DESIGN AND TECHNOLOGY DEPARTMENT
SCHEMES OF WORK

PROJECT: Clock (CAD CAM) **YEAR: 9**

OVERALL AIM: To design and make an acrylic clock using CAD CAM.

	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)**
1 (50 mins)	Introduction to the clock project. Research existing products using ACCESS FM	Clock project PP. Pupil PP. One touch screen.	To know how to research and use the information to support design development.	Show the following clip: https://www.youtube.com/watch?v=6NhRcxrAI7A	• Get pupils to save Pupil PP into their own areas. • Read through the L.O. and design brief. • Q & A key words & ACCESS FM • Complete research using the internet guided by ACCESS FM	• Potential to produce individual research.	YP will be judged on a variety of success criteria including www/ebi after specifications.	**Numeracy** – Dimensions **Literacy** – New subject specific terminology (Research, Product Analysis) **SMSC –** Cultural and social interests.
2 (50 mins)	Design development through spider diagrams & sketches.	Clock project PP. Pupil PP. One touch screen.	To create and use a spider diagram to develop design ideas.	Recap previous lesson, Q & A key skills. Show examples of previous students work.	• Use the research from the previous lesson to complete a spider diagram to help inform and develop potential ideas. • Begin to sketch ideas by hand. • Colour and label.	• Potential to produce individual research.	YP will be judged on a variety of success criteria including www/ebi after specifications.	**Numeracy** – Dimensions, measuring **Literacy** – New subject specific terminology (Themes, Materials) **SMSC –** Cultural and social interests.
3 (50 mins)	Design development through sketches / digital modelling. Produce a specification based on research and design work.	Clock project PP. Pupil PP. One touch screen.	To use the research to create and develop design ideas.	Show examples of previous students work. Watch the following clips: https://www.youtube.com/watch?v=tR2HBxLIjyc https://www.youtube.com/watch?v=TbrL_t6TH7c	• Complete hand drawn version of clock designs. **And / Or** • Use Techsoft 2D templates to help develop ideas • Write a 5 point specification for their own design.	• Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Creativity, Graphics, Specification and CAD CAM)) **SMSC -** Cultural and social interests.
4 (50 mins)	Final Design using CAD CAM.	Clock project PP. Pupil PP. One touch screen. **MRAT:** 032	To understand how the laser cutter works using different colour lines and power settings from 2D Design.	Show examples of previous students work. Watch the following clips: https://www.youtube.com/watch?v=tR2HBxLIjyc	• Use Techsoft 2D to complete final design work. • Cut designs using the laser cutter. • Begin to construct the clock.	• Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Creativity, Graphics, Specification and CAD CAM) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:**

				https://www.youtube.com/watch?v=TbrL_t6TH7c				http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf
5 (50 mins)	Manufacture of clock design using the laser cutter.	Clock project PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 011, 179	To understand how the laser cutter works using different colour lines and power settings from 2D Design. To evidence through photos and notes how the clock was manufactured	Recap previous lesson identifying key skills. Demonstrate laser cutter.	• Use Techsoft 2D to complete final design work. • Cut designs using the laser cutter. • Begin to construct the clock. • Write up manufacturing diary.	• 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. **Literacy** – New subject specific terminology (Manufacture, Evidence) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-011-Craft-Knives-Scalpels-and-Scissors.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf
6 (50 mins)	Continue manufacture of clock design using the laser cutter.	Clock project PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 011, 179	To understand how the laser cutter works using different colour lines and power settings from 2D Design. To evidence through photos and notes how the clock was	Recap previous lesson identifying key skills. Demonstrate laser cutter.	• Cut designs using the laser cutter. • Construct the clock. • Write up manufacturing diary. • Begin to complete the evaluation.	• 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. **Literacy** – New subject specific terminology (Specification, Evaluation) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-011-Craft-Knives-Scalpels-and-Scissors.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf
7 (50 mins)	Write an evaluation and reflect on the specification points.	Clock project PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 011, 179	To evidence through photos and notes how the clock was manufactured. To be able to evaluate the completed product and collect feedback from peers.	Revisit practical work and discuss completion of evaluation and diary.	• Complete practical work. • Complete the evaluation against the specification and peer assess the final piece.	• 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. Peer assessment	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Specification, Evaluation) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/Resource-File/MRAT-011-Craft-Knives-Scalpels-and-Scissors.pdf http://dt.cleapss.org.uk/Resource-File/MRAT-179-Using-Hand-Tools-in-Building-Work.pdf

DESIGN AND TECHNOLOGY DEPARTMENT
SCHEMES OF WORK

PROJECT: Design Challenge (RM, CAD / CAM) **YEAR: KS3 (9)**

OVERALL AIM: To revisit learnt skills and independently overcome a design challenge.

	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)**
1 (50 mins)	Introduction to the Design Challenge. Key skills: Explain the strengths and weaknesses of Research existing products using ACCESS FM	Design Challenge PP. Pupil PP. One touch screen.	To understand the project design brief. To investigate existing products and analyse them using ACCESS FM.	Introduction to the project. Show examples of previous students work.	• Read the L.O. and design brief. • Q & A key words • Revisit ACCESS FM and how to use it in analysing products. • Complete research using the internet guided by ACCESS FM	• Potential to produce individual research.	YP will be judged on a variety of success criteria including www/Ebi after specifications.	**Numeracy** – Dimensions **Literacy** – New subject specific terminology (Research, Product Analysis) **SMSC –** Cultural and social interests.
2 (50 mins)	Using the research create a detailed specification. To use 2D Tech-soft to create a CAD model of your design**.** Key skills: Create a detailed justified list of features for an idea	Design Challenge PP. Pupil PP. One touch screen.	To demonstrate creativity in writing a detailed specification.	Recap previous lesson, Q & A key skills. Read the L.O.	• Use the research from the previous lesson to help inform and develop potential ideas for the specification. • Write a 5-point specification for their own design. • Begin to sketch ideas by hand or on CAD. • Colour and annotate.	• Potential to produce individual research.	YP will be judged on a variety of success criteria including www/Ebi after specifications.	**Numeracy** – Dimensions, measuring **Literacy** – New subject specific terminology (Specification, CAD CAM) **SMSC –** Cultural and social interests.
3 (50 mins)	Design development through sketches / digital modelling.	Design Challenge PP. Pupil PP. One touch screen.	To demonstrate creativity and high-quality graphics in the designing of a range of clock.	Recap previous lesson, Q & A key skills. Read the L.O.	• Continue to complete hand drawn version of designs ideas **And / Or**	• Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Model, CAD) **SMSC -** Cultural and social interests.

					• Use TechSoft 2D templates to help develop ideas			
4 (50 mins)	Develop design work using prototypes.	Design Challenge PP. Pupil PP. One touch screen. **MRAT:** 032	To understand the importance of creating a prototype.	Recap previous lesson, Q & A key skills. Read the L.O.	• Cut and construct prototypes using the laser cutter or hand tools. • Evaluate prototype design. • Identify any improvements.	• Individual designs will be produced allowing teacher support and stretch for more able students.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Model, Prototype) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf
5 (50 mins)	Manufacture design work.	Design Challenge PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 073, 179, 083, 039	To evidence through photos and notes how the product was manufactured.	Recap previous lesson identifying key skills. Revisit and demonstrate laser cutter. Reminder H & S.	• Use TechSoft 2D to complete final design work. • Cut designs using either the laser cutter or hand tools. • Begin to construction. • Write up manufacturing diary.	• 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. **Literacy** – New subject specific terminology (Manufacture, Independently) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf 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)	Manufacture design work.	Design Challenge PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 073, 179, 083, 039	To evidence through photos and notes how the product was manufactured.	Recap previous lesson identifying key skills. Reminder H & S.	• Continue to cut designs using either the laser cutter or hand tools. • Continue with construction. • Continue to write up manufacturing diary.	• 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. **Literacy** – New subject specific terminology (Manufacture, Independently) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf 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)	Manufacture design work.	Design Challenge PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 073, 179, 083, 039	To evidence through photos and notes how the product was manufactured.	Recap previous lesson identifying key skills. Reminder H & S.	• Continue to cut designs using either the laser cutter or hand tools. • Continue with construction. • Continue to write up manufacturing diary.	• 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. **Literacy** – New subject specific terminology (Manufacture, Independently) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf 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
8 (50 mins)	Write an evaluation and reflect on the specification points.	Design Challenge PP. Pupil PP. One touch screen. Variety of workshop tools and materials. **MRAT:** 032, 073, 179, 083, 039	To identify if the specification has been met and evaluate the completed product.	Revisit practical work and discuss completion of evaluation and diary.	• Complete practical work. • Complete the evaluation against the specification and peer assess the final piece.	• 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. Peer assessment	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Reflect, Evaluation) **SMSC -** Cultural and social interests. **DT RA** **CLEAPPS:** http://dt.cleapss.org.uk/resource-file/mrat-032-laser-cutters.pdf 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

DESIGN AND TECHNOLOGY DEPARTMENT
SCHEMES OF WORK

PROJECT: Festival Project (Graphics / CAD) **YEAR: KS3 (9)**

OVERALL AIM: To revisit and develop CAD skills creating a web page for a chosen festival.

	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)**
1 (50 mins)	Introduction to the project. Identify key skills.	Festival PP. Pupil PP. One touch screen.	To interpret the design brief and research existing festival logos.	Introduction show examples and discuss key skills.	• Get pupils to save Pupil PP into their own areas. • Read through the design brief - Q & A. • Complete the product analysis on 3 festival logos. •	• Potential to perform an individual product analysis to a variety of levels based upon ability.	YP will be judged on a variety of success criteria including www/ebi after specifications.	**Numeracy** – Dimensions **Literacy** – New subject specific terminology (Interpret, design brief) **SMSC –** Cultural and social interests.
2 (50 mins)	Create a detailed justified list of features for the product.	Festival PP. Pupil PP. One touch screen.	To understand the importance of a detailed design specifications.	Kahoot challenge: https://kahoot.it/challenge/06654374?challenge-id=d39667c9-ec21-48b6-9f88-8210469d17ef_1611222035820 Read through LO, Q & A key skills.	• To complete the specification points. • Develop an understanding about the influence of colours. • Write a logo specification.	• Potential for more able to produce a more detailed range of specifications.	YP will be judged on a variety of success criteria including www/ebi after specifications.	**Numeracy** – Dimensions, measuring **Literacy** – New subject specific terminology (Specification, colour, influence) **SMSC –** Cultural and social interests.
3 (50 mins)	Start logo ideas	Festival PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To create your festival name using different font styles.	Read through LO and show examples of different styles of fonts.	• Research different font styles • Design a range of logos using CAD.	• The basic logos can be created in word but some more able may choose to design it in Techsoft 2D.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Colour, influence) **SMSC -** Cultural and social interests.
4 (50 mins)	Develop logo ideas	Festival PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To create your festival logo using computer aided design.	Recap previous lesson, students to read through TEAMS feedback with staff support.	• Create at least three different logo ideas combining the font with either images or shapes. • Discuss logos and layout	• The basic logos can be created in word but some more able may choose to design it in Techsoft 2D.	YP will be judged on a variety of success criteria including self-assessment of lesson progress	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Colour, influence) **SMSC -** Cultural and social interests.

5 (50 mins)	Write an evaluation and reflect on the specification points for the logo.	Festival PP. Pupil PP. One touch screen. Variety of workshop tools and materials.	To evaluate work against the design criteria.	Model evaluation against specification.	• Peer assess. • Complete the evaluation against the specification. • Complete evaluation.	• Individual YP will be making their product allowing teacher support and stretch for more able students.	Individual screenshots will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Specification, Evaluation) **SMSC -** Cultural and social interests.
6 (50 mins)	Introduction to web page design.	Festival PP. Pupil PP. One touch screen.	To understand how to layout and present information in an attractive and interesting way.	Show example web page and discuss expectations.	. • Using PP start constructing the layout for the main web page. •	• The web page can be created in PP, the more able will add hyperlinks to create a functioning design.	Individual screenshots will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Layout, information) **SMSC -** Cultural and social interests.
7 (50 mins)	Continue with web page design.	Festival PP. Pupil PP. One touch screen.	To understand how to layout and present information in an attractive and interesting way.	Recap previous lesson, demonstrate adding layers.	• Continue to design the layout for the website. • Add and menu and layers to the design.	• The web page can be created in PP, the more able will add hyperlinks to create a functioning design.	Individual screenshots will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Layout, information) **SMSC -** Cultural and social interests.
8 (50 mins)	Continue with web page design.	Festival PP. Pupil PP. One touch screen.	To understand how to layout and present information in an attractive and interesting way.	Recap previous lesson, demonstrate adding hyperlinks	• Continue to design the layout for the website. • Add and menu and layers to the design. • Insert the hyperlinks to create a functioning design.	• The web page can be created in PP, the more able will add hyperlinks to create a functioning design.	Individual screen shots will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Layout, information) **SMSC -** Cultural and social interests.
9 (50 mins)	Write an evaluation and reflect on the final design.	Desk Lamp project PP. Pupil PP. One touch screen.	To evaluate the design and reflect on the making process.	Revisit design work and discuss completion of evaluation and diary.	• Complete web design and test. • Complete the evaluation of the final piece. • Evaluate success against colour bands.	• The more able may suggest an improved logo for the future.	Individual screenshots will be taken to form a diary of manufacturing progress. Individual skills can be assessed.	**Numeracy** – Product dimensions. **Literacy** – New subject specific terminology (Self-reflect) **SMSC -** Cultural and social interests.