Design and Technology Learning Journey Year 10

Autumn Term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	
Topic	**Design strategies and course introduction**	**Design skills development Exploring design strategies**	**Revisit fundamentals of working with metal.**	**Revisit fundamentals of working with metal.**	**Focused Practical Task (FPT) – Silver Ring.**	**FPT – Silver Ring**	**FPT – Silver Ring**	**FPT – Silver Ring**	HALF TERM
Challenge Objective and Content (for all learners)	Course expectations and key dates. What is design? Exploring the work of others using AQA designers. Exploring and applying design strategies (1) Developing design skills in response to a brief. (1) **Challenge:** What features from the designers will you copy/ adapt?	Design development using SCAMPER. Focus on drawing skills and annotation Design introduction for metalwork task. (3) **Challenge:** Which strategies / techniques can you use to avoid design fixation?	Working with Aluminium/ to produce initials. **Wastage** – sawing, notcher, drilling. **Addition** – joining methods – pop rivet/ nut & bolts (2) **Challenge:** What KS3 subject knowledge can you recall and apply independently? **Theory: Core principle sources of metals, stock forms. (1)**	Working with Aluminium to produce a key tag. Introducing heat. **Deforming**– annealing, shaping around former, mark making stamping. **Finishing** techniques Introducing copper and silver. (2) **Challenge:** What KS3 subject knowledge can you recall and apply independently? **Theory: Core principle ferrous and non-ferrous metals (1)**	**Sizing** metal for ring prototype. **Cut** copper and explore mark making techniques (2) **Forming/ deforming/ Joining** **Challenge:** How will you ensure accuracy so that the ring fits the target user? **Theory: Core principle shaping metal. Anthropometrics and ergonomics linked to ring sizing. (1)**	Revisit knowledge and application of copper clay. Design task – opportunity to apply knowledge for their final ring and identify target user. (2) ***Challenge:*** *Reflecting on knowledge from making the prototype, what skills will you take forward in order to make a successful ring?* **Theory: Core principle -casting metal/ modern material metal clay. Benefits of Prototyping.**	Introduction to silver. Sizing, sawing, shaping and joining. (2) **Challenge:** what planned quality assurance and quality control measures can you consider to make sure the ring is a success? **Theory: Core principle joining metal (1)**	*Finishing technique* *Documentation and evaluation. (2)* ***Challenge:*** *What aspects of your ring have been successful and what would need improving?* **Theory: surface finishes and treatments (1)**	
Inspire Opportunities	*When does inspiration and influence from others become plagiarism?*	*Which strategies and techniques can you use to enable you to be innovative and creative?*	*How could you stretch your knowledge and skills compared to KS3?*	*How could you stretch your knowledge and skills compared to KS3?*	*How would you explain the term "working within tolerance"?*	*What would the impact be of combining copper and silver to make your ring?*	*What is the impact for a jeweller if the ring is out of tolerance?*	*What is the impact for a jeweller if the ring is poor quality?*	
Assessment Opportunities	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	

Design and Technology Learning Journey Year 10

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**NEA Mini Project mechanical toy. Timber based materials**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**CHRISTMAS**
Challenge Objective and Content (for all learners)	*Introduction to the brief. Mind mapping. Exploring the opportunities within the brief and the needs of the user. (2)* ***Challenge:*** *What are the opportunities and challenges for this brief?* ***Theory: Specialist principles. Sources of Timber based materials. Ethics & sustainability. (1)***	Investigation, primary and secondary data. Product Research and analysis (2) ***Challenge:*** *how can primary and secondary data help a designer to understand a client/ user needs?* ***Theory: Specialist principles. Sources of Timber based materials and stock forms (1)***	Research CAMS Different types of motion (2) ***Challenge:*** *What are the most common types of movement for a mechanical toy?* ***Theory: Specialist principles. Sources of Timber based materials and stock forms (1)***	Revisiting CAD/ CAM (1) Revisit Techsoft 2D design skills (1) ***Challenge:*** *What factors will you take into consideration when deciding whether to make your product by hand or using CAD/ CAM?* ***Scales of production and advantages and disadvantages of CAD / CAM (1)***	Writing design brief and specification Design and Annotate. Revisit skills around Isometric and Perspective drawing. (2) ***Challenge:*** *How will you choose what to include in your specification?* ***Theory: Specialist principles. Selecting Timber based materials based on properties (1)***	Design and Annotate (2) Annotation against the specification. ***Challenge:*** *Which method of drawing is appropriate to this stage of the project and for your skillset??* ***Theory: Specialist principles. Working with timber-based materials. Addition, wastage, shaping (1)***	
Inspire Opportunities	*What are your moral, social, ethical and environmental responsibilities as a designer?*	*How could you gather your own primary data suitable for this project?*	*How could you change the type/ number of CAMS in order to get a different result?*	Which method of making will enable you to make a unique and challenging toy?	*Why is it important for a designer to work to a specification?*	Can you identify different drawing techniques and know when it is appropriate to use them?	
Assessment Opportunities	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	

Design and Technology Learning Journey Year 10

Spring Term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	HALF TERM
Challenge Objective and Content (for all learners)	*Orthographic drawing of final design (2)* ***Theory: Specialist principles. Working with timber-based materials. Addition, wastage, shaping (1)*** ***Challenge:*** *What is the purpose of an orthographic drawing?*	Prototyping final design (2) Iterative design – link back to specification. ***Theory: Specialist principles. Finishes and surface treatments of timber-based materials (1)*** ***Challenge:*** *What are the advantages of making a prototype?*	Manufacturing final product. Using CAD CAM or hand tools to make the mechanical toy. (2) **Theory: Core principle – sources of paper and board, types/ sizes of paper and board. (1)** ***Challenge:*** *How will you plan for quality control and quality assurance to ensure that your product is produced to a high standard?*	Manufacturing final product. Using CAD CAM or hand tools to make the mechanical toy. (2) **Theory: Core principle – working with paper and board. Addition, shaping, wastage. (1)** ***Challenge:*** *How will you plan for quality control and quality assurance to ensure that your product is produced to a high standard?*	Manufacturing final product. Using CAD CAM or hand tools to make the mechanical toy. (2) **Theory: Core principle – working with paper and board. Addition, shaping, wastage. (1)** ***Challenge:*** *How will you plan for quality control and quality assurance to ensure that your product is produced to a high standard?*	Manufacturing final product. Using CAD CAM or hand tools to make the mechanical toy. (2) **Theory: Core principle – finishing techniques for paper and boards. Embossing, varnishing etc.** ***Challenge:*** *How will you plan for quality control and quality assurance to ensure that your product is produced to a high standard?*	
Inspire Opportunities	*What are the advantages and disadvantages of using orthographic drawings in Industry?*	*How is CAD a useful tool for prototyping?*	*What are the success criteria which will enable you to judge whether your product is of a good enough standard?*	Is it always important for businesses to sell products which are of a high standard?	Is it always important for businesses to sell products which are of a high standard?	Is it always important for businesses to sell products which are of a high standard?	
Assessment Opportunities	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**NEA Mini Project mechanical toy.**	**NEA Mini Project mechanical toy.**	**Architecture Project RIBA**	**RIBA Architecture Project**	**RIBA Architecture Project**	**RIBA Architecture Project**	EASTER
Challenge Objective and Content (for all learners)	*Assembling final product. Exploring and applying finishes (2)* ***Challenge:*** *How will you plan for quality control and quality assurance to ensure that your product is produced to a high standard?* **Theory: Core principle – Polymers. Sources, stock forms.**	*Test and evaluate against specification (2)* *What tests could you complete to judge whether your product is successful?* **Theory: Core principle. Polymers – shaping, deforming, wastage**	Working with a client and responding to a brief (2) **Challenge:** What questions do you need to ask in order to explore the brief and understand the client? **Theory: Core principle. Polymers – shaping, deforming, wastage**	Generating and developing ideas (2) **Challenge:** How can you use the work of others to inspire your designs? **Theory: Core principle. Polymers – components, surface treatments and finishes.**	Prototyping, evaluation (2) **Challenge:** How will you successfully prototype your idea so that your client understands the concept? **Theory: Core principle. Forces, stresses and reinforcement. All materials**	Presentation to client. (2) **Challenge:** What are the key pieces of information that your client needs to know about. **Theory: Core principle. Rapid prototyping**	
Inspire Opportunities	*What finishes could you add which would improve functionality.*	*What tests occur in industry before a product is reaches its customers?*	*What investigations could you complete which would help you to understand the needs of the project in more detail?*	*How will you make sure your designs are creative and unique but also fit for purpose?*	*How could you use CAD to present your work professionally to industry experts?*	*How will you ensure that your proposal and presentation stand out as the best?*	
Assessment Opportunities	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Projects will be assessed by independent experts.	Projects will be assessed by independent experts.	Projects will be assessed by independent experts.	Projects will be assessed by independent experts.	

Design and Technology Learning Journey Year 10

Summer Term

-	Week 1	Week 2	Week 3	Week 4	Week 5	HALF TERM
Topic	**FPT Crossbody bag**	**FPT Crossbody bag**	**FPT Crossbody bag**	**FPT Crossbody bag**	**FPT Crossbody bag**	
Challenge Objective and Content (for all learners)	*Introduction to project.* *Revisiting the sewing machine. Key functions. How to thread machine and produce a range of stitches with control. (1) Revisiting hand sewing. To sew consistently well and with accuracy. (1)* ***Challenge:** How can you use your KS3 knowledge to make progress independently?* **Theory: Core principle. Textiles . Sources of textiles. Natural and synthetic. Ethics and sustainability.**	Introduction to embellishment. Image transfer paper, applique, buttons/ sequins Sample page. (2) ***Challenge:** Will embellishment be a suitable addition to your bag?* **Theory: Core principle. Textiles . Woven/ non woven/ knitted**	Preparing the components for the bag. Reinforcing fabric (1) Pinning components. (1) ***Challenge:** How will you ensure that your bag is being pinned correctly?* **Theory: Core principle. Textiles. Shaping, addition and wastage. Use of patterns.**	Constructing the bag. (2) Adding embellishments (optional) ***Challenge:** What are the structural weak areas of the bag and can you plan to reinforce them?* **Theory: Core principle. Textiles. Shaping, addition and wastage**	Final construction, quality checks and evaluation. *Challenge: How will plan in quality control and quality assurance steps to make sure your bag is finished to a high standard?* **Theory: Core principle. Textiles. Components, surface treatments and finishes.**	
Inspire Opportunities	*How could you use hand or machine sewing for decorative purposes?*	*What is the impact to a manufacture / customer if a bag is complex and has embellishments?*	*Which additional components could you plan and include?*	*What reinforcement techniques have you noticed on the everyday products around you?*	*What is most important, the function of the product or the aesthetic?*	
Assessment Opportunities	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	SUMMER
Topic	**Mock Exam Preparation**	**Smart and modern materials**	**Launching the new AQA NEA Design Challenges**	**NEA – Mind map**	**Year 10 work experience**	**NEA – Research**	
Challenge Objective and Content (for all learners)	*Final exam preparation (2)* ***Challenge:** Can you name products which are morally or environmentally irresponsible?* ***Theory: People, culture and society. Consumer choice, technology push, market pull etc (1)***	Exploring smart and modern materials (3) **Challenge:** Have smart and modern materials improved our lives? ***Theory: Sustainability and the environment (1)***	*Exploring and choosing the contexts. (1)* *Mind mapping the chosen context (1)* ***Challenge:** What criteria will you use to choose the context which suits you the best?* ***Theory: Sustainability and the environment (1)***	*Mind mapping the chosen context in further detail and identifying a problem to solve (1)* Challenge: How will you use ACCESS FM to ensure your mind map is detailed and thorough? ***Theory: mock exam feedback. (1)***		Gathering Primary/ Secondary data linked to the context. (2) ***Challenge:** how can primary and secondary data help a designer to understand a client/ user need?* ***Theory: mock exam feedback. (1)***	
Inspire Opportunities	*What factors need to be considered when deciding if a product would be successful in a different culture?*	*What potential do smart and modern materials have in other areas of our lives which haven't been considered already?*	*Does the context that you have chosen give you the opportunity to stretch and challenge yourself?*	*Can you identify further questions linked to the project which you need to research further?*		*How could you gather your own primary data suitable for this project?*	
Assessment Opportunities	Marking practise exam questions and results from mock exam.	Teacher assessment and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	Self and teacher assessment using assessment criteria. Quizzes and exam style questions.		Self and teacher assessment using assessment criteria. Quizzes and exam style questions.	