Quwwat-Ul-Islam Girls' School



DT

Knowledge and Skills Progression Map

School Motto
Together we can achieve more
School Values
Respect . Aspiration . Responsibility
Learning Drivers
Caring for Ourselves, Our World, Our Education, Our Rights

School Vision Statement

To establish a school of excellence both **Islamically** and **Academically** - Provide a **holistic** education which is inspired by:

Taqwa: God consciousness **morals and values** inspired by the prophet (saw) coupled with **academic excellence.**

At Quwwat-Ul-Islam girls' school we adhere to the following:

- **Mutual respect and tolerance** - We respect and care for everybody.
- **Democracy**– We promote the right of every individual to have their opinions and voices heard.
- **The rule of the law** – We understand that laws and rules protect us and at the same time provide us with responsibilities, by breaking them there are consequences

National Curriculum Expectations

Level Expected at the End of EYFS

Expressive Arts and Design (Exploring and Using Media and Materials)
Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Expressive Arts and Design (Being Imaginative)
Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Physical Development (Moving and Handling)
Children handle equipment and tools effectively, including pencils for writing.

Key Stage 1

Design
Pupils should be taught to:
design purposeful, functional, appealing products for themselves and other users based on design criteria;
generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make
Pupils should be taught to:
select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing];
select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate
Pupils should be taught to:
explore and evaluate a range of existing products;
evaluate their ideas and products against design criteria

Technical Knowledge
Pupils should be taught to:
build structures, exploring how they can be made stronger, stiffer and more stable;
explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and Nutrition
Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:
use the basic principles of a healthy and varied diet to prepare dishes;
understand where food comes from.

Key Stage 2

Design

Pupils should be taught to:

use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Make

Pupils should be taught to:

select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;
select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate

Pupils should be taught to:

investigate and analyse a range of existing products;
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;
understand how key events and individuals in design and technology have helped shape the world.

Technical Knowledge

Pupils should be taught to:

apply their understanding of how to strengthen, stiffen and reinforce more complex structures;
understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages];
understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors];
apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition

Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

understand and apply the principles of a healthy and varied diet;
prepare and cook a variety of predominantly savory dishes using a range of cooking techniques;
understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Art/DT						
Year Group	**Autumn 1.1**	**Autumn 1.2**	**Spring 2.1**	**Spring 2.2**	**Summer 3.1**	**Summer 3.2**
Year 1	Mark making	Eat More Fruit and Vegetables	Colour Creation	Moving Minibeasts	Self Portrait	Stable Structures
Year 2	Yayoi Kusama	Puppets	Earth Art	Vehicles	Henri Rousseau	Perfect Pizzas
Year 3	William Morris	Story Books	Famous Buildings	British Inventors	Seurat and pointillism	Light up Signs
Year 4	Plant Art	Gift Bags	Sonia Delaunay	Mini Greenhouses	Recycled Art	Seasonal Food
Year 5	Chinese Art	Building Bridges	Frida Kahlo	Chinese Inventions	Street Art	Fashion and Textiles
Year 6	Landscape Art	Funky Furnishings	Sculpting Vases	Bird Houses	Express Yourself	Burgers
Year 7	Introduction to Colour Edvard Munch	Line Vincent Van Gogh	Tone Paul Cézanne	Aboriginal Art Emily Kame Kngwarreye	Self-Image Portrait Frida Kahlo	Paper Sculpture Peter Callesen
Year 8	Fruit Cross Section Georgia O'Keeffe	Collage: Birds Mark Hearld	View points Rene Magritte & Giorgio de Chirico	African Inspired Designing Cheri Samba	Expressionistic Portraits Ernst Ludwig Kirchner	Knots and Ropes Francis Alÿs
Year 9	Insects Maria Sibylla Merian	Printing Banksy Andy Warhol	Tone and Landscape Claude Monet	Tone and Landscape Claude Monet	Masks Caroline Achaintre Henry Moore	Masks Caroline Achaintre Henry Moore King

Intent

QUIGS Design and Technology curriculum aims to inspire children through a broad range of practical experiences to create innovative designs which solve real life and relevant problems within a variety of different contexts. Students will have the opportunity to create specific designs linked to five main areas of study: Cooking and Nutrition, Textiles, Stable Structures, Mechanical Structures and will also have the opportunity to explore key skills linked to Programming and Electrical Systems. The revision and introduction of key vocabulary is paramount to the curriculum and is built into each lesson and is supported by our oracy strand which is at pivotal to all our curriculum subjects. This vocabulary is then included in display materials and additional resources to ensure that children are allowed opportunities to repeat and revise this knowledge.

The iterative design process is fundamental and runs throughout the key stages building on prior knowledge and skills through well thought out planning of topics and identified skills. This process encourages students to identify real everyday life problems and are given the opportunity to critically evaluate existing products. Through this structured process students are also encouraged to take risks and think 'out of the box' and to be innovative when designing and creating their solutions. As part of this process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to help support this process. Opportunities are also provided for children to evaluate key events and individuals who have helped shape the world, such as Charles Babbage who created the first mechanical computer and Ada Lovelace who is referred to as the world's first computer programmer. This is to help demonstrate the real impact of design and technology on the wider environment and in helping to inspire our students to become the next generation of innovators.

Implementation

Design and Technology skills and understanding are built into every lesson, following an iterative process, it allows for the revision of ideas to become part of good practice and ultimately helps to build a depth to children's understanding. Through revisiting and consolidating skills, our curriculum design helps students to build on prior knowledge alongside introducing new skills, knowledge and challenge.

The revision and introduction of key vocabulary is paramount to the curriculum and is built into each lesson and is supported by our oracy strand which is at pivotal to all our curriculum subjects. This vocabulary is then included in display materials and additional resources to ensure that children are allowed opportunities to repeat and revise this knowledge. To help contextualise our students' classroom learning we take full advantage of trips to the extensive local shops within Newham and the vibrant, Queens market situated in Green Street which hosts a multitude of seasonal foods and fruits all year round from around the world. We are also fortunate enough to extend our topic learning for 'Seasonal Foods' for year 4 by having workshops delivered by Hovis, providing our students with first hand experience of how wheat is manufactured. Year two also have the opportunity to visit Pizza Express in Stratford to learn all about how to create healthy pizzas, helping them to further consolidate their 'Perfect Pizza' topic learning.

Adult guides and accurate design and technology subject knowledge are always provided within lessons to allow the teacher and adults working in those lessons to feel confident and supported with the skills and knowledge that they are teaching.

Through our well planned lessons, we intend to inspire both our students and practitioners to develop a love of Design and Technology and to see how it has helped to shape the ever-evolving technological world we live in and continues to do so.

Impact

The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of design and technology-specific home learning tasks and opportunities suggested in lessons and overviews for wider learning. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria and constructive feedback aimed at targeting next steps in learning

QUIGS DT Knowledge and Skills Progression Map

		Autumn 1.1	Autumn 1.2	Spring 2.1	Spring 2.2	Summer 3.1	Summer 3.2
Year 1	**Knowledge**	**Art Focus**	**Eat More Fruit and Vegetables**	**Art Focus**	**Moving Minibeasts**	**Art Focus**	**Stable Structures**
	Skills I can… Key Vocabulary Fruits vegetables pivot lever minibeast stable structure design banana apple cucumber		**Cooking and Nutrition** name a variety of fruits and vegetables use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten understand basic food hygiene, e.g. washing hands, tying long hair back and keeping surfaces clean use a knife to cut some fruits and vegetables in different ways grate an apple and a carrot peel a banana, apple and cucumber		***Mechanical Systems*** make a sliding mechanism out of a card I know what a pivot and lever are Use a pivot and lever mechanism using a card and a split pin make a wheel mechanism using card and a split pin match a mechanism to the type of movement they produce design a moving minibeast picture to include a variety of moving mechanisms design to create a moving minibeast picture for a particular purpose Evaluate my finished moving minibeast picture by identifying things that worked well and things that could be improved		**Stable Structures** identify the features of toy garages I know what the word 'stable' means make changes to the design of a stable structure to make it fit for purpose explore a range of materials and evaluate the usefulness of their properties for a particular project explore how to make stable structures that hold a given object follow a design to make a stable structure I know some ways to make a structure more stable evaluate my finished structure against a set of given criteria

Year 2	**Knowledge** **Skills** I can… Key Vocabulary Puppets Felt materials running stitch sewing axles chassis wheels healthy pizza	**Art Focus**	**Puppets** **Textiles** explore a variety of puppets, identifying and labelling their features cut out felt using a simple template stick pieces of felt together to make a finger puppet add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths use running stitch to join two pieces of fabric together use overstitch to join two pieces of fabric together sew a button onto a piece of fabric	**Art Focus**	**Vehicles** **Mechanical Systems** investigate a range of vehicles, identifying and labelling their features I know what an axle is and what a chassis is explore different ways of using axles, chassis and wheels to create a moving base design a vehicle with wheels, axles and chassis, as well as a body follow a design to make a moving vehicle evaluate my finished moving vehicle	**Art Focus**	**Perfect Pizzas** **Cooking and Nutrition** name a variety of pizza toppings use the model of the balanced plate to evaluate how healthy different pizzas are explore different types of bread and evaluate which would work best for a pizza base identify which food group a variety of pizza toppings belong to sort pizza toppings into groups based on different criteria, e.g. animal vs plant products explain why each of the food groups is important for a balanced diet design and make a healthy pizza following given criteria evaluate my finished pizza, saying what I think and feel about it

			design a glove puppet for a particular purpose follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations evaluate my finished glove puppet by identifying what went well and what could be improved				

Year 3	**Knowledge**	**Art Focus**	**Story Books**	**Art Focus**	**British Inventors**	**Art Focus**	**Light up Signs**
	Skills I can… Key Vocabulary Linkage Pivot Rotate Lever Pop-up Invention Concrete circuit Bulbs Switch Resistor Materials Components		**Mechanical Systems** explore moving parts in storybooks, suggesting how they work and what purpose they serve explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean use a paper concertina to make an object pop out of a book arrange and stick paper between pages to create a pop-out		**Stable Structures** explain how concrete is used to make structures more stable create a structure strong enough to hold a dictionary using just newspaper and tape **Inventions and Achievements** Explain about the invention of the mackintosh investigate ways of making fabric		**Programming and Electrical Systems** explore and analyse illuminated signs create a simple circuit with incandescent bulbs and a switch describe the difference between an LED and an incandescent light bulb create a simple circuit with an LED bulb and a resistor make a circuit with a string of LED lights design an illuminated light box against a set of design criteria select materials,

			use levers to create moving parts create moving wheel mechanisms to create different effects experiment with different fonts and graphic design features design pages of a storybook to include moving mechanisms and appropriate graphic features follow my designs to create a storybook with moving mechanisms evaluate how well my moving mechanisms work Evaluate the overall effectiveness of my storybook		waterproof explain about the invention of the world wide web describe how the invention of the internet has changed the world		tools and components to create a free-standing structure make a stable, free-standing structure to house an electrical circuit strip, twist and join wire to make permanent connections insert an electrical circuit into a free-standing structure to create an illuminated light box evaluate the effectiveness of my finished product against the design criteria

Year 4	**Knowledge**	**Art Focus**	**Eid Gift bags**	**Art Focus**	**Mini Greenhouses**	**Art Focus**	**Seasonal Food**
	Skills I can… Key Vocabulary Function Visual appeal Product Overstitch Zigzag Stitch Greenhouse Stable Seasonal Recipe Nutrients Fruits Wheat Slicing Dicing beating, whisking folding, sieving rolling grating vegetarian		**Textiles** explain the difference between the function and visual appeal of a product evaluate the function and visual appeal of a variety of Eid gift bags use pins to temporarily fasten two pieces of fabric together use running stick, back stitch, overstitch and zigzag stitch to join two pieces of fabric together hide the finishing knot identify a variety of decorative techniques that have been used to		**Stable Structures** I know what a greenhouse is and how they work explore a range of different greenhouses I know how greenhouses are used today explain how the shape of a structure affects its stability I know that the weight of the structure needs to be evenly spread on the base to make it secure I know that the wider a structure's base		**Cooking and Nutrition** explain what the term 'seasonal food' means I know that different parts of the world have different seasonal food discuss the benefits and problems of unseasonal food being available in shops all year round I know that some foods, like wheat, are available all year round in the UK practice cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating follow a recipe to make fairy cakes describe the cycle of wheat production in the UK distinguish between fruits

			decorate Eid bags sew a button, bead, sequin or pipe cleaner onto a piece of fabric embroider shapes and patterns into a piece of fabric use appliqué to add decoration to a piece of fabric design an Eid gift bag incorporating a range of decorative techniques use a template to cut out front and back pattern pieces evaluate the function and visual appeal of product		is, the more stable it will be use 3D nets to explore potential structures for a greenhouse, assessing their stability investigate ways of making a structure more stable, e.g. by inserting dowelling or adding triangles at the joins experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse design a mini greenhouse using specific design criteria select appropriate tools and materials to make a mini greenhouse		that are grown in the UK and those that are grown abroad I know how food producers can speed up or slow down the ripening process to make fruits and vegetables available all year round follow a recipe to make fruit tarts using seasonal fruit follow a recipe to make stuffed peppers I know some of the nutrients we get from fruits, vegetables, meat, fish and dairy products I know when certain meats are in season in the UK and which are available all year round follow a recipe to make meatballs I know some vegetarian

					follow my design to make a mini greenhouse evaluate my finished mini greenhouse for stability, effectiveness and visual appeal		options that provide the same nutrients as meat explain how fish are caught or reared, processed and used in healthy meals use what I have learnt about seasonal food to design healthy meals and menus.

		Autumn 1.1	Autumn 1.2	Spring 2.1	Spring 2.2	Summer 3.1	Summer 3.2
Year 5	**Knowledge**	**Art Focus**	**Building Bridges**	**Art Focus**	**Chinese Inventions**	**Art Focus**	**Fashion and textiles**
	Skills I can… Key Vocabulary Pillars Bridge Construction Trusses Stronger Strength Absorbency Opacity Recycled paper Basting stitch Whip stitch Back stitch Appliqué Decoration Textiles Compass Prototypes Garments Water-powered Machines		**Stable Structures** I know what beams and pillars are and how they are used in bridge construction predict which beams will be strongest from their cross-section test the strength of different beam shapes using paper and card explain what a truss is and how trusses make bridges stronger identify the three types of trusses commonly used in bridge design build a truss bridge spanning a width of 40 cm using paper straws use a fair test to evaluate the strength of my truss bridge explain how arches		**Mechanical Systems** explore how different transmissions create different movements use a crank to change the motion on a transmission from circular to linear motion **Inventions and Achievements** explain how the invention of paper helped shape the world explain the traditional method for making paper test a variety of types of paper for strength, absorbency, opacity, etc make recycled paper I know how		**Textiles** explain the process of turning raw cotton into cloth I know that products that are woven together are called textiles I know that different textiles have different properties, and can match these to their purpose identify straight stitch, zigzag stitch, whip/blanket stitch, blind stitch, buttonhole stitch and overlock stitch on a variety of ready-made garments describe what the job of a fashion designer entails sew a basting stitch Sew a whip stitch Sew a hem Sew back stitch Sew an appliqué decoration

			work to make bridges stronger test the arch heights to see which can bear the most load make an arch frame explain how suspension bridges use tension forces to work design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.		gunpowder was invented explain how the invention of gunpowder helped shape the world explain how the invention of the compass changed the world make a hanging/floating compass design and label my own compass explain what water- powered machines are and how they helped change the world explain why kites were first invented and how they were made make a variety of kite prototypes and test their		use back stitch to embroider I know what a pattern piece is and why they are important when designing a garment design a drawstring bag, including the necessary pattern pieces use pattern pieces to measure, mark, cut and sew fabric sew design elements according to design criteria join two pieces of fabric by hand sewing, using an appropriate stitch evaluate my finished product against a set of design criteria

					effectiveness design, make and evaluate a kite according to specific design criteria		

Year 6	Knowledge	Art Focus	Funky Furnishings	Art Focus	Bird Houses	Art Focus	Burgers
	Skills I can… Key Vocabulary Computer Programs Information Computer Hardware Software Construct Recipe Algorithm Sonic Components Construct a Prototype System Calories Proteins Carbohy drates Ingredie nts mixtures Famous inventors Charles Babbage Ada Lovelace Steve Jobs Steve Wozniak		understand the terms 'functional' and 'aesthetic'? analyse an existing product in detail? compare and contrast existing products? know how to sew different stitches? join two pieces of fabric together using their sewing skills? explain which stitch is best for a particular purpose? Can children use stitching for decorative purposes? sew abutton/bead/ribbon onto fabric accurately? see how to combine these skills to create a design for a product? Can children talk about the advantages and disadvantages of the different types of fastenings? use their sewing skills to		**Stable Structures** investigate the appearance and function of a variety of different bird houses identify what materials have been used to construct a variety of bird houses and suggest how the parts have been joined together I know what a flat pack diagram is and can use it to identify each part of a structure create a flat pack diagram of a constructed bird house draw an exploded diagram Identify the tools associated with basic woodwork		**Cooking and Nutrition** I know that most foods we buy have nutrition labels to help us make informed choices about what we eat I know that calories come from fats, proteins and carbohydrates evaluate how healthy a burger is based on its nutrition label compare different burgers and assess which is healthiest explain some of the different ways in which burger patties are cooked follow a recipe to make a halal beef, turkey or vegetable burger patty add ingredients to a basic burger patty to reflect global cuisine follow a recipe to make different burger sauces

			create a secure fastening? assess which fastening would be the most suitable for a particular product? create a design according to specific criteria? explain their design and the techniques they will use? explain the process they will need to undertake to make their product? follow a design to create a finished product? successfully use a range of sewing techniques? evaluate their own and others' work?		measure, clamp, saw, sand and join wood use a hand drill to drill a hole in a piece of wood I know the safety rules I need to follow when doing woodwork design a bird house for a particular bird, taking into account the bird's needs select appropriate tools and materials to use when making a bird house create a sturdy bird house frame using wood evaluate my finished bird house, taking into account the views of others to improve my work use observation to evaluate the effectiveness of my bird house		design a burger menu to incorporate different patties, sides and sauces explore, taste and assess different types of bread and their suitability for a burger bun offer suggestions for some alternatives for bread add mixtures of herbs and spices to a basic bread dough to make flavoured burger buns design a burger for a particular purpose design a burger for someone with particular dietary requirements make and evaluate a burger, following my recipe and design