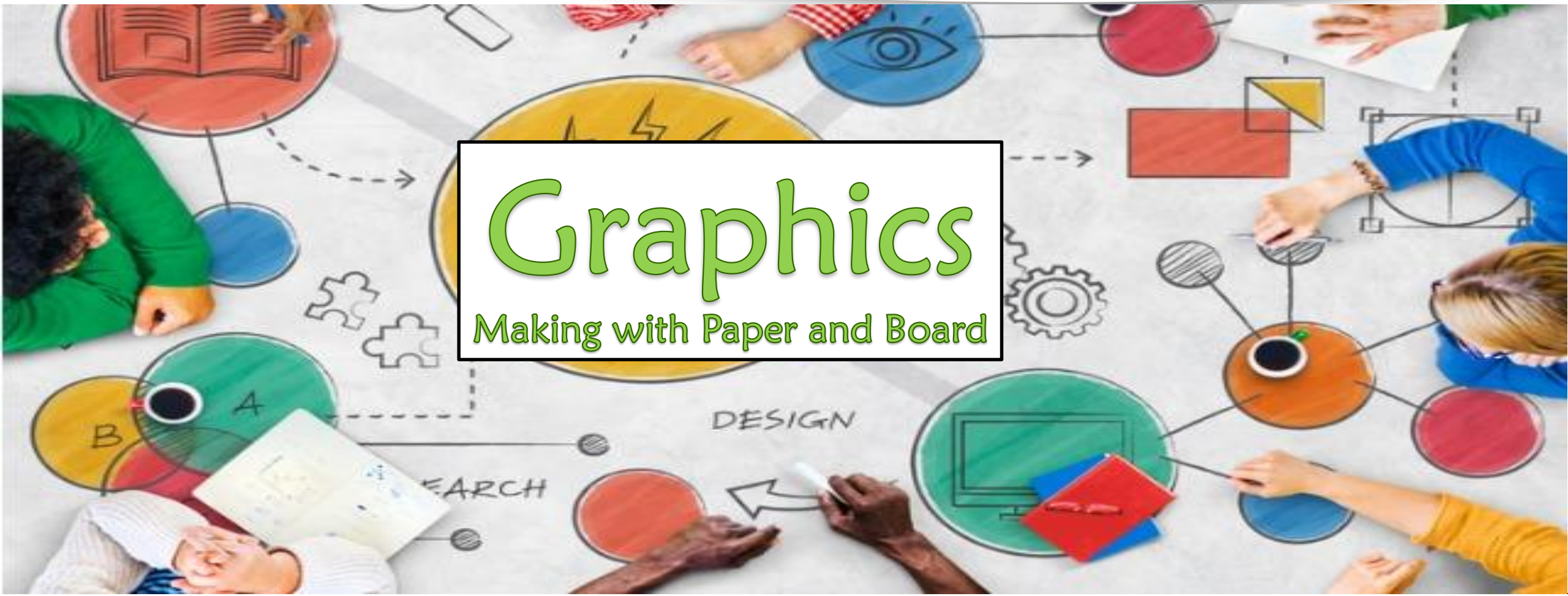
GCSE Design & Technology

Southam College



Graphics

Making with Paper and Board

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General Course Outline

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This course is aimed at students who are interested and motivated to design and make products.
It is ideal for the student who are interested in learning how products are designed. We start by exploring the basics behind how products are designed such as why particular colours and fonts are used, why one material has been used over another, identifying who the target market is and how a product goes from an idea to a finished piece.

It encompasses skills in a range of designing skills (by hand and on a computer), analysing skills and practical making skills. Students are encouraged to evaluate at each stage of making.

Although the course enables students to work with their hands, all students MUST understand that this is approximately a third of the course. The remaining two thirds are based around learning and applying the theory as well as developing the portfolio to match each project undertaken. Students must be able to work independently and take the lead in designing their own products and have the motivation to keep pace with lessons and complete the full design process as part of the portfolio.

Students will also be required to be confident and competent in Maths as this contributes a minimum of 15% in the examination.

What will I do in Graphics?

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1 lesson out of 4 is theory
3 lessons out of 4 is project

Year 9: You will…

- Carry out a range of Mini projects embedding and developing skills and knowledge for your coursework in year 10.
- Explore a range of materials and equipment to create sketches, design ideas and models.
- Use a range of machinery to create outcomes such as Cricut machine and Sublimation printer.
- Analyse existing products and create your own responses i.e. Branding for an existing company
- Develop your creativity to produce a range models and prototypes exploring and developing your ideas.

Year 10:

Subject knowledge & coursework
Mini projects to embed theory knowledge for example: Packaging project, Games board project or Advertising project.

Year 11:

Coursework NEA & Exam preparation

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The Course

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The course is broken down into two main elements both worth 50% of the GCSE;

The External Exam

2 hour paper

Testing your knowledge of core D&T Including Resistant Materials, Textiles, Graphics and Electronics.

The paper is broken down into 3 sections;

Section A – 20 marks – Multiple choice core knowledge
Section B – 30 marks – written questions relating to your subject specific knowledge where you feel you are strongest.
Section C – 50marks – Product Analysis and general design theory questions.

15% of the questions will be mathematical – requiring you to use the functional maths skills you have learnt.

The NEA

NEA – Non Examinable Assessment

A design, develop and make project

The exam board will provide 3 contexts from which the students will need to select one.

Students will follow the design process and design and make a product to suit the design brief decided by the client and themselves.
The process will involve Research and Investigation, Designing and Development of prototypes, experimenting and testing a variety of solutions.
Students will finalise their design and after manufacturing will test and evaluate it against the specification and clients requirements.

The Exam

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Section A – Multiple Choice

SECTION A - Core Technical Principles

Questions 1-10 are multiple choice questions. For multiple choice questions you should shade in one lozenge. If you make a mistake, cross through the incorrect answer and shade the correct response.

1 A designer has created a security system for use in a home. The system is intended to alert the home owner to an intruder. What is the input in this system?

A Alarm sound ⬭

B Automatic message sent to mobile phone ⬭

C Flashing light ⬭

D Motion sensor ⬭

[1 mark]

2 **Figure 1** shows a stool.

Figure 1

When a person sits on this stool, what is the main force on the stool leg?

A Compression ⬭

B Shear ⬭

C Tension ⬭

D Torsion ⬭

[1 mark]

Section B – Subject Specific

16 . 1 Choose **one** product or component in **Figure 2** and describe **two** features that make it suitable for mass production.

[2 x 2 marks]

					
Steel car door	Polymer toy musical instrument	Newspaper	Cotton T - Shirt	Printed Circuit Board	Flat pack furniture

Figure 2

Name of product/component _____

Feature 1 _____

_____

_____

_____

_____

_____

Feature 2 _____

_____

_____

_____

_____

_____

Section C – Product Analysis

SECTION C - Designing and Making Principles

The product below is a GPS Sports Watch worn by adult runners to monitor activity and aid training.

Specification

- Lightweight
- Waterproof (face and strap)
- Rechargeable battery
- Battery lasts up to 3 weeks (10 hours in GPS mode)
- Watch features include; time, date, calendar, alarm, touchscreen and GPS for recording sporting data.

Evaluate the watch in terms of its:

19 . 1 suitability for the user **[4 marks]**

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Maths style question

You have been asked to redesign the watch shown on **page 19** to make it suitable for a child aged between 9 and 11 years old.

The data in the table below shows the preferred colour scheme according to 240 children aged between 9 and 11 years old.

Complete the table by calculating the missing percentage of children who like different colours.

[1 mark]

Colour Scheme	Number of children	Percentage of total
Pastel colours	60	25%
Primary colours	102	
Fluorescent colours	36	15%
Subtle colours	30	
Metallic colours	12	5%
Total	240	

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The NEA

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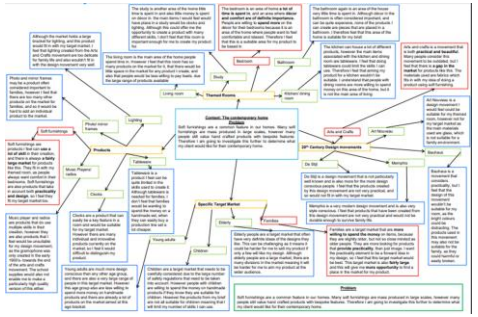
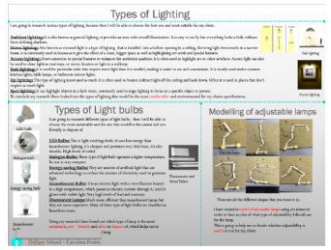
The exam board will provide 3 contexts from which the students will select ONE;

Example Contexts;

- Supporting a developing country
- Healthy lifestyles
- Designing for the disabled



- Students will identify a Client, they then work with the client throughout the project gaining feedback at all stages.
- Students will research their chosen context – design, model and redesign the ideas to come up with a solution to the problem identified.
- A final product is then made from the appropriate materials and using a wide range of processes and equipment.
- Once completed the product will be tested and evaluate it to see how successful the product turned out.



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Top Tips for External Examination	Top Tips for NEA
• Read the question carefully, underline key words - give the answer that is required. • Look at how many marks each question is worth, have you written enough? • Select the question that matches the specific subject you have been working on. E.g. Resistant materials or Textiles. • Answer with correct terminology state specific materials rather than the category i.e. timber, metal fabrics etc.. • Answer all the questions, even if you have an educated guess—Never leave a question blank. • Use all of the time you have available. Check your answers are sensible and that you haven't missed a page by mistake.	• Use your lesson time wisely. • Work at pace, • Stick to deadlines. • Do additional draft work at home. • Fill pages with detailed and relevant information. • Throughout your designing make reference to further research. • Fully analyse and justify the work you do. • Ensure that all research pages have some sketching throughout. • Ensure you drawings incorporate colour and look realistic. • Use resources on the shared area to support your learning.

Revision Guides

Students have been offered the opportunity to purchase a revision guide for £4.20. These are still available if you do not have one already - please see parent-pay to purchase your copy.

Text Books are also available to purchase from reputable book stores if you require further support in your revision.

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Possible careers that can lead from a qualification in GCSE Design & Technology: Resistant Materials.

- Product Designer,
- Furniture/ Product/ Fashion/ industrial Designer
- 3D Product Design,
- Automotive Design,
- Sport Equipment Design,
- Fashion/Fashion Accessories,
- Industrial Design,
- Architecture, IT Graphics
- Illustration, Printing,
- Landscape Design, City Planning etc.....
- ICT Web design/Games designer.
- Plus many more.....

Who is this course suitable for?

- A students who is creative and inventive, hardworking and gives of their best in all that they do.
- To have good mathematical and literacy skills.
- To have good drawing and making skills.
- To have a will to change and alter and modify models and products over and over to generate a completed and
- effective product.
- To be resilient and not give up – to persevere to change and alter designs – It wont work first time.
- To remember that the course is 50% practical and 50% theory, Do not expect to make in every lesson.

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