RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

NORTHSIDE DT Curriculum Overview 2021-2022

Respect, Pride, Inclusion, Challenge, Creativity, Resilience

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Knowledge							
Mechanisms	2 Year Old Nursery **Wheels and axles** Know what a car is 3 Year Old Nursery **Wheels and axles** Know what a wheel is Know what a car is **Key Vocabulary: Car, wheel**	**Wheels and axles** Know what objects have wheels. Know what a wheels are **Key Vocabulary: Car, wheel, pull, push**	**Sliders and levers** Know what a slider and lever is. Know that a mechanism creates movement **Key Vocabulary: Mechanism, lever, slider, slot, pivot, guide/bridge, masking tape, fastener, pull, push, down, straight, work, design, evaluate, purpose,**	**Wheels and axles** Know that objects on wheels can be moved by pulling or pushing Know the names of some materials, **Key Vocabulary: Axle, fixed, free, design, make, cutting, joining, hacksaw, vice, dowel, body, cab, shaping**	**Levers and linkages** Know what a design brief is Know what an input and an output is. **Key Vocabulary: Loose pivot, fixed pivot, system, input, process**	**Levers and linkages** Explain what an input and output is. **Key Vocabulary: Loose pivot, fixed pivot, system, input, process, output, linear, rotary, reciprocating, innovative, appealing, linkage, oscillating**	**Pulleys or gears** Know what a gear is Know what a pulley is Know what a force is. **Key Vocabulary: Pulley, gear, driver, follower, rotation, motor, belt, spindle, motor, circuit, switch, ratio, transmit, annotated drawings, exploded diagrams, functionality**	**Pulleys and gears** Identify a gear and a pulley. **Key Vocabulary: Transmit, annotated drawings, exploded diagrams, functionality**
	Skills							
	2 Year Old Begin to move an object on wheels by pushing and pulling. 3 Year Old Move an object on wheels by pushing and pulling.	Move objects on wheels can be moved by pulling or pushing Push and pull an object on wheels	Explore how to operate sliders and levers Explore how different mechanisms create different types of movement Say the name of simple tools and their purpose Use some simple fixing techniques and when to use them (i.e. masking tape to secure a lollipop stick slider) Show what a pivot is Know where sliders and levers are used in real life context	Know what wheels, axles and axle holders are Explore the difference between fixed and free moving axles Explore simple methods to fix wheels and axles to a product Know the names of some simple tools and their purpose Know simple commercial products that use wheels and axles to move Know the difference between pulling and pushing forces Explore which materials are best used for particular components (i.e. rubber covered wheels might provide more grip than plastic wheels)	Explore the difference between a fixed and loose pivot Know how to use lever and linkage mechanisms Explain the difference between inputs and outputs Know how to increase accuracy when measuring, marking out and cutting (i.e.measure in mm rather than cm or inches) Explain where levers and linkages are used in commercial products or industry Understand why levers are used to lift loads (weight)	Identify where loose and fixed pivots are used in products Understand how to use lever and linkage mechanisms Explain the difference between inputs and outputs Understand how to increase accuracy when measuring, marking out and cutting (i.e. measure in mm rather than cm or inches) Begin to understand how a lever and pivot can be positioned to lift a greater weight	. Understand that mechanical and electrical systems have an input, process and output Explore that gears and pulleys can be used to speed up, slow down or change the direction of movement To accurately draw an exploded diagram Begin to know where pulleys and gears are used in commercial products and industry Know what forces are acting on pulleys and gears (i.e. friction, gravity) Know whether a gear will turn clockwise or anticlockwise	Understand that mechanical and electrical systems have an input, process and output Know that gears and pulleys can be used to speed up, slow down or change the direction of movement Know how to accurately draw an exploded diagram Know how ratio affects speed of rotation

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Knowledge							
Food	2 Year Old **Preparing Fruit & Vegetables:** Begin know what food is Know some fruits and vegetable names 3 Year Old **Preparing Fruit & Vegetables:** Know what food is Know some fruits and vegetable names **Key Vocabulary: Cut, spoon, mix, knife**	**Preparing Fruit & Vegetables:** Know what fruit and vegetables are **Key Vocabulary: cut, mix, taste, fruit, vegetable**	**Preparing Fruit & Vegetables:** Know what fruits and vegetables are Know what a greater is Know some basic food safety and hygiene **Key Vocabulary: Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging**	**Preparing Fruit & Vegetables:** Know what a knife, greater and peeler is. Know what the five different food groups are **Key Vocabulary: Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging**	**Healthy & Varied Diet:** Know which tools to use for chopping, peeling, grating Know the some basic texture. Know what our senses are Know what fresh and produced **Key Vocabulary: Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested**	**Healthy & Varied Diet:** Know a range of grips. Know what a recipe is. Know some other utensils used in cooking e.g. whisk,, spatula, **Key Vocabulary: Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested**	**Celebrating Culture & Seasonality:** Know some methods used to mix Know what kneading is. **Key Vocabulary: Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury,**	**Celebrating Culture & Seasonality:** Know some basic kneading techniques. Know what a chef is. **Key Vocabulary: Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, kneed, whisk, beat, combine, fold, rubbing in**
	Skills							
	2 Year Old Beginning to mix ingredient 3 Year Old Mix ingredients Show an awareness of what tools are used for Name basic tools eg spoon, fork, knife	Know how to mix ingredients Follow simple health and safety procedures Handle tools correctly.	Use simple cutting tools to prepare soft fruit and vegetables Follow simple health and safety procedures Peel, chop, slice and grate foods Understand where a range of fruit and vegetables come from. Know the principles of a varied diet	Prepare simple dishes safely and hygienically, without using a heat source Use techniques such as cutting, peeling and grating with greater confidence and independency Name and sort foods into the five groups in The Eatwell Plate Understand that everyone should eat at least five portions of fruit and vegetables every day	Know how to chop a wider range of foods using different techniques i.e. claw grip, bridge grip. Know how to use sensory information to evaluate a variety of ingredients Know how to combine foods using different utensils i.e. whisk, spatula Know safety procedures when handling and preparing foods Begin to understand about a range of fresh and processed foods for their product Know that foods are grown, reared or caught	Chop a wider range of foods using different techniques i.e. claw grip, bridge grip. Measure ingredients using simple measures i.e. cup, tblsp Use sensory information to evaluate a variety of ingredients Combine foods using different utensils i.e. whisk, spatula Know and follow relevant health and safety procedures when handling and preparing foods Know about a range of fresh and processed foods for their product Identify whether foods are grown, reared or caught Understand about fair trade foods Name one key chef and their contribution to healthy eating i.e. Jamie Oliver – healthy schools	Demonstrate more advance methods for mixing ingredients i.e. rubbing in Measure ingredients accurately using different units Follow a recipe Select appropriate utensils for specific jobs. Cut, shape and knead dough Know about a range of chefs and their individual styles of cooking	Demonstrate some more advance methods for mixing ingredients i.e. rubbing in Know how to measure ingredients accurately using different units Know how to follow a recipe Know which are appropriate utensils for specific jobs. Demonstrate how to cut, shape and knead dough Know about a range of chefs and their individual styles of cooking Know about organic foods and the impact of these

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Knowledge							
Textiles	2 Year Old Begin know what glue is 3 Year Old Know what glue is **Key Vocabulary: glue, fabric, stick**	Know what tools are used for Know how to stick using glue **Key Vocabulary: Join, sew, stick, glue, celo - tape**	Know what a template is Know that different clothes are made from materials Know how to work safely **Key Vocabulary: Pattern, mark out, decorate, running stitch, needle, fabric**	Know how to use a template Know how to work safely Know some names of basic fabric **Key Vocabulary: Template, quality, suitable, features, dye, overstitch, design, fray, mock-up, seam**	Know what a design brief is Know how to carry out at least one stich. Know what a seam allowance is Know what an evaluation is **Key Vocabulary: Fastening, seam, compartment, zip, finishing technique, function, prototype, back stitch, felted, woven, knitted**	Know what stiffen and reinforce involves. Know how to work safely Know what a prototype is **Key Vocabulary: Aesthetics, seam allowance, pinning, embroidery, back stitch, blanket stitch, cross stitch**	Know what 3D textiles are. (Slippers, bag, purse) Know what embroidery is Know why questionnaires are carried out in design **Key Vocabulary: Specification, tacking, working drawing, clasp, pinking shears, design criteria, hem, reinforce, stem stitch, satin stitch, tie dye**	Know what accuracy in measurement is. Know different fastening types. **Key Vocabulary: Applique, annotate, evaluate, innovation, functionality, renewable, authentic, chain stitch**
	Skills							
	2 Year Old Begin to join two pieces of material using one joining technique (i.e. gluing) 3 Year Old Know how to join two pieces of material using one joining technique (i.e. gluing)	Use tools safely Join two pieces of material using two joining technique (i.e. gluing, and cello tape)	Use a template Explore how a simple 3D textile product is made Be able to join two pieces of fabrics using different joining techniques (gluing, stapling, stitching) Know a range of finishing techniques available Follow relevant health and safety protocols Name simple fabric products (i.e. cushion, jumper, blanket) Understand why simple fabrics are chosen based on their properties (i.e. wool is used for a blanket because it is soft and warm)	Know why designers use templates Be able to use certain fabrics based on their suitability to the product Use simple stitch techniques Know which finishing technique to use depending upon the required effect Follow relevant health and safety protocols Know the names of at least one designer of fabric products (i.e. Levi Strauss and denim jeans, William Morris) Know where simple fabrics come from/are made of (i.e. wool from sheep, cotton from cotton plants, hessian made from fibres of jute plant)	Understand how to strengthen, stiffen and reinforce existing fabrics Securely join two pieces of fabric together using a range of stitches Identify designers that use patterns Show what a seam allowances i Follow relevant health and safety protocols Know how different fabrics are constructed (i.e. woven materials, spun materials, knitted materials) Explain why designers evaluate their designs	Strengthen, stiffen and reinforce existing fabrics Use decorative stitches to finish a product Understand what are renewable/sustainable material/fabric Follow relevant health and safety Know what accuracy means and how it can be improved Annotate a sketch Know why designers use prototypes Know a range of designers who use fabrics in their work Begin to understand what accuracy is	Know that a 3D textile product can be made from a combination of accurately made pieces Combine multiple different fabrics to create a 3D product Identify embroidery and how it can embellish a product Use different stitch types (including finishing stitches) Follow relevant health and safety Carry out a questionnaire is and how it can help with product design (children could create a simple questionnaire which could then be used to form a design brief) Test fabrics in order to select them for use Identify what joining/fastening methods and multiple pieces have been used	Identify a 3D textile product Know when to combine multiple different fabrics to create a 3D product Know how to follow relevant health and safety Know what a questionnaire is and how it can help with product design (children could create a simple questionnaire which could then be used to form a design brief) Know how to test fabrics in order to select them for use Know how to analyse existing products and report what joining/fastening methods and multiple pieces have been used Know some key dates in the development of fabric and textiles (i.e. 6000BC woven textiles used to wrap the dead, 500-1000AD spinning wheel invented in India, 1890 first pair of jeans by Levi Strauss

RESPECT PRIDE INCLUSION CHALLENGE CREATIVITY RESILIENCE

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Structures	Knowledge							
	2 Year Old **Freestanding Structures** Begin to build. 3 Year Old **Freestanding Structures** Know how to build. **Key Vocabulary: Cut, fold, join**	**Freestanding Structures** Know how to use equipment correctly for cutting and sticking. **Key Vocabulary: Cut, fold, join, tall,**	**Freestanding Structures** Know the names of some 2D shapes, **Key Vocabulary: Cut, fold, join, fix, weak, strong**	**Freestanding Structures:** Know the names of 3D shapes. **Key Vocabulary Structure, base, underneath, thicker, thinner, corner, point, straight, curved, rectangle, cube, cuboid, cylinder**	**Shell Structures** Know what a net is Know the names of more complex 3D shapes **Key Vocabulary: Shell, structure, net, marking out, material, joining, three dimensional, stiff**	**Shell Structures:** Know what stiffening and strengthening is. Know the job of structural engineers **Key Vocabulary: Assemble, prism, vertex, breadth, capacity, scoring, adhesives, reduce, reuse, recycle, corrugating, ribbing, laminating**	**Frame Structures:** Know the names of tools and know how to use tools safely **Key Vocabulary: Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief**	**Frame Structures:** Know the names of tools and know how to use tools safely **Key Vocabulary: Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief**
	Skills							
	2 Year Old Beginning to make a freestanding structure from simple blocks/boxes 3 Year Old Make a freestanding structure from simple blocks/boxes	Make a structure taller Know how to make a structure more stable Join different materials (Junk modelling) Make structures using tools.	Make freestanding structures stronger, stiffer and more stable Join some simple materials Be able to develop a simple order of making a structure (base first) Be able to name of simple 2D shapes	Make freestanding structures stronger, stiffer and more stable Be able to join some simple materials Know a simple order of making a structure Be able to name of simple 3D shapes Know what materials are useful for strengthening or stiffening structures and why this is Name some strong/stiff structures (i.e. climbing frame, tower)	Explore different methods for stiffening/strengthening structures Use a net. Use tools are appropriate for cutting and scoring materials Test a material's strength Understand why engineers use certain structures for certain purposes	Use more methods for stiffening/strengthening structures Complete a net Know which tools are appropriate for cutting and scoring materials Know how to test a material's strength Begin to learn some simple facts about more than one structural engineer (i.e. Gustavo Eiffel, Peter Rice, Fazlur Khan)	Stiffen, strengthen and reinforce a range of 3-D frameworks Choose materials to stiffen and reinforce by selecting them due to their properties Explore which shapes are the strongest and will support the most weight in a structure Use a range of tools i.e. junior hacksaws, G-clamps, bench hooks, hand drills safely Know how engineers solve complex design problems i.e. building Burji Khalifa in Dubai	Know how to stiffen, strengthen and reinforce a range of 3-D frameworks Know which materials are best suited to stiffen and reinforce by selecting them due to their properties Know which shapes are the strongest and will support the most weight in a structure Know how to use a range of tools i.e. junior hacksaws, G-clamps, bench hooks, hand drills safely Know some simple facts about more than one structural engineer (i.e. Gustavo Eiffel, Peter Rice, Fazlur Khan

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electrical systems	Knowledge							
					Know what an electrical circuit is To know what electricity is and what it is used for Know the names of some electrical products **Key Vocabulary**: User, fault, toggle switch, insulator, conductor, battery holder, crocodile clip, bulb	Know what programming is Know what conductors and insulators are **Key Vocabulary:** Series circuit, connection, push-to-make switch, push-to-break switch, innovative, appealing, control box, input device, output device, system	Know what a series and parallel circuits are Know what a fault could be **Key Vocabulary:** Parallel circuit, light emitting diode, monitor, flowchart, design specification, reed switch, tilt switch	Know why materials make good conductors and insulators Know what faults are **Key Vocabulary:** Light dependent resistor, interface control, micro switch, latching switch
Electronics	Skills							
					Name a range of simple electrical components and their functions, such as a bulb, buzzer and switch Control and program a product using computing (i.e. beebots) Construct a simple series circuit Be able to make a range of simple secure connections (twisting wires together, wrapping ends, taping over, connecting block) Know that some components have positive and negative terminals	Know a range of simple electrical components and their functions, such as a bulb, buzzer and switch Know how to control and program a product using computing (i.e. beebots) Know how to construct a simple series circuit Know how to make a range of simple secure connections (twisting wires together, wrapping ends, taping over, connecting block) Name simple conductors and insulators Know how electricity is measured (volts and amps) Know a range of places electrical systems are used (i.e. lighting in a house, display signs, traffic lights)	Use simple self-made switches in a circuit Test components in more complex circuits (series and parallel) Know how to make a basic switches Assess faults in their own electrical systems Know why materials make good conductors and insulators	Know how to incorporate simple self-made switches in a circuit Know how to test components in more complex circuits (series and parallel) Know how simple switches can be made Know how to assess faults in their own electrical systems Know how to test components in a simple series circuit

UN Rights of a Child:
Article13 (freedom of expression) Every child must be free to express their thoughts and opinions.
Article 28 (right to education) Every child has the right to an education.