



Hayesfield Girls School

Design and Technology.

Electronic Communications Technology.

Year 7 Electronic LED Torch

Name _____

Tutor Group _____

Teaching Group _____

Introduction

During the project you will make an electronic torch. This will involve learning about electronic components, making circuit boards, using templates and jigs to manufacture the body of the torch, as well as further developing your skills at using hand tools and machines. Although most of the design of the torch is already fixed, you will have the opportunity to influence the appearance of the finished product.

Assessment

During this project, your teacher will be focussing on 2 areas of your technology work. You will be awarded a level for each of these targets as well as a mark for the end of module test.

To help you achieve your best possible level, helpful descriptions of how to achieve each level is available in the classroom.

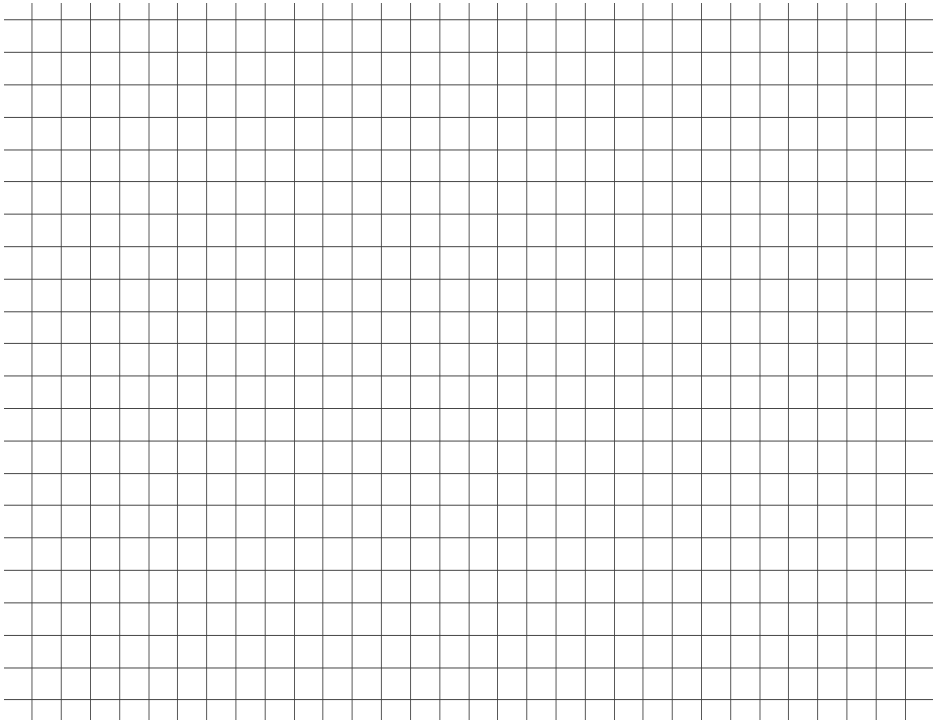
- | | |
|----------------------------------------------|----------------------|
| 1) Research and investigation of electronics | Final Level _____ |
| 2) Overall grade for completed torch | Final Level _____ |
| 3) End of Module Test | Final Mark _____ /10 |

Students Comments / Targets

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Circuit Diagram.

Draw the circuit diagram of your electronic LED torch. You need to label all the components, explaining each of the functions they play in an Electronic Torch.



LED

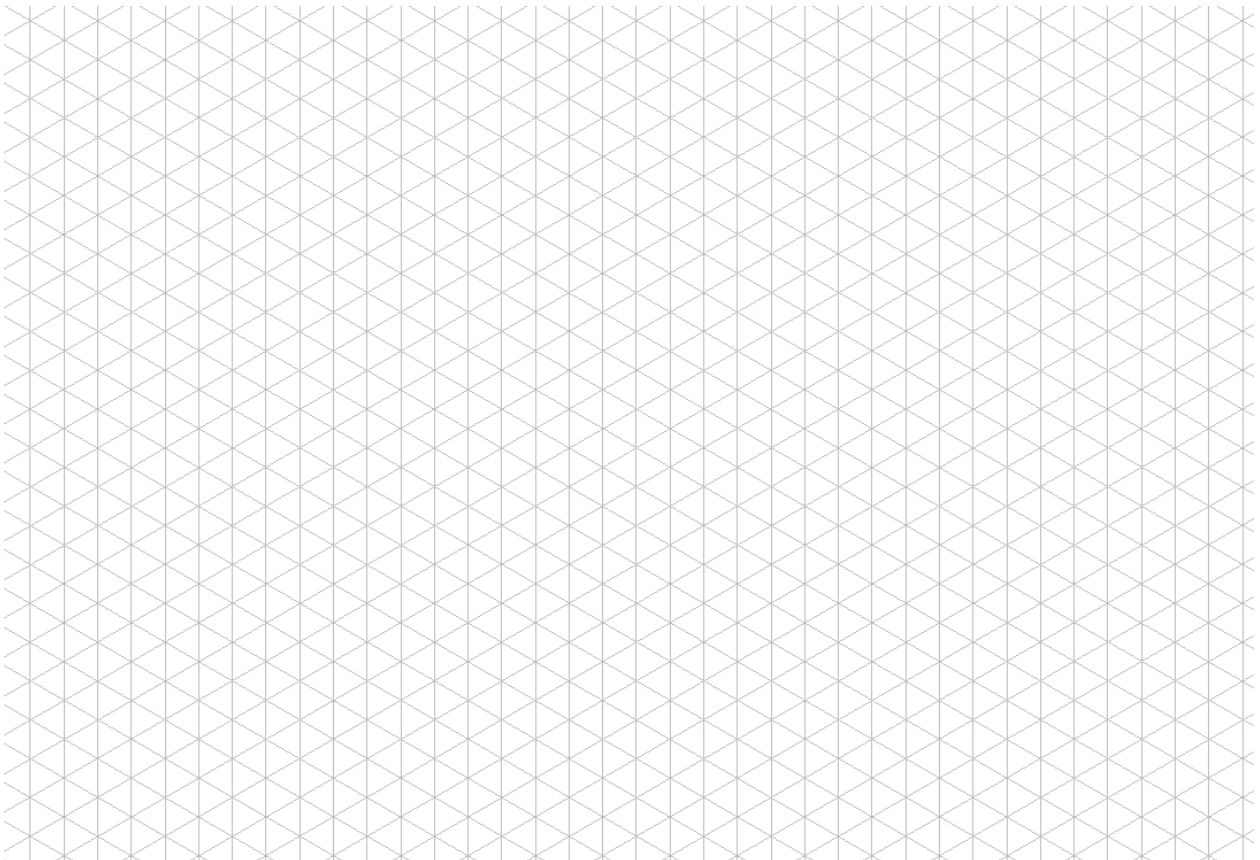
Resistor

Battery

Switch

3D Drawing of a torch

Draw a picture of a torch from home, this should be in 3D and colour and using the skills you have learnt from your graphics module.



Research each of the following components.

Write a paragraph on each one and what function does it have. Include a picture. You may also wish to include details of when it was invented and who invented it.

LED

Resistor

Transistor

Diode

Motor

Battery

The Transistor (1 Hour)

The transistor plays an important role in today's electronics. All Integrated Circuits (ICs) contains transistors.

In its basic form the transistor acts as an Electronic switch.

With your teacher you will draw a transistor circuit on an electronics simulation package called Crocodile Clips. This can also be downloaded and used for free with a home licence from www.yenka.com.

This circuit demonstrates a simple night light circuit. In your own words explain how the circuit works below. An online demonstration is available from the technology website.

Printout your circuit diagram and paste here.

Diary of Making – Torch

On this page you need to produce a diary of making your torch. This should be a step by step guide, in which someone could follow, if they were making their own circuit board and should include coloured pictures. Do not include making the PCB as this will be done on the next page.

Diary of Making – Printed Circuit Board

On this page you need to produce a diary of making your Printed Circuit Board. This should be a step by step guide which someone could follow if they were making their own circuit board and should include coloured pictures.

End of module test.

Question sheet reference _____

At the end of the module there will be a short assessment test, questions will not be the same for each group and will be selected at random from what you have learnt.

Answers

- | | |
|----|-----|
| 1) | 6) |
| 2) | 7) |
| 3) | 8) |
| 4) | 9) |
| 5) | 10) |