

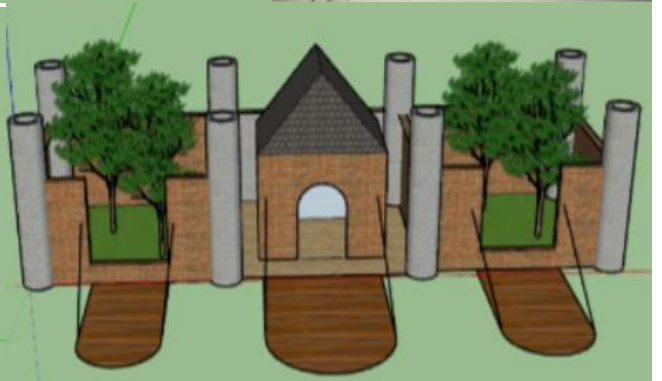
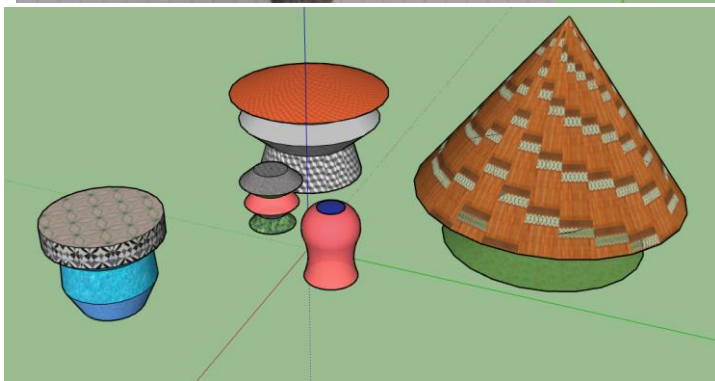
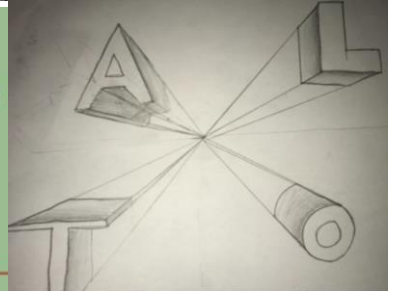
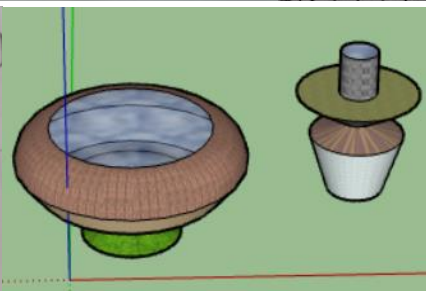
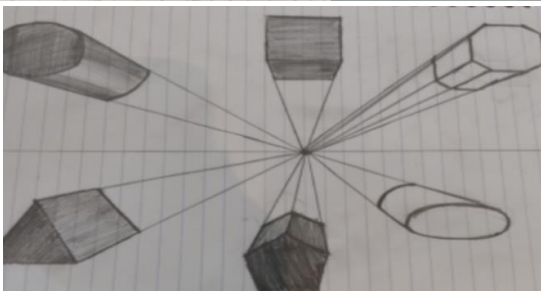
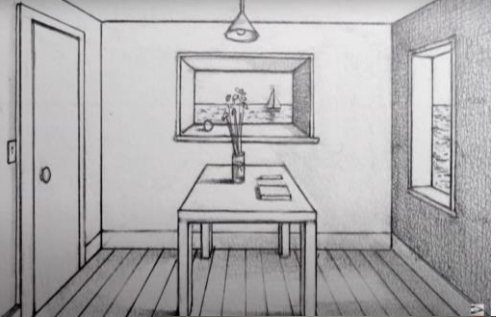
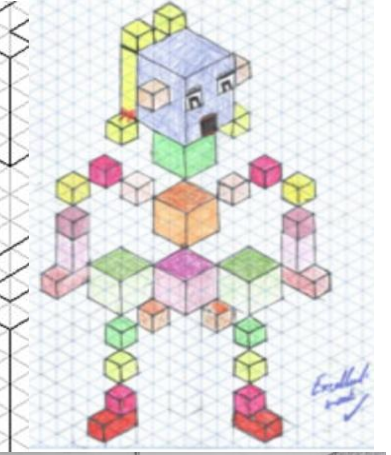
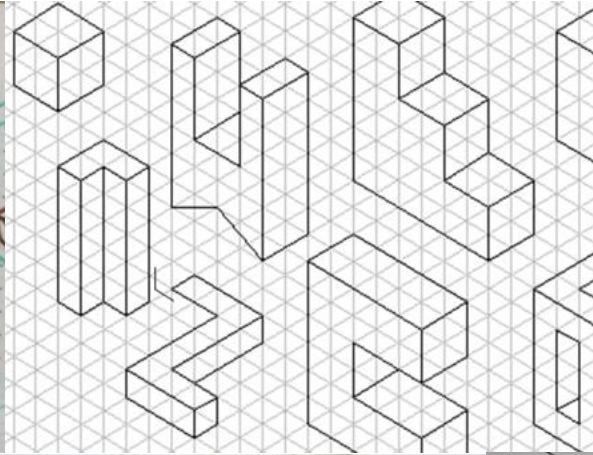
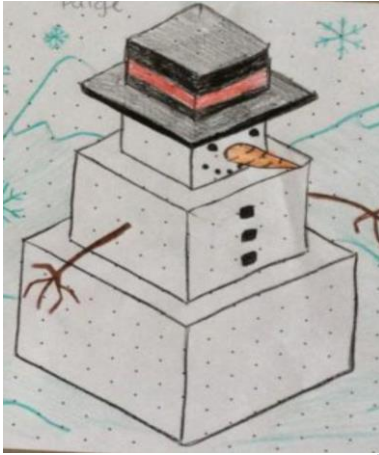
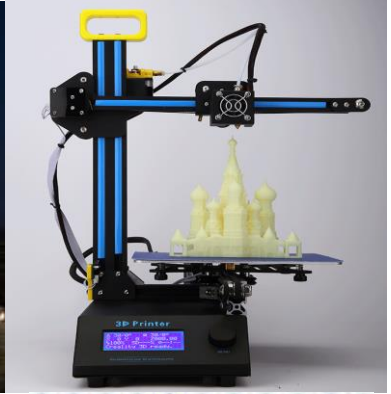
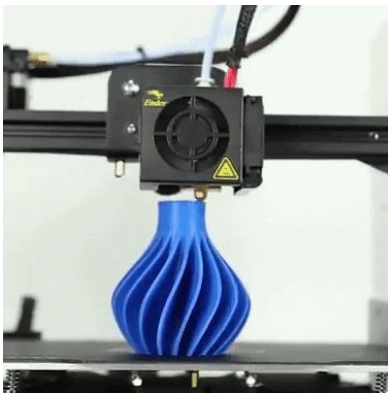


International School Khuzam (ISK)

DESIGN & TECHNOLOGY

Grade 6 - 8 Curriculum Book





Intent

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, students design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

It is intended that Design and Technology provides students with a platform to engage in a practical and inspiring subject. The curriculum for Design and Technology aims to ensure that all students:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Engage creatively to solve problems both as group and individually.
- Develop and apply value judgements of an aesthetic, economic, moral, social, and technical nature both in their own designing and when evaluating the work of others.
- Make links work to other subjects such as: Mathematics, Science, Computing and Art (STEAM).

Implementation

Design & Technology at Key Stage 3:

- The scheme of work for Key stages 3 is planned in accordance with the UK National Curriculum.
- The Design and Technology curriculum builds on the skills and knowledge students have already learnt at primary school.
- The scheme of work follows the National Curriculum strands: design, make, evaluate and technical knowledge.
- One unit of work is planned and undertaken each term.
- Students during designing and making will apply knowledge and skills of: Product design, Graphics, Resistant Materials, electronics & CAD/CAM.
- Students are taught to design and make products that solve genuine, relevant problems within different contexts; whilst considering their own and others' needs, wants and values.
- Students are taught how to take risks and so become more resourceful, innovative, enterprising and capable.
- Home learning is set to develop, extend and review students' learning.

Impact

As a result of our Design & Technology at Key Stage 3 you will see students who can:

Design

- Use research to study different cultures and identify and understand user needs.
- Can identify and solve their own design problems and reformulate problems given to them.
- Use a variety of approaches to generate creative ideas including the use of CAD.

Make

- Select and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture (CAM)
- Select and use a range of materials, components taking into account their properties

Evaluate

- Analyse the work of past, present and other professionals to broaden their understanding
- Investigate new and emerging technologies (for example 3D printing)
- Test, evaluate and refine their ideas and products against a specification

Technical knowledge

- Use the properties of materials and the performance of structural elements to achieve functioning solutions.

Grade 6

| Lessons per Week |
|--|
| <ul style="list-style-type: none">• 1 lesson per week |
| Skills Developed |
| <ul style="list-style-type: none">• CAD- designing• Hand sketches• Technical drawing• Risk assessment analysis- working in the workshop• Analysing products• Annotation |
| Literacy and Numeracy |
| <p>Mathematics- converting dimensions (cm-mm), Identifying 2D & 3D shapes English- annotations and writing to explain and describe.</p> |
| Assessment |
| <p>During each project a range of skills are assessed. These include: researching the task, developing ideas, making high quality accurate products using a range of tools, equipment and processes. Other areas that are also assessed include: quality of presentation and finish, effort, planning and evaluation. Homework is set using extended tasks, based around a particular theme or topic related to the project being worked on. These are graded together with the complete project</p> <p>Raka .1 to .9 grades are awarded at the end of each project. Raka .1 to .9 grades are used for attainment with student having access to what the grade means and how they can improve.</p> <p>Summary of assessment opportunities</p> <ul style="list-style-type: none">• Continual classwork assessment• Peer and self-assessment• End of unit assessment• End of Year: At the end of every year, students will complete a summative assessment on all the topics they have learnt throughout the year |
| Cross Curricular Links |
| <ul style="list-style-type: none">• STEAM: Students work collaboratively on a project that covers Science, Technology, Engineering, Arts and Maths.• Science- Materials properties, 3D printing-bio-parts etc.• ICT- use of computer to create design ideas.• Business Studies – Entrepreneurship |
| Special Requirements/Equipment |
| <ul style="list-style-type: none">• Drawing equipment – set squares, compass, pencils• Laptop• Isometric drawing tools• Workshop equipment, e.g. scroll saws, coping/ tenon saws |

Home Learning

At home, families can watch a range of TV programmes including:

- Abstract the Art of Design (Netflix)
- Exit through the gift shop – Banksy (Netflix)
- Grand Designs (Channel 4/ YouTube)
- Genius of Design (BBC/YouTube)
- Importance of D&T: - (<https://youtu.be/FAZ24bukRpU>)

Reading List and E-books

The Design and Technology department recommends the following top 5 stimulating and challenging reads:

- Exploring Design and Technology for Key Stage 3 By Paul Anderson, Jacqui Howells
- At Home by Bill Bryson
- A short History of Nearly Everything by Bill Bryson
- Drawing is Thinking by Milton Glaser
- The Design of Everyday Things by Don Norman

Useful Websites

- www.technologystudent.com
- www.mr-dt.com
- www.designmuseum.org
- www.howstuffworks.com
- www.bbc.co.uk/schools/gcsebitesize/design
- <https://www.tinkercad.com/>

Setting

- Students are taught in mixed ability sets.

Staff

- Mrs Natasha Koka – Head of Department
- Mr Kishon Green
- Mrs Sarah Laverty

Grade 7

| Lessons per Week |
|---|
| <ul style="list-style-type: none">• 1 lesson per week |
| Skills Developed |
| <ul style="list-style-type: none">• Technical drawing• CAD designing• Designing a product for a specific target user• Initial design idea sketching techniques• Rendering techniques• Modelling, prototyping and testing |
| Literacy and Numeracy |
| <p>Mathematics- polygons, dimensions, angles and calculations. English- annotations and writing to explain and describe.</p> |
| Assessment |
| <p>During each project a range of skills are assessed. These include: researching the task, developing ideas, making high quality accurate products using a range of tools, equipment and processes. Other areas that are also assessed include: quality of presentation and finish, effort, planning and evaluation. Homework is set using extended tasks, based around a particular theme or topic related to the project being worked on. These are graded together with the complete project</p> <p>Raka .1 to .9 grades are awarded at the end of each project. Raka .1 to .9 grades are used for attainment with student having access to what the grade means and how they can improve.</p> <p>Summary of assessment opportunities</p> <ul style="list-style-type: none">• Continual class-work assessment• Peer and self-assessment• End of unit assessment• End of Year: At the end of every year, students will complete a summative assessment on all the topics they have learnt throughout the year |
| Cross Curricular Links |
| <ul style="list-style-type: none">• STEAM: Students work collaboratively on a project that covers Science, Technology, Engineering, Arts and Maths.• Science- Materials properties• Geography- sustainability issues• ICT- use of computer to create design ideas.• Business Studies |
| Special Requirements/Equipment |
| <ul style="list-style-type: none">• Drawing equipment – set squares, compass, pencils• Laptop |

- Isometric drawing tools
- Workshop equipment, e.g., scroll saws, coping/ tenon saws

Home Learning

At home, families can watch a range of TV programmes including:

- Abstract the Art of Design (Netflix)
- Exit through the gift shop – Banksy (Netflix)
- Grand Designs (Channel 4/ YouTube)
- Genius of Design (BBC/YouTube)
- Mega Factories (National Geographic/ You tube)
- How it's Made (Discovery Channel/ You Tube)

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- A short History of Nearly Everything by Bill Bryson
- Drawing is Thinking by Milton Glaser
- The Design of Everyday Things by Don Norman
- The Art of Looking sideways by Alan Fletcher

Useful Websites

- www.technologystudent.com
- www.mr-dt.com
- www.designmuseum.org
- www.howstuffworks.com
- <https://www.sketchup.com/>
- www.bbc.co.uk/schools/gcsebitesize/design

Setting

- Students are taught in mixed ability sets.

Staff

- Mrs Natasha Koka– Head of Department
- Mr Kishon Green
- Mrs Sarah Laverty

Grade 8

| Lessons per Week |
|--|
| <ul style="list-style-type: none">● 1 lesson per week |
| Skills Developed |
| <ul style="list-style-type: none">● CAD- designing● Hand sketches● Technical drawing● Risk assessment analysis- working in the workshop● Analysing products● Annotation |
| Literacy and Numeracy |
| <ul style="list-style-type: none">● Mathematics- drawing polygons, identifying 2D & 3D shapes, dimensions, angles and calculations.● English- annotations and writing to explain and describe. |
| Assessment |
| <p>During each project a range of skills are assessed. These include: researching the task, developing ideas, making high quality accurate products using a range of tools, equipment and processes. Other areas that are also assessed include: quality of presentation and finish, effort, planning and evaluation. Homework is set using extended tasks, based around a particular theme or topic related to the project being worked on. These are graded together with the complete project</p> <p>Raka .1 to .9 grades are awarded at the end of each project. Raka .1 to .9 grades are used for attainment with student having access to what the grade means and how they can improve.</p> <p>Summary of assessment opportunities</p> <ul style="list-style-type: none">● Continual class-work assessment● Peer and self-assessment● End of unit assessment● End of Year: At the end of every year, students will complete a summative assessment on all the topics they have learnt throughout the year. |
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| Special Requirements/Equipment |
| <ul style="list-style-type: none">● Drawing equipment – set squares, compass, pencils● Laptop● Isometric drawing tools and paper |

- Workshop equipment, e.g. scroll saws, coping/ tenon saws

Home Learning

At home, families can watch a range of TV programmes including:

- Abstract the Art of Design (Netflix)
- Exit through the gift shop – Banksy (Netflix)
- Grand Designs (Channel 4/ YouTube)
- Genius of Design (BBC/YouTube)
- Museum sites -The Design Museum

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Setting

- Students are taught in mixed abilities

Staff

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- Mr Kishon Green
- Mrs Sarah Lavery

Grade 6 to 8 Curriculum Maps

| Term | Grade 6 Topics | Grade 7 Topics | Grade 8 Topics |
|--------|---|--|--|
| Term 1 | CAD/CAM Project <ul style="list-style-type: none"> ● Formal Drawing 3D shapes- Basic ● Additive manufacturing ● CAD/CAM in Industry ● Use of CAD/CAM (TinkerCad) ● 3D CAD Modelling | Formal Drawing Project <ul style="list-style-type: none"> ● Basic drawing techniques ● Perspective drawing (1 point) ● Rendering techniques | CAD/CAM Project - Architecture <ul style="list-style-type: none"> ● Introduction to CAD/CAM ● Use of CAD to produce 3D models ● Evaluation - ACCESSFM (CAD models) |
| Term 2 | Paper Engineering Project <ul style="list-style-type: none"> ● Paper & Boards ● Famous Designer ● Research & Investigation ● Health & Safety ● Modelling - mechanisms | Mobile Phone/Tablet Holder <ul style="list-style-type: none"> ● Types of materials - Plastics, Paper & Boards ● Research & Investigation ● Health & Safety ● Evaluation- Designs & Final Product ● Modelling & Manufacturing | CAD/CAM Project - Architecture <ul style="list-style-type: none"> ● Research & Investigation ● Perspective drawing (2 point) ● CAD design project ● Evaluation of product |
| Term 3 | Sustainability Project <ul style="list-style-type: none"> ● The 6R's ● Polymers ● Plastic manufacturing ● Reuse project | CAD/CAM Project - Identity <ul style="list-style-type: none"> ● Introduction to 2D Designer V2 ● Drawing basic 2D shapes ● CAD/CAM ● Design & Make Challenge ● Evaluation - ACCESSFM (Ideas & Products) | Corporate Identity project <ul style="list-style-type: none"> ● Product Analysis ● Target group/market analysis ● Branding ● Typography ● Model making |