GREEN PARK COMMUNITY PRIMARY SCHOOL

DESIGN & TECHNOLOGY

Design it. Make it. Improve it.

CREATING SOLUTIONS. SHAPING THE FUTURE.

Design and Technology inspires children to be creative problem solvers who design and make products that have purpose and meaning. Through an iterative process of designing, making, evaluating and improving, children develop practical skills, resilience and innovation to succeed in an ever-changing world.

LEADERSHIP | ORGANISATION | RESILIENCE | INITIATIVE | COMMUNICATION | KINDNESS

OUR DT GOLDEN THREADS

MECHANISMS AND MOVEMENT

Understanding how things move and using mechanisms to create movement in purposeful products.

TEXTILES

Exploring and using textile materials and techniques to design and make functional and decorative products.

FOOD

Preparing and cooking food, understanding nutrition and making healthy choices.

STRUCTURES

Designing and building strong, stable structures for a range of purposes and users.

THINK CREATIVELY • WORK SKILLFULLY • EVALUATE CAREFULLY • IMPROVE CONFIDENTLY

Year 4 Design and technology Medium Term plans

Year 4	Viking food and Keepers	Tudor Inventors	Ancient Egypt Sarcophagus
Prior learning	• Knows the principles of a healthy and varied diet. • Can prepare and cook simple savoury dishes safely. • Knows that ingredients come from different sources and may be seasonal. • Can design, make and evaluate a food product for a purpose.	• Knows that wheels and axles are mechanisms that create movement. • Can investigate and test simple mechanisms. • Can design and make a moving product for a purpose. • Can evaluate and improve a finished product.	• Knows that structures can be strengthened, stiffened and reinforced. • Can select suitable materials for a structure. • Can communicate ideas using annotated sketches. • Can evaluate a finished structure against design criteria.
Year 4	Topic: Food - Preservatives Enquiry Question: How can we design and make a preserved food product inspired by Viking methods?	Topic: Mechanisms – Tudor Inventors Enquiry Question: How can we design and make a mechanism inspired by Tudor inventors and Leonardo da Vinci?	Topic: Structures – Sarcophagus Enquiry Question: How can we design and build a strong Egyptian tomb or sarcophagus?
Explore 1	WALT: understand food preservation and why it was important to the Vikings. Children: • Explore why food preservation was important. • Investigate Viking preservation methods such as salting, drying and fermenting. • Learn about Nicolas Appert and his contribution to food preservation. • Discuss how preservation helped people survive. Skills: • Investigates food products.	WALT: investigate and evaluate products that use mechanisms. Children: • Explore historical and modern products that use mechanisms. • Investigate gears, Lever, linkage, gear or cam mechanism. • Learn about Leonardo da Vinci and his inventions. • Discuss how mechanisms create movement. Skills: • Evaluates existing products. • Identifies mechanisms. • Explains product purpose.	WALT: investigate and evaluate Ancient Egyptian tombs and sarcophagi. Children: • Explore images and models of Egyptian tombs and sarcophagi. • Investigate the purpose of tombs and burial chambers. • Learn about Imhotep and his role in Egyptian architecture. • Identify features that made tombs strong and fit for purpose. Skills:

	• Makes links between history and DT. • Explains product purpose. Vocabulary: preservation, salting, drying, fermenting, nutrition, Nicolas Appert	Vocabulary: mechanism, lever, linkage, gear, movement, invention	• Evaluates existing products and structures. • Identifies structural features. • Makes links between design and purpose. Vocabulary: tomb, sarcophagus, pyramid, structure, architect, Imhotep
Design 1	WALT: investigate and evaluate preserved food products. Children: • Explore a range of preserved foods. • Compare ingredients and preservation methods. • Discuss nutritional value. • Evaluate existing products. Skills: • Evaluates products. • Analyses ingredients. • Identifies product features. Vocabulary: ingredients, preserved food, nutrition	WALT: understand how mechanisms create movement. Children: • Investigate different types of mechanisms. • Explore how Lever, linkage, gear or cam mechanism work. • Test simple mechanisms. • Compare how different mechanisms create movement. Children could make: • A moving drawbridge • An animated figure • A moving Tudor automaton • A lifting device using pulleys Skills: • Investigates mechanisms. • Tests products. • Makes observations. Vocabulary: pivot, linkage, lever, input, output	WALT: understand how structures can be strengthened, stiffened and reinforced. Children: • Investigate how Egyptian builders moved and lifted heavy materials. • Explore structures that are strong and stable. • Test different construction methods. • Discuss how structures can be strengthened. Skills: • Investigates structures. • Tests materials and techniques. • Identifies successful construction methods. Vocabulary: strengthen, stiffen, reinforce, stable, support

Make 1	WALT: develop design criteria for a preserved food product. Children: • Research Viking and modern preservation methods. • Consider different users. • Create design criteria. • Generate initial ideas. Skills: • Develops design criteria. • Uses research to inform decisions. • Generates ideas. Vocabulary: design criteria, user, purpose, function, appeal	WALT: develop design criteria for a Tudor-inspired mechanism. Children: • Explore user needs and product purpose. • Create design criteria. • Generate ideas for a moving product. • Consider function and appearance. Skills: • Develops design criteria. • Generates ideas. • Designs for a purpose. Vocabulary: criteria, function, user, purpose, design	WALT: develop design criteria for an Egyptian tomb or sarcophagus. Children: • Research Egyptian tombs and artefacts. • Consider the needs of a user (e.g. an Egyptian pharaoh). • Develop design criteria. • Generate initial design ideas. Skills: • Develops design criteria. • Uses research to inform designs. • Generates ideas. Vocabulary: criteria, user, purpose, design, function
Make 2	WALT: communicate ideas through annotated sketches and prototypes. Children: • Create annotated designs. • Model ideas. • Refine plans. • Explain design decisions. Skills: • Communicates ideas effectively. • Uses annotated sketches. • Refines designs. Vocabulary: annotate, prototype, sketch, refine, communicate	WALT: communicate ideas using annotated sketches and prototypes. Children: • Create detailed annotated sketches. • Draw labelled diagrams showing movement. • Build simple prototypes. • Refine ideas through discussion. Skills: • Uses annotated sketches. • Communicates ideas clearly. • Refines designs. Vocabulary: annotate, prototype, diagram, refine, mechanism	WALT: communicate ideas using annotated sketches and design plans. Children: • Produce detailed annotated sketches. • Label structural features. • Select materials and components. • Justify design decisions. Skills: • Uses annotated sketches. • Selects materials appropriately. • Communicates ideas clearly. Vocabulary: annotate, sketch, materials, component, plan

Make 3	WALT: prepare and make a preserved food product. Children: • Select ingredients and tools. • Apply food preparation techniques. • Follow design criteria. • Consider nutrition and seasonality. Skills: • Uses tools safely. • Selects ingredients appropriately. • Produces a food product. Vocabulary: seasonality, preparation, nutrition, ingredients, technique	WALT: construct a mechanism-based product. Children: • Select appropriate materials and components. • Construct a moving product. • Incorporate a Lever, linkage, gear or cam mechanism • Strengthen and reinforce structures where necessary. Skills: • Uses tools accurately. • Constructs a functional mechanism. • Strengthens structures appropriately. Vocabulary: construct, reinforce, component, mechanism, assemble	WALT: construct a strong Egyptian tomb or sarcophagus. Children: • Follow a design plan. • Select and use tools accurately. • Construct the structure. • Strengthen and reinforce where necessary. • Add decorative Egyptian features. Skills: • Uses tools accurately. • Constructs a stable structure. • Applies strengthening techniques. Vocabulary: construct, assemble, reinforce, structure, stability
Reflect 1	WALT: evaluate a preserved food product against design criteria. Children: • Evaluate the finished product. • Gather peer feedback. • Compare outcomes with original designs. • Suggest improvements. Skills: • Evaluates products. • Uses feedback effectively. • Reflects on design decisions. Vocabulary: evaluate, feedback, criteria, improve, successful	WALT: evaluate a mechanism-based product against design criteria. Children: • Test finished products. • Compare outcomes against design criteria. • Gather peer feedback. • Suggest improvements. Skills: • Evaluates products. • Uses feedback effectively. • Reflects on design decisions. Vocabulary: evaluate, feedback, criteria, improve, effective	WALT: evaluate a tomb or sarcophagus against design criteria. Children: • Compare finished products with original designs. • Test the strength and stability of structures. • Gather peer feedback. • Suggest improvements. Skills: • Evaluates products. • Reflects on decisions. • Uses feedback to improve designs. Vocabulary: evaluate, feedback, criteria, improve, successful

Assessment	Enquiry Question: How can we design and make a preserved food product inspired by Viking methods? Children will demonstrate understanding by: • Understanding food preservation. • Evaluating existing products. • Developing design criteria. • Making a food product safely. • Evaluating their finished product.	Enquiry Question: How can we design and make a mechanism inspired by Tudor inventors and Leonardo da Vinci? Children will demonstrate understanding by: • Identifying different mechanisms. • Understanding how mechanisms create movement. • Developing design criteria. • Constructing a moving product. • Evaluating effectiveness against design criteria.	Enquiry Question: How can we design and build a strong Egyptian tomb or sarcophagus? Children will demonstrate understanding by: • Exploring and evaluating historical structures. • Understanding how structures are strengthened and reinforced. • Designing for a specific purpose and user. • Constructing a stable model. • Evaluating a finished product against design criteria.
End Point	Children design, make and evaluate a preserved food product inspired by Viking food preservation methods. By the end of this unit, children will understand how food preservation has developed over time and why it was important to Viking life. They will design, make and evaluate a preserved food product using knowledge of nutrition, seasonality and food preparation.	Children design, make and evaluate a Tudor-inspired moving product using a lever or linkage mechanism. By the end of this unit, children will understand how mechanisms such as levers and linkages create movement. They will know how inventors such as Leonardo da Vinci influenced design and technology and will create a mechanism-based product that is functional, appealing and fit for purpose.	Children design, make and evaluate a model Egyptian tomb or sarcophagus that is strong, stable and historically inspired. By the end of this unit, children will understand how Ancient Egyptian builders designed structures to be strong, stable and long-lasting. They will know how architects such as Imhotep influenced construction techniques and will design, build and evaluate a model tomb or sarcophagus using appropriate materials and strengthening methods.
Substantive Knowledge (What children need to remember)	Children will know: • Food preservation prevents food from spoiling. • Vikings used salting, drying and fermenting. • Nicolas Appert developed early food preservation techniques. • Preservation affects nutrition and food storage. • Seasonality influences food choices.	Children will know: • Mechanisms are systems that create movement. • Lever, linkage, gear or cam mechanism change the direction and type of movement. • Leonardo da Vinci designed machines that influenced later inventions. • Design criteria help designers create successful products. • Structures sometimes need strengthening and reinforcement.	Children will know: • Ancient Egyptian tombs were designed to protect and preserve important people and artefacts. • Imhotep was an influential architect and designer. • Structures can be strengthened, stiffened and reinforced. • Different materials have different properties. • Design criteria help designers make decisions. • Products can be improved through testing and evaluation.

Disciplinary Knowledge (Thinking like a designer)	Children will: • Investigate and evaluate food products. • Use research to develop design criteria. • Design for a purpose and user. • Select ingredients and techniques appropriately. • Evaluate and improve products.	Children will: • Investigate and evaluate existing products. • Develop design criteria from research. • Communicate ideas through annotated sketches and prototypes. • Select materials and components appropriately. • Construct and test mechanisms. • Evaluate and improve products.	Children will: • Investigate and evaluate existing structures. • Use research to inform designs. • Develop ideas through annotated sketches. • Select appropriate materials and components. • Apply construction techniques purposefully. • Test, evaluate and improve products.
Adaptive Teaching	Support • Design templates. • Visual vocabulary cards. • Adult support during food preparation. • Step-by-step recipe guides. Challenge • Adapt recipes for different users. • Compare Viking and modern preservation methods. • Justify ingredient choices. • Suggest multiple improvements.	Support • Pre-drawn templates. • Visual examples of mechanisms. • Adult support during construction. • Vocabulary mats and labelled diagrams. • Pre-made mechanism examples. Challenge • Create more complex linkage systems. • Incorporate multiple moving parts. • Justify design decisions using technical vocabulary. • Explain how mechanisms transfer movement. • Suggest multiple improvements following evaluation.	Support • Pre-drawn design templates. • Visual examples of Egyptian tombs and sarcophagi. • Adult support during construction. • Vocabulary mats and labelled diagrams. • Step-by-step construction guides. Challenge • Incorporate additional Egyptian features and symbolism. • Explore multiple strengthening techniques. • Justify material choices in detail. • Explain how structural features improve stability. • Suggest multiple improvements following evaluation.
Assessment for Learning	Throughout the unit, teachers will assess understanding through: • Product evaluations. • Design sketches. • Observation of food preparation. • Discussion and questioning. • Reflection activities.	Throughout the unit, teachers will assess understanding through: • Design sketches and annotations. • Discussion and questioning. • Observation of construction techniques. • Mechanism testing activities. • Product evaluations. • Reflection discussions. • Retrieval of key vocabulary and knowledge.	Throughout the unit, teachers will assess understanding through: • Design sketches and annotations. • Discussion and questioning. • Observation of construction techniques. • Testing of structures. • Product evaluations. • Reflection discussions. • Retrieval of key vocabulary and knowledge.

National Curriculum coverage	Pupils should be taught to: • Understand and apply the principles of a healthy and varied diet. • Prepare and cook predominantly savoury dishes. • Understand seasonality and where food comes from. • Generate, develop and communicate ideas. • Evaluate existing products and their own ideas and products.	Pupils should be taught to: • Generate, develop and communicate ideas through annotated sketches and prototypes. • Select from and use a wider range of tools and materials accurately. • Understand and use mechanical systems in their products. • Apply understanding of how to strengthen, stiffen and reinforce structures. • Evaluate their ideas and products against design criteria.	Pupils should be taught to: • Generate, develop and communicate ideas through discussion, annotated sketches and prototypes. • Select from and use a wider range of tools and materials accurately. • Apply understanding of how to strengthen, stiffen and reinforce more complex structures. • Evaluate their ideas and products against design criteria. • Investigate and analyse existing products.

DT PROGRESSION TIMELINE EYFS–YEAR 6

Building knowledge, skills and creativity through design, make, evaluate and improve.

OUR JOURNEY	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
EXPLORING & UNDERSTANDING	Explore materials, foods and existing products through play and discussion.	Explore a range of products and materials. Talk about how and why things are made.	Explore more complex products and ingredients. Identify features and how they work.	Research products and ingredients in depth. Understand purpose and user.	Investigate how products work and are made. Understand systems and structures.	Analyse products in detail. Consider function, aesthetics, sustainability and user needs.	Investigate, research and question widely. Understand innovation and impact.
DESIGNING	Generate simple ideas and make choices with support. Begin to plan.	Design purposeful products for a specific user using simple design criteria.	Develop ideas and designs. Choose materials and explain choices.	Create detailed plans and sketches with annotations. Use design criteria.	Use research to inform designs. Create prototypes and refine ideas.	Produce detailed designs and plans. Consider function, form and sustainability.	Develop innovative designs with clear purpose. Plan using advanced tools.
MAKING	Use tools and materials safely to make simple models and food products.	Make products following a plan. Use a range of tools and materials.	Use tools and techniques to make quality products.	Apply skills and techniques with increasing independence.	Use a wider range of tools and techniques with accuracy.	Work confidently and accurately. Combine techniques and select appropriate materials.	Use advanced techniques and technology to make high-quality products.
EVALUATING	Talk about what they like and dislike. Begin to suggest changes.	Evaluate products against design criteria. Suggest simple improvements.	Evaluate against criteria and user needs. Identify what worked well.	Test and evaluate products. Make improvements based on feedback.	Evaluate function, quality and appearance. Improve designs.	Critically evaluate products. Consider sustainability and impact. Refine ideas.	Evaluate thoroughly and make considered improvements. Reflect on learning.
EVERY CHILD WILL...	Be curious, explore and enjoy using tools and materials safely.	Design and make simple products for a purpose.	Apply skills to create functional and appealing products.	Test their knowledge to solve problems and create quality produacts.	Design and make products that are fit for purpose and well made.	Work confidently and creatively to design innovative products with purpose.	Become independent, creative problem solvers and critical evaluators.

OUR DT GOLDEN THREADS

MECHANISMS AND MOVEMENT
Understanding how things move and using mechanisms to create purposeful products.

TEXTILES
Exploring and using fabrics and techniques to design and make functional and decorative products.

FOOD
Preparing and cooking a variety of dishes. Understanding nutrition, seasonality and where food comes from.

STRUCTURES
Designing and building strong, stable structures for a range of purposes and users.

THINK CREATIVELY | WORK SKILLFULLY | COMMUNICATE IDEAS | EVALUATE CAREFULLY | IMPROVE CONFIDENTLY

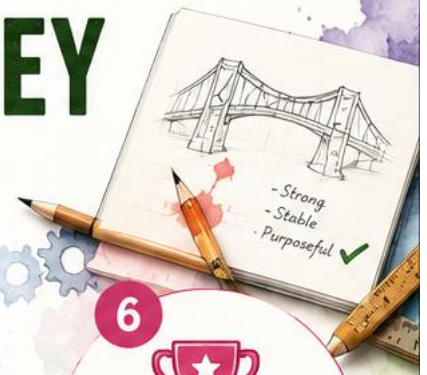
DESIGN IT. MAKE IT. IMPROVE IT.

GREEN PARK COMMUNITY PRIMARY SCHOOL

DT DESIGN PROCESS JOURNEY

Design it. Make it. Improve it.

WE ARE DESIGNERS • WE ARE MAKERS • WE SOLVE PROBLEMS



1 EXPLORE

Explore existing products, materials and ideas.

What is the problem? What do I need to find out?

2 DESIGN

Generate ideas and develop a plan using design criteria.

What are my ideas? Which idea is best and why?

3 MAKE

Make a prototype or product using skills and techniques.

How will I make my idea?

4 TEST

Test and evaluate your product. Does it work?

Does my product work as planned? What works well?

5 IMPROVE

Make improvements and refine your product.

What could I improve? What will I change and why?

6 SHARE

Share and present your final product. Celebrate your success!

How will I share my product and what I have learned?

DESIGN IS AN ITERATIVE PROCESS – WE KEEP IMPROVING!

MECHANISMS AND MOVEMENT

Understanding how things move and using mechanisms to create movement in purposeful products.

Examples: levers, linkages, gears, wheels and axles, electrical systems.

TEXTILES

Exploring and using fabrics and techniques to design and make functional and decorative products.

Examples: sewing, stitching, joining, embellishing, finishing.

FOOD

Preparing and cooking a variety of dishes. Understanding nutrition, seasonality and where food comes from.

Examples: cooking techniques, flavour, presentation, hygiene.

STRUCTURES

Designing and building strong, stable structures for a range of purposes and users.

Examples: frameworks, shells, bridges, buildings, 3D forms.

AS DESIGNERS AND MAKERS WE...

THINK CREATIVELY

We explore ideas and solve problems.

WORK SKILLFULLY

We use the right tools, materials and techniques.

COMMUNICATE IDEAS

We share our thoughts and listen to others.

EVALUATE CAREFULLY

We look at what works well and what could improve.

IMPROVE CONFIDENTLY

We learn from mistakes and keep improving.

EVERY DESIGN STARTS WITH AN IDEA. EVERY PRODUCT TELLS A STORY. EVERY IMPROVEMENT MAKES US BETTER.