Riverside DT Overview

When planning for your D&T lessons you need to consider these six principles:

User Who the products are for?
Purpose What tasks or functions will the product perform?
Functionality How are the products going to work? What do they need to do to be successful?
Design Decisions Giving children the opportunity to make their own choices. Children will learn through their mistakes.
Innovation Children need to be encouraged to innovate and try things that are different.
Authenticity How believable and real will the product be to the children and the user?

Foundation Stage

Exploring and creating with junk modelling / construction – this will be on going throughout the year with stimulus added to engage the children. Linked to current learning. Construction areas for children to design and build models. This is enhanced as the year progresses to support interests and next steps.

Nursery DT links overview

Activities	**0-3 and 3-4 years olds will be learning to:**
Various building, making, creating and cooking experiences throughout the year linked to current interests and building on previous knowledge. Continuous provision set up to support learning and add enhancements as the year progresses. Growing pumpkins / squash / cress	**0-3** ➢ **Explore different materials, using all their senses to investigate them. Manipulate and play with different materials** ➢ **Use their imagination as they consider what they can do with different materials.** ➢ **Make simple models which express their ideas.** **3-4** ➢ **Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.** ➢ **Explore different materials freely, in order to develop their ideas about how to use them and what to make.** ➢ **Develop their own ideas and then decide which materials to use to express them.** ➢ **Join different materials and explore different textures.**

Reception DT links Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

Project	**Focus / Activities / Resources**	**Knowledge, Skills, Understanding**	**Key Vocab**
1	**Polar Animal Moving Picture**	➢ Explore , use and refine a variety of effects to express their feelings and ideas ➢ Return to and build on their previous learning, refining ideas and developing their ability to represent them. ➢ Create collaboratively sharing ideas, resources and skills. ➢ Develop techniques for joining materials – eg glue, adhesive tape ➢ Children to use a range of tools with care and precision	Build Stick Cut Join Evaluate Structure Resources Plan Check Strong Material
2	**Boats (Structure):** making Boats to float that can carry a Duplo person, testing and improving them. Use and explore with various materials eg cardboard boxes, sticks, tin foil, plastic containers.		
3	**Food and Nutrition (Does not need to follow the design process)** **See cooking overview**		

Year 1 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

	Projects and skills	Design, Make, Evaluate Skills	Key Vocab
1	Bunting for a tea party (textiles) •measure, cut and join textiles to make a product, with some support •choose suitable textiles •learn basic running stitch	**Design:** ➢ have own ideas ➢ explain what I want to do ➢ explain what my product is for, and how it will work ➢ use pictures and words to plan, begin to use models ➢ design a product for myself following design criteria ➢ research similar existing products **Make:** ➢ explain what I'm making and why ➢ consider what I need to do next ➢ **select tools/equipment to cut, shape, join, finish and explain choices** ➢ **measure, mark out, cut and shape, with support** ➢ choose suitable materials and explain choices ➢ **try to use finishing techniques to make product look good** ➢ work in a safe and hygienic manner **Evaluate:** ➢ talk about my work, linking it to what I was asked to do ➢ talk about existing products considering: use, materials, how they work, audience, where they might be used ➢ talk about existing products, and say what is and isn't good ➢ talk about things that other people have made ➢ begin to talk about what could make product better *physical skills	planning, investigating design, evaluate, make, user, purpose, ideas, product joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, slider, lever, pivot, slot, stitch bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder
2	Castles (Structure) •begin to measure and join materials, with some support •describe differences in materials •suggest ways to make material/product stronger		
3	**Food and Nutrition (Does not need to follow the design process)** **See cooking overview**		

Year 2 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

<table>
<tr><th></th><th>Project and Skills</th><th>Design, Make, Evaluate Skills</th><th>Key Vocab</th></tr>
<tr><td>1</td><td>Tudor Houses (Structure)
• measure materials
• describe some different characteristics of materials
• join materials in different ways
• use joining, rolling or folding to make it stronger
• use own ideas to try to make product stronger</td><td rowspan="4">Design:

➢ have own ideas and plan what to do next
➢ explain what I want to do and describe how I may do it
➢ explain purpose of product, how it will work and how it will be suitable for the user
➢ describe design using pictures, words, models, diagrams, begin to use ICT
➢ design products for myself and others following design criteria
➢ choose best tools and materials, and explain choices
➢ use knowledge of existing products to produce ideas

Make:

➢ explain what I am making and why it fits the purpose
➢ make suggestions as to what I need to do next.
➢ join materials/components together in different ways
➢ measure, mark out, cut and shape materials and components, with support.
➢ describe which tools I’m using and why
➢ choose suitable materials and explain choices depending on characteristics.
➢ Use finishing techniques to make product look good
➢ work safely and hygienically

Evaluate:

➢ describe what went well, thinking about design criteria
➢ talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion
➢ evaluate how good existing products are
➢ talk about what I would do differently if I were to do it again and why

*physical skills</td><td rowspan="4">investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function

cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder

sew, stitch, join, fabric, template</td></tr>
<tr><td>2</td><td>Fish (Textiles)
• measure textiles
• join textiles together to make a product, and explain how I did it
• carefully cut textiles to produce accurate pieces
• explain choices of textile
• understand that a 3D textile structure can be made from two identical fabric shapes</td></tr>
<tr><td>3</td><td>Food and Nutrition (Does not need to follow the design process)

See cooking overview</td></tr>
</table>

Year 3 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

Project	Focus / Activities / Resources	Design, Make, Evaluate Skills	Key Vocab
1	Marble Rub (structure) • use appropriate materials *work accurately to make cuts and holes • join materials • Attempt to make strong structures and look at ways to improve • Measure carefully	**Design:** ➢ begin to research others' needs ➢ show design meets a range of requirements ➢ describe purpose of product ➢ follow a given design criteria ➢ have at least one idea about how to create product ➢ create a plan which shows order, equipment and tools ➢ describe design using an accurately labelled sketch and words ➢ make design decisions ➢ explain how product will work ➢ make a prototype ➢ begin to use computers to show design **Make:** ➢ select suitable tools/equipment, explain choices; begin to use them accurately ➢ select appropriate materials, fit for purpose. ➢ work through plan in order ➢ consider how good product will be ➢ **begin to measure, mark out, cut and shape materials/components with some accuracy** ➢ **begin to assemble, join and combine materials and components with some accuracy** ➢ **begin to apply a range of finishing techniques with some accuracy** **Evaluate:** ➢ look at design criteria while designing and making ➢ use design criteria to evaluate finished product ➢ say what I would change to make design better ➢ begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose ➢ begin to understand by whom, when and where products were designed ➢ learn about some inventors/designers/ engineers/chefs/ manufacturers of groundbreaking products ***physical skills**	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, mechanism, lever, pivot, slot, bridge
2	Moving Aliens (mechanisms) • select appropriate tools / techniques • alter product after checking, to make it better • begin to try new/different ideas • use simple lever and linkages to create movement		
3	**Food and Nutrition (Does not need to follow the design process)** **See cooking overview**		

Year 4 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

<table>
<tr><th>Project</th><th>Focus / Activities / Resources</th><th>Design, Make, Evaluate Skills</th><th>Key Vocab</th></tr>
<tr><td>1</td><td>Torches / reading light (electricity)
use simple circuit in product
learn about how to program a computer to control product.
use number of components in circuit
program a computer to control product</td><td rowspan="3">Design:

➢ use research for design ideas
➢ show design meets a range of requirements and is fit for purpose
➢ begin to create own design criteria
➢ have at least one idea about how to create product and suggest improvements for design.
➢ produce a plan and explain it to others
➢ say how realistic plan is
➢ include an annotated sketch
➢ make and explain design decisions considering availability of resources
➢ explain how product will work
➢ make a prototype
➢ begin to use computers to show design.

Make:
➢ select suitable tools and equipment, explain choices in relation to required techniques and use accurately
➢ select appropriate materials, fit for purpose; explain choices
➢ work through plan in order.
➢ realise if product is going to be good quality
➢ measure, mark out, cut and shape materials/components with some accuracy
➢ assemble, join and combine materials and components with some accuracy
➢ apply a range of finishing techniques with some accuracy

Evaluate:
➢ refer to design criteria while designing and making
➢ use criteria to evaluate product
➢ begin to explain how I could improve original design
➢ evaluate existing products, considering: how well they’ve been made, materials, whether they work, how they have been made, fit for purpose
➢ discuss by whom, when and where products were designed
➢ research whether products can be recycled or reused
➢ know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products

*physical skills</td><td rowspan="3">shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating,

series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device</td></tr>
<tr><td>2</td><td>Ships (mechanisms)
select most appropriate tools / techniques
explain alterations to product after checking it
grow in confidence about trying new / different ideas. *use levers and linkages to create movement
use pneumatics to create movement</td></tr>
<tr><td>3</td><td>Food and Nutrition (Does not need to follow the design process)

See cooking overview</td></tr>
</table>

Year 5 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

<table>
<tr><th>Project</th><th>Focus / Activities / Resources</th><th>Design, Make, Evaluate Skills</th><th>Key Vocab</th></tr>
<tr><td>1</td><td>Tudor Knot Garden (textiles)
think about user and aesthetics when choosing textiles
use own template
think about how to make product strong and look better
think of a range of ways to join things
begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.</td><td rowspan="3">Design:
use internet and questionnaires for research and design ideas
take a user's view into account when designing
begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose
create own design criteria
have a range of ideas
produce a logical, realistic plan and explain it to others.
use cross-sectional planning and annotated sketches
make design decisions considering time and resources.
clearly explain how parts of product will work.
model and refine design ideas by making prototypes and using pattern pieces.
use computer-aided designs
Make:
use selected tools/equipment with good level of precision
produce suitable lists of tools, equipment/materials needed
select appropriate materials, fit for purpose; explain choices, considering functionality
create and follow detailed step by-step plan
explain how product will appeal to an audience
mainly accurately measure, mark out, cut and shape materials/components
mainly accurately assemble, join and combine materials/components
mainly accurately apply a range of finishing techniques
use techniques that involve a small number of steps
begin to be resourceful with practical problems
Evaluate:
evaluate quality of design while designing and making
evaluate ideas and finished product against specification, considering purpose and appearance.
test and evaluate final product
evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose
begin to evaluate how much products cost to make and how innovative they are
research how sustainable materials are
talk about some key inventors/designers/ engineers/ chefs/manufacturer
*physical skills</td><td rowspan="3">design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype

seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, fastenings,</td></tr>
<tr><td>2</td><td>Moving Animal Toys (structure)
select materials carefully, considering intended use of product and appearance
explain how product meets design criteria
measure accurately enough to ensure precision
ensure product is strong and fit for purpose
begin to reinforce and strengthen a 3D frame</td></tr>
<tr><td>3</td><td>Food and Nutrition (Does not need to follow the design process)

See cooking overview</td></tr>
</table>

Year 6 DT Overview

All classes to design, make and evaluate a food product using the fruit or vegetable that class grows in the bio-dome.

<table>
<tr><th>Project</th><th>Focus / Activities / Resources</th><th>Design, Make, Evaluate Skills</th><th>Key Vocab</th></tr>
<tr><td>1</td><td>Make a carousel - Fairground rides (Electricity, mechanism and Structure)

• incorporate switch into product
• confidently use number of components in circuit
• begin to be able to program a computer to monitor changes in environment and control product
• use different types of circuit in product
• think of ways in which adding a circuit would improve product
• select materials carefully, considering intended use of the product, the aesthetics and functionality.
• explain how product meets design criteria
• reinforce and strengthen a 3D frame</td><td rowspan="3">Design:
➢ draw on market research to inform design
➢ use research of user's individual needs, wants, requirements for design
➢ identify features of design that will appeal to the intended user
➢ create own design criteria and specification
➢ come up with innovative design ideas
➢ follow and refine a logical plan.
➢ use annotated sketches, cross sectional planning and exploded diagrams
➢ make design decisions, considering, resources and cost
➢ clearly explain how parts of design will work, and how they are fit for purpose
➢ independently model and refine design ideas by making prototypes and using pattern pieces
➢ use computer-aided designs

Make:
➢ use selected tools and equipment precisely
➢ produce suitable lists of tools, equipment, materials needed, considering constraints
➢ select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics
➢ create, follow, and adapt detailed step-by-step plans
➢ explain how product will appeal to audience; make changes to improve quality
➢ accurately measure, mark out, cut and shape materials/components
➢ accurately assemble, join and combine materials/component
➢ accurately apply a range of finishing techniques
➢ use techniques that involve a number of steps
➢ be resourceful with practical problems

Evaluate:
➢ evaluate quality of design while designing and making; is it fit for purpose?
➢ keep checking design is best it can be.
➢ evaluate ideas and finished product against specification, stating if it's fit for purpose
➢ test and evaluate final product; explain what would improve it and the effect different resources may have had
➢ do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose
➢ evaluate how much products cost to make and how innovative they are
➢ research and discuss how sustainable materials are
➢ consider the impact of products beyond their intended purpose
➢ discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground breaking products
*physical skills</td><td rowspan="3">seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings,

pulley, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, mechanical system, electrical system, input, process, output

function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype</td></tr>
<tr><td>2</td><td>Owls (Textiles): Children design, make and evaluate their own owls.
Or Pencil Cases (Textiles)

• think about user's wants/needs and aesthetics when choosing textiles
• make product attractive and strong
• make a prototype
• use a range of joining techniques
• think about how product might be sold
• think carefully about what would improve product
• understand that a single 3D textiles project can be made from a combination of fabric shapes.</td></tr>
<tr><td>3</td><td>Food and Nutrition (Does not need to follow the design process)

See cooking overview</td></tr>
</table>