

# Year 10

## Design & Technology

### Sustainability - Mobile Phone Holder

#### Design Context:

Environmental issues are more and more important to consumers, to help them reduce their carbon footprint and help the environment. You have been asked to design and manufacture a mobile phone holder that will reduce the effects on the environment and reuse existing materials that you have at home or in school. These materials will need to be either reclaimed or up cycled

As a designer, you have a social responsibility - a duty to act in a way that benefits society and the environment. Environmental, social and ethical factors can be tricky to get your head around but are essential to help and protect our planet.

Week	Lesson Activity
1.	Investigate and research existing products on the market, ACCESS FM, investigate the sizes of phones and specification.
2.	Sketch your initial ideas
3.	Development & Model (Prototype)
4.	Sketch your final design
5.	Manufacturing flow chart & Parts list /Manufacturing
6.	Manufacturing
7.	Manufacturing & Photographs
8.	Manufacturing & Evaluation

Read through these pages and highlight or underline the key words.

Name: \_\_\_\_\_ Form: \_\_\_\_\_

## ACCESS FM (to help annotate your images)

### **Aesthetics**

Does the product look good?

Does it make good use of colour and texture?

What has inspired its appearance? (E.g. is it organic? Is it industrial?)

### **Cost**

What is the estimated cost of the product?

Does it offer value for money?

### **Safety**

How has the designer considered safety issues in the products design?

Think about the ways it is being used and how different parts have been joined together.

### **Size**

Are the product's proportions appropriate for its use?

If you increased or decreased the products size, would it look or function better?

### **Customer**

Who is the product designed for?

How and where would they use it?

What effect will it have on their lives and relationships?

Does the product target a particular age group or sector of people?

### **Environment**

What is the product's impact on the environment?

What happens to the product after use?

How long will it last?

What factors limit/lengthen its life span?

Can it be repaired?

Can parts be replaced?

How easily can it be recycled?

### **Function**

Does the product do the job it was intended to do?

How does it work?

How easy is it to use?

### **Material**

What materials are used to make the product and why?

Would another type of material work better?

What impact could the designer's choice of material have on the environment?

Where do the materials and other resources needed for production come from?

Are they likely to run out?

# Sustainability - Mobile Phone Holder

## Design Context:

Environmental issues are more and more important to consumers, to help them reduce their carbon footprint and help the environment. You have been asked to design and manufacture a mobile phone holder that will reduce the effects on the environment and reuse existing materials that you have at home or in school. These materials will need to be either reclaimed or up cycled

As a designer, you have a social responsibility - a duty to act in a way that benefits society and the environment. Environmental, social and ethical factors can be tricky to get your head around but are essential to help and protect our planet.

## Design Brief:

Using mainly **recycled or reclaimed materials**, design a sustainable phone/ipad holder to hold securely your electronic product/device. Your product or products should be **as environmentally friendly as possible** to reduce the carbon footprint. Most materials should be either reclaimed or recycled to produce a high quality and unique product that is **functional and aesthetic pleasing**.

You should develop a range of creative ideas to ideally use old materials again in a different manner. You are not restricted on materials so long as most of the materials or components are reclaimed.



# Task 1 Investigation - Image board

Date: \_\_\_\_\_

Investigate other creative phone holders that are currently available and produce an image board below. Using annotation, state why have you chosen these two designs to study, what do you like about the existing products that you have found. Use ACCESS FM to help you annotate your images (your teacher will discuss this with you).



## D&T Tips for a successful and a high grade!

- Collect visual images of existing phone holders
- Cut and paste to fill up this page to form a collage or use pic collage on your ipads.
- Add detailed comments (annotation) to explain why you have chosen these images and what do you like about them. Use ACCESS FM.

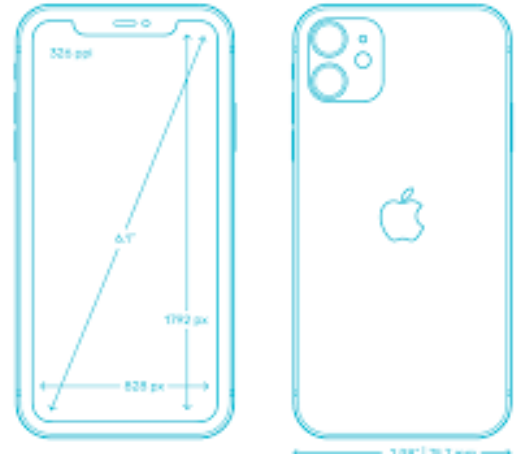


## **Lesson Objectives**

To use your research to develop a detailed specification to develop your designs from.

Date: \_\_\_\_\_

### **Task 2 Investigation – Dimensions.**



It is impossible to design for a product if you do not know the sizes needed. Measure your phone or ipad and record in the table below, always work in mm.

<b>Product:</b>	<b>Length:</b>	<b>Width:</b>	<b>Thickness:</b>

### **Task 3 – Specification**

Produce a specification below, to help you generate your ideas. Some examples are given below to help you generate a detailed specification.

#### **Specification:**

It must appeal to your target audience. (state your target audience below),

It must be mainly or entirely made from ethically sourced materials e.g. reclaimed or recycled materials.

It must be functional as well as aesthetically pleasing e.g. it must work and look good.

It must \_\_\_\_\_.

It must be \_\_\_\_\_.

It must be \_\_\_\_\_.

It must be \_\_\_\_\_.

It must \_\_\_\_\_.

It must be \_\_\_\_\_.

Discuss in detail who and what your target audience is and who is it aimed at?

---

---

---

---

---

## **Lesson Objective:**

To be able to design initial ideas for your product to meet the design brief.

## **Task 4 Initial ideas**

**Date:** \_\_\_\_\_

Sketch your initial ideas below and read D&T Tips for a higher grade.

Produce a range of initial ideas 7 or 8 (by hand using different drawing and rendering techniques) and include annotation, apply surface decorations to give an indication of what it might be like. Look at existing phone holders from your image board to help for inspiration. **Do not copy any existing designs, all work must be your own.**



### **D&T Tips for a higher grade**

- Be creative, original and use your imagination.
- Outline your designs and keep sketches neat/feint.
- Draw your designs in both 2D and 3D to show different views.
- Add dimensions e.g. main measurements in mm.
- Add detailed comments (annotation) to explain design decisions, discuss materials and construction.
- Ensure you cover all points on the specification fully.
- Ensure you discuss any environmental issues.

## Task 4 Initial ideas continued –

### Formative Assessment

Effort & House points:

WWW:

IOTI:

CTG:

### **Lesson Objectives**

To be able develop and suggest further improvements to their final design from peer assessment.

## **Task 5 – Development**

**Date:** \_\_\_\_\_

Using your favourite design from your initial ideas develop this further to produce your final design e.g. improve it to make it even better (include measurements in mm). Your teacher will explain what development means.



**Lesson Objectives**

To be able to accurately manufacture a scale model accurately.

**Task 6 – Model/Prototype****Date:** \_\_\_\_\_

Modelling is an essential part of designing and manufacturing. Produce an accurate and scale model of your phone/ipads holder from your development. Test your prototype to see whether your design works or could be improved. Record findings or suggestions from others and modify appropriately. Take a photograph and stick below, include any suggestions for improvements from either yourself, your teacher or your peers.

**Lesson Objectives**

To be able develop and suggest further improvements to your final design.

Date: \_\_\_\_\_

**Task 7 Final Design**

Using your improved design (model and development) now generate your final design (include measurements in mm).

**Formative Assessment**

Effort & House points:

WWW:

IOTI:

CTG:

## **Task 8 - Produce full size prototype of your phone holder.**

Date: \_\_\_\_\_

It is vital that your model or prototype is accurate, to scale and functions well. Produce a full-size version or prototype from the appropriate modelling material. Take a few photographs (from different angles) as well to test your design/model works. Stick or copy and paste below! If your teacher is happy with your prototype move on to manufacturing of your phone holder, remember to use sustainable materials.

### **Formative Assessment**

Effort & House points:

WWW:

IOTI:

CTG:

## Task 9 Manufacturing Flowchart

Date: \_\_\_\_\_

Produce a flowchart to show the manufacturing steps involved to make your phone holder. Include Quality Control (QC) loops to show where you have checked quality and accuracy. (your teacher will explain the purpose of a flowchart and QC).

## Task 10 Parts List

Using your final design, list all pieces or components needed to produce your prototype below: Remember all measurements are in mm's. It is essential not to waste materials and use as little as possible.

Part Name:	Material:	Dimensions: (Length x Width x Thickness) (mm's)	Quantity:
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

## **Lesson Objectives**

To evaluate your final product and suggest modifications.

## **Evaluation**

Date: \_\_\_\_\_

Product designers must check or evaluate their products when they are finished and ask the target market (who it is intended for) what they think of their prototype and designs. By doing this they can decide whether what they have designed and made was good enough. They can also decide whether there are any changes that need doing to make their products better.

You could use your ipad and record their comments and write them down later, or you could film them looking and testing your prototype instead if you wish. However, you must write down below what they said. Look at the example below.

<b>Name:</b>	<b>Comments about my prototype:</b>	<b>Suggested ways to improve my prototype:</b>
Example: My Dad Age: 45	He said that he liked the design as it stood up well on its own and can be flat packed and put in a drawer when not being used.  He also likes the fact that it could be used either laying down on its side or stood up to allow you to watch TV on your phone whilst in bed!	He suggested a place to hang or store my earphones when not in use as it looked messy because the wires were all over the place.  He also suggested a more modern finish of aluminium or another metal finish or paint rather than a traditional wood effect, so it matches my bedroom better.
Person 1: Age:		
Person 2: Age:		
Person 3: Age:		

## **Modifications**

State two modifications to improve your design/model.

### **Modification 1:**

.....  
.....  
.....  
.....

### **Modification 2:**

.....  
.....  
.....  
.....

Write about what went well (WWW) in your project and what you would need to do next time in order to improve and make your product work even better (IOTI). Try and write in full sentences, check your grammar, spellings and always proof-read your work. Use the comments from the three people to help you but include your thoughts and suggest modifications.

Write about your effort as well as how your project turned out.

WWW:

---

---

---

---

---

---

---

---

---

---

IOTI:

---

---

---

---

---

---

---

---

---

---

**Formative Assessment**

Effort & House points:

WWW:

IOTI:

CTG:

