



Design Technology: CAD

Foundation Stage Scheme of Work

Year 8	Working as a Designer	16 Lessons
<p>Aims: The 8-week project is so that students can become more rounded designers with not just their thinking processes but also their technical skills, particularly having the opportunity to use CAD to design. By the end of the unit students will have been introduced to and appreciated “classic design” & some famous designers, used CAD packages to create their own 2D & 3D designs and learnt basic drawing skills such as “Isometric” and “1 & 2-point perspective”.</p> <p>Students in year 8 undertake a carousel in Design and Technology where they experience the different material areas of Textiles, Resistant Materials, Graphics, Food & Nutrition and during this rotation they will be focusing on skills that enhance the areas they have studied and prepare them for studying one of the specialisms at KS4.</p> <p>Links to KS4: Technical awards Visual Communication & Materials Technology some of the 8 keys skills (see below)</p>		
Key Skills <ul style="list-style-type: none"> ANALYSING & APPRECIATING THE WORK OF OTHER DESIGNERS DESIGNING IN THE STYLE OF A DESIGNER TO DEVELOP DRAWING SKILLS TO PRESENT IDEAS TO LEARN HOW TO USE 2D & 3D SOFTWARE TO PRESENT IDEAS TO UNDERSTAND THE ADVANTAGES & DISADVANTAGES OF A DESIGNER USING C.A.D <p>Key Words: PRODUCT ANALYSIS, FUNCTION, FORM, GENERATING, COMPUTER AIDED DESIGN, THREE DIMENSIONAL, ISOMETRIC, PERSPECTIVE.</p>		Literacy Links: Be able to analyse existing products by descriptive writing, making notes about designers and annotating their own designs to describe how they meet the brief.
		Numeracy Links: Opportunity to dimensions and measurements when drawing 3D shapes – both by hand with a ruler and also using 3D drawing software.
Assessment <p>ABILITY TO RESEARCH EXISTING DESIGNERS</p> <ul style="list-style-type: none"> Students will be assessed on how they research and record information from the internet. They will extract key facts, information and about their designer as well as sketching images they find. (summative) <p>ANALYSING & APPRECIATING THE WORK OF OTHER DESIGNERS</p> <ul style="list-style-type: none"> Students will be assessed in the unit on their ability to analyse designs and products of others (Formative) <p>DESIGNING IN THE STYLE OF A DESIGNER</p> <ul style="list-style-type: none"> Students should be able to imitate and take key ideas from existing designers they have researched to inform their own work (summative) <p>TO DEVELOP DRAWING SKILLS TO PRESENT IDEAS</p> <ul style="list-style-type: none"> Students will be assessed on their ability to learn and apply skill to draw by hand in a 3D way. (Summative) <p>TO LEARN HOW TO USE 2D & 3D SOFTWARE TO PRESENT IDEAS</p> <ul style="list-style-type: none"> Students will be assessed on their skill when using the software to create 3D designs.(Summative) 		Cross-Curricular Links <ul style="list-style-type: none"> ICT – Use of 3D software ART – Basic drawing techniques History – key design movements/social events
		SMSC opportunities and British values <ul style="list-style-type: none"> Students will be analyzing products or designs that they are not familiar with. They may be from other countries or cultures. They will have to consider the social and moral aspects of designing the product along with environmental issues.
Opportunities for further learning <p>Alongside being encouraged to be aware of products they use in everyday life the following options can be used as homework tasks or extension tasks.</p>		

Task 1: Researching an “Iconic product” – who and where it was designed and why. Some sketches of a possible redesign
Task 2: Evaluation of design ideas
Task 3: Practise their drawing skills by trying some “isometric” and “perspective view” tasks on isometric & squared paper
Task 4: Download “Google sketchup” (free software) and have a go at home if possible. (optional)

Unit Outline

Lesson 1

Resources: Lesson 1 power point, new project booklets

LO: What makes a well-designed product? Appreciate how a product is designed. Analyse designs they are unfamiliar with. What makes it iconic?

- Introduction to project/seating plan
 - Overview of what the assessment objectives are (how the PLC works)
 - Product Analysis activity in booklets
 - Introduce homework – researching an iconic product and give students a list of possible products **(This is the first assessment objective)**
 - EXTENSION – if time left students begin to look at these iconic products on computers.
- **HWK – Iconic product research**

Lesson 2

Resources: Lesson 2 power point, designer prompt sheets

LO: “What makes a product well designed” - FUNCTION V FORM

LO: Researching famous product designers

- Badly designed product starter – what is the product? How has it been changed? What are the consequences?
- Introduce designers they will focus on – go through PPT
- Students chose one of these designers and complete research in booklets
- **This is the second assessment objective – go through criteria on board.**

Lesson 3

Resources: Lesson 3 power point, designers sheets

LO: Researching famous product designers & assessing AO1 & AO2

- Recap designers & assessment objectives. Peer assess work so far.
- Students have time to improve research
- Students self-assess research on PLC.
(HAND IN TEACHER TO MARK- AO1 & AO2)
- Explain next task – “*designing in the style of*”

Lesson 4

Resources: Lesson 4 power point, Designers sheets, Every day product sheets

LO: DESIGNING IN THE STYLE OF CHOSEN DESIGNER

- Post it note- keyword starter from research about designers
- Students create a range of design ideas for products in the style of chosen designer
- Show exemplar designs and level criteria as a bench mark

- Sketches, annotation and rendering required

Lesson 5

Resources: Lesson 5 power point

LO: DESIGNING IN THE STYLE OF CHOSEN DESIGNER

- Peer assessment starter with level criteria
- Students continue to create a range of design ideas for products in the style of chosen designer – improvements from peer assessment
- Remind with exemplar designs and level criteria
- Sketches, annotation and rendering required

Lesson 6

Resources: Lesson 6 power point

LO: PRESENTING DESIGNS IN THE STYLE OF CHOSEN DESIGNER....

- Time to finish designs
- Group presentations- students in groups of 4 show and describe their designs using question prompts.
- Students collectively decide on grade description for the design work.
- Students record
(HAND IN TEACHER TO CHECK & ASSESS THIS AO3)

Lesson 7

Resources: Lesson 7 power point, Question prompts

LO: Learn about what CAD is and where it is used in the design industry

- Introduction to CAD
- Keyword starter
- Knowledge dump – pair activity
- Examples of CAD – go through
- Students think about adv & disadvantages of using CAD in booklets.
- Draw shapes on lined paper with accurate measurements
- Use 2D design to draw the shapes
- Write conclusion – for & against CAD

Lesson 8

Resources: Lesson 8 power point, Computers, Google Sketchup

LO: Introduction to using Google Sketchup 3D Modelling

- Recap CAD – Q&A students
- Introduce 3D modelling using Google Sketchup
- Sketchup tutorial 1 – basic house
- Add personal features- colour, textures etc
- Self-assess – WWW & EBI

Lesson 9

Resources: Lesson 9 power point

LO: Introduction to Isometric drawing BY HAND

- How to use isometric paper
- Basic shapes on isometric paper
- Initials
- Basic house

Conclusion – compare with using Googlesketchup

Lesson 10

Resources: Lesson 10 power point, Computers, Google Sketchup

LO: Learning to use further tools and measurements in Google Sketchup 3D Modelling

- Q&A Benefit of using 3D modelling for designers
- Watch video demo
- Class to follow first steps together
- Students begin basic task of setting up page step by step.
- Video tutorial 2
- Post it note plenary exit pass – 1 thing new you've learnt, something you've enjoyed, 1 thing you'd like to know for the next lesson.

Lesson 11

Resources: Lesson 11 power point, drawing grid paper (squared)

LO: Learning how to draw from one and two-point perspective

- Starter: images with vanishing point to discuss
- Explain what One point & two-point perspective is
- Students have drawing exercises of how to do 1 & 2-point perspective
- Use of shade and tone to create shape/effects
- Self-assess

Lesson 12

Resources: Lesson 12 power point, Computers, Google Sketchup

LO: Applying what they have learnt to create independent drawings

- 3D modelling using Google Sketchup
- Students have time to work with software on their own using the tools we have learnt.
- Self-assess – WWW & EBI

Lesson 13

Resources: Lesson 13 power point

LO: Closing the gap activity before assessment

- *Self-assessment starter linked to grade criteria*
- Time to improve all 3D modelling and drawing work (half of lesson) & self-assess all
- Assess using the PLC AO4 & AO5

Lesson 14

Resources: Lesson 14 power point, Test sheets, Timer, PLC

LO: Assessing work learnt so far....

END OF ROTATION TEST – 30 mins

Students Peer mark & record final mark

Lesson 15

Resources: Lesson 15 PowerPoint

LO: Understand what Biomimicry is and give examples

- What is BIOMIMICRY?
- Student identification exercise on the board
- Research Biomimicry examples – students create a PowerPoint.

Lesson 16

Resources: Lesson 16 PowerPoint

LO: Designing with Biomimetics as the theme

- Using Biomimetics to design
- Students come up with own creative ideas for products- sketch & annotate
- Peer assess