

GCSE Electronics**Exam Board: AQA****Course Description:**

During Year 9, students will work on short projects to teach them a wide variety of making skills. Each project will introduce them to components soldering and construction skills, building a resource book which they can use when designing and developing their GCSE product. With each new project, students will learn about the most suitable materials and the potential environmental impact of design.

Course content:

Project 1 – Board Game students make this item for a family or group of people.

Practical skills: students will design a board game that includes a timed element (either an original idea or a unique take on a classic).

Project 2: Electronic Christmas Trees

Skills: Students will solder a flashing Christmas tree to help increase their practical skills and presentation.

Project 3: Cyber-pet

Skills: Students will be introduced to programming and computer control. They will use software to program a real life product.

Project 4: Advertising Displays

Skills: Students will learn how to use a 555 timer circuit to create an attractive and visual display to help advertise a product, film, item or service of their choice using flashing lights and/or sound.

Project 5: Scalextric Car

Practical skills: Students design a completely unique car body, which is fully rendered as a CAD drawing using Prodesktop and then vacuum formed.

Project 6: Steady hand testers

Skills: Students will learn how to design and make their own circuit boards including CAD skills and using an etch tank.

Important information:

Links to programming, electronic, electrical and engineering courses post 16.

Links to A-level Product Design

Extra-Curricular Opportunities:

GCSE support sessions Wednesday afterschool, and a drop in session one day per week.

Provision for the Most Able:

Project 1: Students have opportunity to produce and laser cut a complex casing design using CAD software.

Project 2: Project can be enhanced using additional materials to turn a PCB into a complete and aesthetic product.

Project 3: Students can write a detailed computer program using the computer programming language BASIC; instead of flow chart based programming.

Project 4: Students to use detailed laser cutting to produce high quality designs.

Project 5: Students can produce complex and realistic car shapes from the vacuum forming process.

Project 6: Students to produce their own casing shapes and sizes design to hold the circuit board and the battery.

Useful websites:

<http://www.technologystudent.com/>

<http://www.bbc.co.uk/schools/gcsebitesize/design/electronics/>

<http://www.edutek.ltd.uk/index.html>

<http://www.picaxe.com/>

<http://www.rapidonline.com/>

Assessment:

At the beginning of each of the projects students are given assessment criteria. Their books will be assessed every four lessons with what went well (www) and even better if (ebi). The practical work will receive ongoing verbal feedback. Students will make decisions to enable them to achieve at least their target grade for the project, using self and peer assessment to ensure the quality of outcome required. Final assessment of the project is led by the teacher.

