assessment Tasks, Methods & Frequency	As per whole school assessment cycle pupils will be tested on a mid project assessment as well as an end of project assessment which is in keeping with the whole school data drops schedule
Equipment that Students Need	Pen/Pencil/Colour pencils/ green pen/eraser/sharpies for the H&S posters

Parent / Carers can help their child by:	
Useful Websites	Youtube, https://www.onshape.com/en/education/ , https://howitworks.com/ , www.bbcbitsize.co.uk
Extra-Curricular Activities & Career Opportunities	Pupils will get a taste of drawing in 2D and 3D software just as Architects, engineers, game designers and artists do. With the Bottle opener, pupils learn the basics of manipulating mild-steel and its finishing to prevent rusting. Engineers use mild steel regularly to design and make various household items. Electronic engineers use soldering to attach electrical components together

Who Can I Contact?	Head of Technology	Miss L Jaber
	Teachers of Year 7 Technology	Mr.P Kwarteng/ Mr .D Shabani/Miss L Jaber