Design and Technology

Year 7

Topics studied:

Design projects to develop understanding of design and key techniques for successful product development

Design

- *use research and exploration, such as the study of different cultures, to identify and understand user needs*
- *identify and solve their own design problems when developing ideas for a given brief*
- *develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations*

Make

- *Materials knowledge and understanding to include;*
  - *Material properties – Natural wood, manufactured boards and polymers*
  - *Cost of materials*
- *select from and use specialist tools, techniques, processes, equipment and machinery precisely to manufacture their product. (wind chime)*

Evaluate

- *test, evaluate and refine their ideas and products against a specification*

Subject specific websites to support revision and independent learning:

http://www.technologystudent.com/

- RESISTANT MATERIALS – (AN INTRODUCTION TO MATERIALS)

Keywords that students must know, and be able to spell, by the end of the course:

Aesthetics, function, manufacturing, client, environment, specification, hardwood, softwood, manufactured boards, plywood, polymers, thermosetting, thermoplastics, acrylic, evaluation

Year 8

Topics studied:

Design and manufacture activity to produce a personal desk tidy

Design

- *develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations*
- *use a variety of approaches [for example, biomimicry and user-centred design] to generate creative ideas and avoid stereotypical responses*
- *develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations*

Make

- *select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture*
- *select from and use a wider, more complex range of materials, components into account their properties when selecting materials*

Evaluate

- *analyse the work of past and present professionals and others to develop and broaden their understanding*
- *investigate new and emerging technologies*

- *test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups*

Subject specific websites to support revision and independent learning:
http://www.technologystudent.com/
GCSE Design and Technology - BBC Bitesize

Keywords that students must know, and be able to spell, by the end of the course:
Aesthetics, function, manufacturing, client, environment, ergonomics, anthropometrics, specification, hardwood, softwood, manufactured boards, plywood, computer aided design, computer aided manufacture, joints, Memphis, design

Year 10 – GCSE Design and Technology

YEAR 10:
Topics Studied across year 10:

- New and emerging technologies
- Mechanisms and levers
- Design theory – Design movements, exploring the work of others
- Energy, materials, systems and devices
- Materials and their working properties
- Common specialist technical principles
- Timber based materials

Non-exam Assessment Style Projects:

Design and make projects aimed to develop skills when developing concepts and use of iterative design process.

YEAR 11:
Non-exam Assessment Style Projects (Start June of year 10)
Design and make project in response to the contextual challenge released by the exam board. Consists of a mini portfolio and final prototype. To include the following:

1. Identifying and investigating design possibilities
2. Producing a design brief and specification
3. Generating design ideas
4. Developing design ideas
5. Realising design ideas
6. Analysing & evaluating

Exam preparation:
Revision of topics

Exam Board:
AQA

Assessment structure:
50% Examination
50% Non-Exam Assessment (NEA)

Subject specific websites to support revision and independent learning:
http://www.technologystudent.com/

GCSE Design and Technology - BBC Bitesize

Recommended subject guides:

New Grade 9-1 GCSE Design & Technology AQA Revision Guide.
ISBN: 978 1 78294 752 3.
Each topic is explained in a straightforward, friendly style, supported with helpful diagrams throughout. There are also practice questions (with answers) included for each topic, and plenty of top advice on the skills needed for the exams.

For even more practice, students can purchase a copy of:

New Grade 9-1 GCSE Design & Technology AQA Exam Practice Workbook.
ISBN: 978 1 78294 753 0.
This workbook provides a wide range of realistic exam-style questions to cover the whole course — detailed answers are available in a separate book –

New Grade 9-1 GCSE Design & Technology AQA Answers (for Workbook)
ISBN: 978 1 78294 754 7.

Year 12 Design Technology: Product Design

Topics Studied:
Technical principals including:

- Materials and their applications
- Performance characteristics of materials
- Enhancement of materials
- Forming, redistribution and addition processes
- The use of finishes
- Modern, industrial and commercial practice
- Digital design and manufacture
- The requirements for product design and development
- Health and safety
- Protecting designs and intellectual property
- Design for manufacturing, maintenance, repair and disposal
- Feasibility studies
- Enterprise and marketing in the development of products
- Design communication

Exam board:
AQA

Assessment structure:
50% Non-Exam Assessment (NEA)
50% Examination

Subject specific websites to support revision and independent learning:
http://www.technologystudent.com/

Recommended subject guides:

AQA AS/A-Level Design and Technology: Product Design
Author: Will Potts, Julia Morrison, Ian Granger , Dave Sumpner
ISBN-139781510414082

Format: Paperback,
Publisher: Hodder Education
Publication date:29 Sep 2017

Year 13 Product Design

Topics Studied:
Designing and making principles including:

- Design methods and processes
- Design theory
- How technology and cultural changes can impact on the work of designers
- Design processes
- Critical analysis and evaluation
- Selecting appropriate tools, equipment and processes
- Accuracy in design and manufacture
- Responsible design
- Design for manufacture and project management
- National and international standards in product design

Non-Exam Assessment (NEA)
Students must undertake a substantial design and make task and produce a final prototype based on a context and design brief developed by the student.

Examinations
Paper 1 - Technical principles

- Written exam: 2 hours and 30 minutes
- 120 marks
- 30% of A-level
- Mixture of short answer and extended response.

Paper 2 - Designing and making principles

- Written exam: 1 hour and 30 minutes
- 80 marks
- 20% of A-level
- Mixture of short answer and extended response questions.

Exam board:
AQA

50% Non-Exam Assessment (NEA)
50% Examination

Subject specific websites to support revision and independent learning:
http://www.technologystudent.com/

Recommended subject guides:

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