Design and Technology
Year 7
Product Design

COWLEY INTERNATIONAL COLLEGE

Name: ……Form:……Set:……

Your target for this year is to……

Autumn Assessment		Spring Assessment		Summer Assessment	
Effort: 1,2,3,4 Behaviour: 1,2,3,4		Effort: 1,2,3,4 Behaviour: 1,2,3,4		Effort: 1,2,3,4 Behaviour: 1,2,3,4	
1 - Exceeding expected target		1 - Exceeding expected target		1 - Exceeding expected target	
2- Reaching expected target		2- Reaching expected target		2- Reaching expected target	
3- Not yet meeting expected target		3- Not yet meeting expected target		3- Not yet meeting expected target	
Homework	y/n	Homework	y/n	Homework	y/n

Autumn term pupil set goal:- _____
_____Date……

Spring term pupil set goal:-_____
_____Date……

Summer term pupil set goal:-_____
_____Date……

Teacher_____

Test Score_____

KS4 & KS5 Technology options and career pathways

Engineering
Graphic Design
Textiles
Construction
Product Design
Food & Hospitality

KS3 Design Technology Learning Journey

End of KS3 Test Progression to GCSE 9-1 Design Technology, L2 Engineering, L2 Textiles, L2 Graphics, L2 Construction, L2 Hospitality and Catering

Food Practical
Explore your culinary skills by planning and making dishes such as fresh pasta, cottage pie, samosas, lasagne and Victoria sponge.

Product Design-Wooden Amplifier Project
Make and modify your own amplifier speaker for your mobile phone

Textiles Upcycling Revolution: :
Eco festival project

Evaluation: Evaluation and improvements to the functionality and aesthetics of the products

Year 9 lesson structure
Move around the department on a carousel cycle – You will visit Food, Textiles and Product Design throughout the year, giving you a great taste of things to come in KS4

CREATIVITY
IDEAS
INNOVATION

Control Systems:
Microcontrollers and embedded intelligence

YEAR 9

Nightlight Packaging: Making skills
Logo, branding and packaging. Hand skills and digital design

Nightlight: Making skills
CAD/CAM, hand tools, laser cutter, circuits, soldering

CAD DRAWING

Design
Produce design ideas & technical drawings to help you plan, both by hand and by CAD

Nightlight: Working to a design brief
Research, design and develop a working nightlight using wood, plastics and electronics.

Nightlight: Make Tasks
Put your design ideas into practice using a range of materials, new tools, equipment and techniques.

Stitch a Selfie:
Drawing with Stitch- Turn your selfie into an embroidered piece of Textiles.

Mechanisms. Explore the power of linkages, CAMs, gears and levers through designing and making CAM toys and linkage puppets

YEAR 8

Mechanisms - Pop-up Card
Explore paper engineering and mechanisms

New Techniques
Computer Aided Design, mechanisms and linkages, machine skills, pattern cutting, transfer printing, tie-dye, laser cutting.

Evaluate your outcomes
Modifications, further developments and improvements

STEM

CAD CAM
Embroidery

SUSTAINABILITY

NO WAR
PEACE
MAKE PEACE NOT WAR

Sustainable Design
Positive Vibes project

YEAR 7

SAFETY FIRST

Graphic Design
An introduction to graphics – colour, typography, logos, branding

Make Task
Bring your designs to life using a range of materials, tools, equipment and techniques to create a prototype of your idea.

Design Task
Design and communicate your ideas through sketching and annotation

Responsible designers, sustainability, materials and biomimicry.

Workshop health and safety

Introduction
What is Design Technology? Career pathways and the industry

CRITICAL THINKING
problem – thinking – solution

Year 7 Product Design End Points

Research and topic introduction

- ❑ Know about an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their products to their own designing and making
- ❑ Know how to follow procedures for safety and understand the process of risk assessment
- ❑ Know how to consider the influence of a range of lifestyle factors and consumer choices when designing products
- ❑ Know how to analyse where human values may conflict, and compromise has to be achieved
- ❑ Know how to research the health and wellbeing, cultural, religious and socio-economic contexts of their intended users
- ❑ Know how to investigate and analyse the positive and negative impact that products can have in the wider world
- ❑ Know developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists Design and technology.

Design and Planning

- ❑ Know how to combine ideas from a variety of sources
- ❑ Know how to use a variety of approaches, for example biomimicry and user-centred design, to generate creative ideas and avoid stereotypical responses
- ❑ Know how to develop and communicate design ideas using annotated sketches
- ❑ Know how to produce 3D models to develop and communicate ideas

Evaluate

- ❑ Know how to actively involve others in the testing of their products
- ❑ Know how to evaluate their products and identify ways of improving them

Practical

- ❑ Know how to select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture
- ❑ Know how to use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely
- ❑ Know how to use a broad range of material joining techniques including adhesives

Technical Knowledge

- ❑ Know how to classify materials by structure e.g., hard words, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting plastics

Keywords and vocabulary for this project

☐ Green – I know these words
☐ Orange - I have heard but not sure what they mean
☐ Red – I have never heard or seen before

☐ List ☐ Label ☐ Explain ☐ Design ☐ Make

☐ Ideas ☐ Inspire ☐ Draw ☐ Sketch ☐ User

☐ Test ☐ Designer ☐ Materials

☐ Health and Safety ☐ Design Brief

☐ Research ☐ Investigate ☐ Target Market

☐ Annotate ☐ Aesthetics ☐ Manufacture

☐ Feedback ☐ Finish ☐ Quality Control

☐ Evaluation ☐ Sustainable ☐ Responsible

☐ Dimensions ☐ Measurements ☐ Deforestation

☐ Template ☐ Prototype ☐ Planning ☐ Advantage

☐ Disadvantage ☐ Product Life-Cycle ☐ Industry

☐ Mass Production ☐ Manufactured board

☐ Deciduous ☐ Hardwood ☐ Softwood

☐ Biomimicry ☐ Environment ☐ Mood board

☐ Recycling ☐ Coniferous ☐ Modification

DESIGN AND TECHNOLOGY

WHAT IS IT... AND HOW CAN IT HELP MY CAREER?

WHAT IS IT?

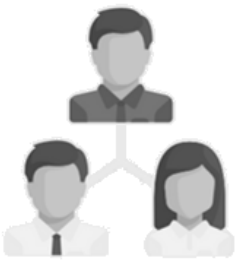
The planning, design and creation of things people use. This includes everything from bridges and cars, to toasters, furniture – or even a fancy cake!

WHAT CAN I WORK WITH?

- Electronics
- Food
- Graphics
- Wood, metal, plastic ("resistant materials")
- Textiles

WHAT SKILLS WILL I GAIN?

- Creativity
- Planning
- Evaluation
- Problem-solving
- Teamwork
- Communication



WHAT JOBS CAN I DO?

- Fashion designer
- Architect
- Tailor
- Product designer
- Civil engineer
- Software engineer

RELATED SUBJECTS

- Art
- Maths
- ICT
- Chemistry
- Physics

Task – There are thousands of jobs that involve Design Technology. Your teacher will go through a range of jobs with you now

What type of Design Technology based job would you like to do and why?

_____

_____

_____

_____

_____

_____

What skills do you think you would need for this job? List them below

- _____
- _____
- _____
- _____
- _____

Which DT pathway would you like to study and why?

_____

_____

_____

_____

KS4 and KS5 options and career pathways

Engineering
Graphic Design
Textiles
Construction
Product Design
Food & Hospitality

Date:

Knowledge -An Introduction to Health and Safety

Top 10 Technology classroom rules – List the top 10 Health & Safety workshop rules

1_____
2_____
3_____
4_____
5_____
6_____
7_____
8_____
9_____
10_____

Task - Design 2 warning signs to help prevent an accident from happening in the workshop

Technology Classroom rules

I _____, have completed my Health and Safety induction for being in a Design Technology classroom. I am aware of the Health and Safety rules and will follow them at all times.

If I don't, I am aware that I am a danger to myself and others and will be at risk of being removed from practical lessons.

It is my responsibility to look after myself and others.

Signed [Pupil] _____
Date_____

Effort grade 1 2 3 4

Date:

Knowledge - An Introduction to Health and Safety

*Below are a list of statements about health and safety in the workshop. Write next to each one if you think they are **true** or **false**, good luck!*

1 You should always run around the workshop to get your work done faster. T/F

2 Always wear safety goggles when using the machines. T/F

3 If you are hungry in the lesson, have a snack to keep your energy up. T/F

4 Always follow the teacher's instructions. T/F

5 If a tool breaks, try and fix it yourself without telling the teacher. T/F

6 Always wear an apron when completing practical work. T/F

7 Always tidy the workshop up for the next class entering. T/F

Explain why you have given these answers (This is true or false because…)

1_____

_____

2_____

_____

3_____

_____

4_____

_____

5_____

_____

6_____

_____

7_____

_____

Effort grade 1 2 3 4

Date:

Knowledge - Being a responsible designer
Materials and The Environment

Find out what is meant by a 'sustainable forest'.
Your teacher will show your class a YouTube clip to help.

A sustainable forest is…

It is good because…

Find out what is meant by 'deforestation'

Deforestation is…

It is bad because…

How can we be responsible designers? Link your answer to sustainability

APPLYING KNOWLEDGE

Research or create an information poster/ **infographic* or presentation for your class on either of the 3 topics discussed. You could choose to present about **Sustainability**, **Deforestation** or being **a responsible designer**. Completed ☐

An **infographic is a collection of imagery, charts, and minimal text that gives an easy-to-understand overview of a topic.*

Effort grade 1 2 3 4

Date:

Knowledge ~ Materials -Natural and manufactured timbers

There are thousands of different species of trees from around the world. However, they can be split in to two main categories when it comes to timber, h_____ and s_____. Wood can also come in a man made form known as m_____ b_____.

Find some information about the 3 different catagories. Think about their properties, characteristics and uses.

Test Your NEW Knowledge!

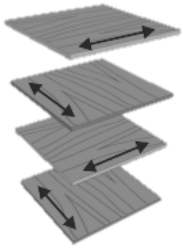
Hardwoods - key points and summary

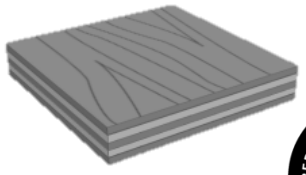
D_____

C_____

Softwood key points and summary

Manufactured boards- key points and summary





REMEMBERING MORE & KNOWING MORE

Categorise some examples of different timbers below.

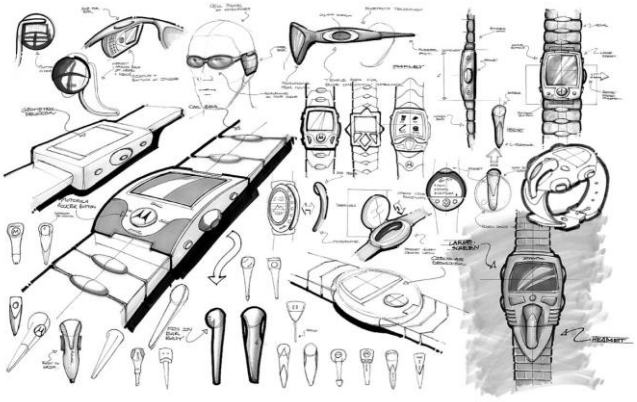
Hardwood	Softwood	Manufactured board

Effort grade 1 2 3 4

Date:

Designers – How do I design?

When someone designs something (a garment, building, a machine or new product), they research, plan and make detailed drawings so it can then be built or made.
This idea can then be **prototyped** and **manufactured** into a real working product which can be sold and used all over the world.



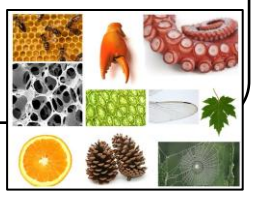
Inspiration and innovation

Designers take **inspiration** from all around them. From shapes and colours in nature, art and the built world around us, designers produce new and **innovative designs** that can be fun and interesting to use and look at.

Biomimicry **'Bio' means life, 'Mimicry' means to imitate**. It's where nature inspires a designer to design a product in a certain way. Sometimes a designer will look at the way nature has solved a problem through evolution and then they will apply it to a design problem. Other times, it may be as simple as a shape or colour they like or that works well.

Task – Create an **inspiration board** below using your favourite images of nature and products inspired by biomimicry. This will help you to produce a range of your ideas based on nature and biomimicry. You can also draw some images in this space if you would prefer.

APPLYING KNOWLEDGE

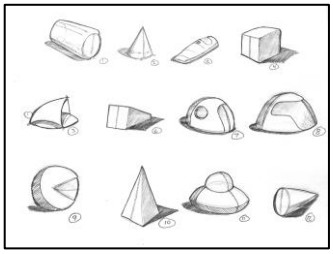


Your research inspiration board can be produced digitally- on a computer or laptop. Tick the box if yours is digital but not printed off

Completed task digitally ☐ ✓

Effort grade 1 2 3 4

Design – Initial sketches and thumbnails



Date:

Test Your NEW Knowledge!

Design - Biomimicry Design Task

Q – What is biomimicry? _____

Task - Design a trophy for the 'Cowleian of the year' award. You can be influenced by a small part/section of something from nature or take inspiration from the whole shape. Add labels and colour to help explain your design.
Create a range of different ideas for your trophy inspired by your mood board and imagery from nature

APPLYING KNOWLEDGE

1

2

3

4

Design - Biomimicry Design Task

APPLYING KNOWLEDGE

Task -Take your favourite and strongest idea so far and develop it further in the space below. Can you add anything to make it better?

Evaluate your design

Good thing _____

Bad thing _____

I could improve it by _____

COWLEY INTERNATIONAL COLLEGE

Technology Assessment & Feedback

FEEDBACK

Strengths

- Your presentation is great! Neat, tidy and to a high standard. Well done
- Great ideas! They show creativity and have been well developed.
- All labels are clear and accurate and has a good amount of written detail
- You have shown a great attitude to learning ☺
- You can demonstrate and employ key words

Weaknesses

- Your presentation requires more effort/ is rushed
- Ideas lack creativity and have not been developed
- Work requires more labels and written detail
- Poor attitude and engagement have impacted on your work
- Your work is incomplete

Next steps

- Improve presentation, draw in pencil, use a ruler
- Add colour and fine liner to your work
- Add more written details to explain your ideas
  - ☐ List good and bad points of each design
  - ☐ Add detailed construction labels
  - ☐ Label materials
- Add accurate measurement to your designs
- Ask others opinions to inform your final decisions
- Complete any unfinished tasks
- Correct your spellings

Signed_____ Dated_____

Test Your Knowledge!

List 3 health and safety rules

- _____
- _____
- _____

3

Why do we have health and safety rules?

_____
_____
_____
_____

1

What is a prototype?

_____
_____

Name an advantage of making a prototype

_____
_____

2

How can we make sure we are responsible designers?

_____
_____
_____
_____

1

Why is softwood cheap?

_____
_____
_____
_____

1

What does 'bio' mean?

_____

What does 'mimic' mean??

_____

2

Why do we sketch out design ideas?

_____
_____
_____
_____

1

Why is it helpful to ask other people opinions on your ideas?

_____
_____
_____
_____

1

What is deforestation?

_____
_____
_____
_____

1

Why do we create mood or inspiration boards?

_____
_____
_____
_____

1

What did you score? _____

Date:

Homework Task

Glue here

Date	Document the practical work carried out today – list skills, materials, equipment and processes used. You can add sketches too	What went well?	To improve I could…	Teacher signature or stamp

'Do now' Retrieval and Recall

Name an advantage of making a prototype	Circle the correct spelling Biomimicry Beomimicry Biomimickri	What does 'bio' mean?	Give an example of a softwood	**Spelling Challenge** *your teacher will give you a word*
What does 'mimic' mean?	**Think.Pair.Share** In pairs, discuss how we could be responsible designers. Your teacher will select pupils at random to share your thoughts	**State a reason for using an alternative to plastic as a material choice**	**Spelling Challenge** *your teacher will give you a word*	What does annotation mean?
What is deforestation?	How many millimetres are in 1cm?	**Spelling Challenge** *your teacher will give you a word*	**Think.Pair.Share** In pairs, discuss why would you want your product to be recycled instead of put in land fill?	What is a prototype?
How many centimetres are in a metre?	**Spelling Challenge** *your teacher will give you a word*	Name a manufactured board	What is cheaper? Hardwood or softwood?	What does biodegradable mean?
Spelling Challenge *your teacher will give you a word*	State 1 health and safety rule	**Think.Pair.Share** What is the importance of Health and Safety in the workshop?	Name the 3 main categories of woods and timbers	**Think.Pair.Share** What do we mean by sustainability? Your teacher will select pupils at random to share your thoughts