# Design and Technology

## GCSE 2012

# D&T: Electronics and Control Systems

Schemes of Work and Lesson Plans

Unit A511

Version 1

September 2012

www.ocr.org.uk/gcse2012

OCR

# Contents

# Introduction

## Background

OCR has produced a summary brochure, which summarises the changes to Design & Technology. This can be found at **www.ocr.org.uk,** along with the 2012 specification.

In order to help you plan effectively for the implementation of the new specification we have produced these schemes of work and sample lesson plans for Design & Technology. These support materials are designed for guidance only and play a secondary role to the specification.

## Our Ethos

OCR involves teachers in the development of new support materials to capture current teaching practices tailored to our new specifications. These support materials are designed to inspire teachers and facilitate different ideas and teaching practices.

Each scheme of work and set of sample lesson plans are provided in Word format to be used as a foundation to build upon and amend the content to suit your teaching style and students' needs.

The scheme of work and sample lesson plans provide examples of how to deliver these units and suggested teaching hours which could be applicable to your teaching.

The specification is the document on which assessment is based and specifies what content and skills need to be covered in delivering the course. At all times, therefore, this support material booklet should be read in conjunction with the specification. Any clarification should be found in the specification.

# A Guided Tour through the Scheme of Work

## = Innovative Teaching Idea

This icon is used to highlight exceptionally innovative ideas.

## = ICT Opportunity

This icon is used to illustrate when an activity could be taught using ICT facilities.

# OCR GCSE D&T: ELECTRONICS AND CONTROL SYSTEMS UNIT A511: INTRODUCTION TO DESIGNING AND MAKING

| **SUGGESTED TEACHING TIME** | 7 HOURS | **TOPIC** | PRODUCT ANALYSIS |
|---|---|---|---|

| **TOPIC OUTLINE** | **SUGGESTED TEACHING AND HOMEWORK ACTIVITIES** | **SUGGESTED RESOURCES** | **POINTS TO NOTE** |
|---|---|---|---|
| Introduction | Students identify their favourite products<br>• Why buy them<br>• How do they choose between the different manufacturers | • Use a large display card to make a paste up display – use coloured paper to make note balloons for student suggestions | • This activity is to see if the students are discerning consumers |
| Product analysis | • se Analysis Toolkit<br>• arry out a detailed audit with one heading for each A7 size card. Using the following headings: purpose, aesthetics, ergonomics, manufacture, maintenance, fitness for purpose, value for money, function system<br>• Students to swap cards, putting them down one at a time until the other group guess what the product is | • Small cards for comments A7 size<br>• Use familiar objects such as paper punch or stapler<br>• Or students can bring in their own products | • Use a teacher led approach for one item<br>• Students to carry out their own full study in small groups using cards to write on. |

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| Viewpoints | • Divide class into groups by giving job cards<br>• Students decide what is important in a product from each viewpoint on the job card<br>• Analyse the products from different points of view to contrast the needs of each group | • A7 size jobs cards with headings: designer, manufacturer, wholesaler, shop seller, buyer, consumer | • Students will appreciate the different viewpoints and will generate discussion |
| Sustainability | • How can the product be redesigned to take account of the 6 R's. Group activity with students taking each of the R's and feeding back to the whole group | • The Sustainability Handbook for Design and Technology Teachers | • It may not be possible to use all the Sustainability points for development of the product but these should be discussed |
| Future Products | • Students use their imagination to think of a future product developed from the given product.<br>• Use an A3 product expansion sheet. Pass the sheet around. Each member of the group sketches a development . Each sketches develops from the last one<br>  | • Using an A3 product expansion sheet with a picture of the given product in the middle and a number of squares arranged around it for sketching | |

 = Innovative teaching idea

 = ICT opportunity

# OCR GCSE D&T: Electronics and Control Systems Unit A511: Introduction to Designing and Making

## Sustainability in design

OCR recognises that the teaching of this qualification above will vary greatly from school to school and from teacher to teacher. With that in mind this lesson plan is offered as a possible approach but will be subject to modifications by the individual teacher.

Lesson length is assumed to be **one hour**.

## Learning Objectives for the Lesson

| | |
|---|---|
| Objective 1 | Use 6Rs for design activities |
| Objective 2 | Apply sustainability to design |
| Objective 3 | Reflect on sustainability in own design work |
| Objective 4 | Changes to design work to improve sustainability |
| Objective 5 | Recognise conflicts in responsible design |

## Recap of Previous Experience and Prior Knowledge

- Mind map of design areas, possible and future projects, design sketches ofr ideas

### Content

| Time | Content |
|---|---|
| 5 minutes | Starter activity – list new technology products and comments of what makes them great. – small group activity |
| 10 minutes | What are the 6Rs in sustainability and give examples of meaning – class or group activity |
| 5 minutes | Take one of the products identified – make judgement about the sustainability |
| 15 minutes | Work individually – looking at recent design ideas, how can these be made more sustainable – use sketches to show improvements |
| 10 minutes | Group discussion on improvements and how much further the ideas can be taken |

## Consolidation

| Time | Content |
|---|---|
| 5 minutes | Individually review these improvements from the group |
| 10 minutes | To finish lesson and homework. Take one of designs and redesign to make the project fully sustainable. How does this conflict with Electronics and Control Systems? |