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|  | Autumn 1 | Autumn 2 | Spring 1  | Spring 2 | Summer 1 | Summer 2 |
| **Nursery**  |  |  |  |  |  |  |
| **Reception** | **Structures- Junk Modelling** |  | **Structures- Junk Modelling** |  | **Structures: Boats** |  |
| **Year 1** | **Structures: Constructing windmills**  |  | **Textiles: Puppets** |  | **Food: Fruit and****vegetables** |  |
| **Year 2** |  | **Structures: Baby bear's chair** |  | **Mechanisms: Fairground wheel** |  | **Mechanisms: Making a moving monster** |
| **Year 3** | **Food: Eating seasonally** |  | **Textiles: cushions** |  | **Structures: Constructing a castle** |  |
| **Year 4** | **Electrical systems: Torches** | **Structure: Pavilions** |  | **Mechanical systems: Making a slingshot car** |  |  |
| **Year 5** | **Electrical systems: Doodlers** |  | **Mechanical systems: Making a pop-up book** |  | **Food: What could be healthier?** |  |
| **Year 6** |  | **Textiles: Waistcoats** |  |  | **Structure: Playgrounds** | **Digital world: Navigating the world** |

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| **Nursery- EYFS Curriculum- Progression Steps**  |
| **Design** | **Make** | **Evaluate**  | **Technological knowledge** | **Cooking and Nutrition**  |
| • Develop their own ideas and explore a variety of resources, including blocks and construction kits to create 'small worlds' and objects linked to their interests. | • Explore simple tools within practical tasks and experiment with joining materials. • Show an understanding that tools and equipment need to be used safely. | •Name and explore a range of everyday products and explore how things work. | • Make simple structures using a range of materials.• Explore, build and play with a range of resources and construction kits with wheels. | • Help to prepare a range of healthy snacks.• Explore and try a range of foods and suggest where they come from. |
| EAD (3 & 4 year olds): Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. | PD (3 & 4 year olds): Use one handed tools and equipment, for example, making snips in paper with scissors. AOL: PSED (3 & 4 year olds): Select and use activities and resources, with help when needed.Explore and choose freely from a variety of materials when making.EAD (3 & 4 year olds): Explore different materials freely, in order to develop their ideas about how to use them and what to make. | UW (3 & 4 year olds): Explore how things work. Share their creations with others and respond to questions and suggestions about how it was made. Share their creations with others and begin to notice how the work of others is the same or different to their own.Share their creations, explaining the process they have used. | EAD (ELG): Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.EAD (ELG): Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. | PSED (ELG): Understand the importance of healthy food choices.UW (ELG): Explore the natural world around them, making observations and drawing pictures of animals and plants. |

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| **Reception- EYFS Curriculum- Progression Steps** |
| **Design** | **Make** | **Evaluate** | **Technological knowledge** | **Cooking and nutrition** |
| •Create collaboratively, share ideas and use a variety of resources to make products inspired by existing products, stories or their own ideas, interests or experiences | • Choose and explore appropriate tools for simple practical tasks. • Follow rules and instructions to keep safe.• Select appropriate materials when constructing and making. | • Name and explore a range of everyday products and begin to talk about how they are used. • Explore significant products.• Describe what, why and how something was made and compare with others. • Adapt and refine their work as they are constructing and making. | • Construct simple structures and models using a range of materials• Explore, build and play with a range of resources and construction kits with wheels and axles. | • Suggest healthy ingredients that can be used to make simple snacks.• Begin to identify the origins of some foods. |
| EAD (Reception): Create collaboratively, sharing ideas, resources and skills. | PD (Reception): Develop their small motor skills so that they can use a range of tools competently, safely and confidently.EAD (ELG): Safely use and explore a variety of materials, tools, and techniques, experimenting with colour, design, texture, form and function | UW (3 & 4 year olds): Explore how things workEAD (ELG): Share their creations, explaining the process they have used. EAD (Reception): Return to and build on their previous learning, refining ideas and developing their ability to represent them. | EAD (ELG): Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.EAD (ELG): Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. | PSED (ELG): Understand the importance of healthy food choices.UW (ELG): Explore the natural world around them, making observations and drawing pictures of animals and plants. |

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| **Year 1** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Structures  | * 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
* 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, according to their characteristics
* 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
* Explore and evaluate a range of existing products
* Evaluate their ideas and products against design criteria
 | Inspired by the song, ‘Mouse in a windmill’, children design, decorate and build a windmill for their mouse client to live in, developing an understanding of different types of windmill, how they work and their key features.1. To include individual preferences and requirements in my design
2. To make a stable structure
3. To assemble the components of my structure
4. To evaluate my project and adapt my design
 | ClientDesignEvaluation NetStableStrongTestWeak Windmill |
| **Spring Term** |
| Unit: Textiles- Puppets  | * Explore and evaluate a range of existing products
* Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
* Design purposeful, functional, appealing products for themselves or 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
* Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
* Evaluate their ideas and products against design criteria
 | Children explore different ways of joining fabrics before creating their own hand puppets based upon characters from a well-known fairy-tale. Throughout they work to develop their technical skills of cutting, gluing, stapling and pinning.1. To join fabrics together using different methods
2. To use a template to create my design
3. To join two fabrics together accurately
4. To embellish my design using joining methods
 | DecorateDesignFabricGlueModelHand puppetSafety pinStapleStencilTemplate |
| **Summer Term** |
| Unit: Food- Fruit and Vegetables  | * Use the basic principles of a healthy and varied diet
* Understand where food comes from
* Explore and evaluate a range of existing products
* Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
* 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 their ideas and products against the design criteria
 | Children handle and explore fruits and vegetables and learn how to identify which category they fall into, before undertaking taste testing to establish their chosen ingredients for the smoothie they will make and design packaging for.1. To identify if a food is a fruit or a vegetable
2. To identify where plants grow and which parts we eat
3. To taste and compare fruit and vegetables
4. To make a fruit and vegetable smoothie
 | BlenderCartonFruitHealthyIngredientsPeelPeelerRecipeSliceSmoothieStencilTemplateVegetable |
|  | **Stand-alone lessons available throughout the year*** Exploring sliders and movement
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| **Year 2** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Structures- Baby Bears Chair | * Explore and evaluate a range of existing products
* Evaluate their ideas and products against design criteria
* Build structures, exploring how they can be made stronger, stiffer and more stable
* Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
* 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
 | Using the tale of Goldilocks and the Three Bears as inspiration, children help poor Baby Bear by making him a brand-new chair. When designing the chair, they consider his needs and what he likes and explore ways of building it so that it is a strong and stable structure and doesn’t break again!1. To explore the concept and features of structures and the stability of different shapes
2. To explore strength in different structures-To understand that the shape of the structure affects its strength
3. To make a structure according to design criteria
4. To produce a finished structure and evaluate its strength, stiffness and stability
 | FunctionMan-madeMouldNaturalStableStiffStrongStructureTestWeak |
| **Spring Term** |
| Unit: Mechanisms:Fairground wheel | * Explore and evaluate a range of existing products
* Generate, develop and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
* Explore and use mechanisms in their products
* Design purposeful, functional, appealing products for themselves and other users based on design criteria
* Evaluate their own ideas and products against a design criteria
* Build structures exploring how they can be made stronger, stiffer, and more stable
* Select from and use a range of tools and equipment to perform practical tasks
 | This unit brings together the children’s knowledge of mechanisms and structures. They design and create their own Ferris wheels, considering how the different components fit together so that their wheels rotate and their structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills to create a final product.1. To explore wheel mechanisms and design a wheel
2. To select appropriate materials
3. To build and test a moving wheel
4. To make and evaluate a structure with a rotating wheel
 | AxleDecorateEvaluationFerris wheelMechanismStableStrongTestWaterproofWeak |
| **Summer Term** |
| Unit: Mechanisms: Making a moving monster | * Explore and evaluate a range of existing products
* Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products
* Design purposeful, functional, appealing products for themselves and other users based on design criteria
* Generate, develop, model and communicate their ideas through talking and drawing, templates, mock-ups and, where appropriate, information and communication technology
* Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
 | After learning the terms; pivot, lever and linkage, children set to designing a monster that will move using a linkage mechanism. After practising making linkages of different types and varying the materials they use, children can also bring their monsters to life with the gift of movement.1. To look at objects and understand how they move
2. To look at objects and understand how they move
3. To explore different design options
4. To make a moving monster
 | EvaluationInputLeverLinear motionLinkageMechanicalMechanism MotionOscillating motionOutputPivotReciprocating motion Rotary motionSurvey |
|  | **Stand-alone lessons available throughout the year*** Hidden sugars in drinks
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| **Year 3** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Food- Eating seasonably  | * Understand and apply the principles of a healthy and varied diet
* Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
* Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed
 | 1. To know that climate affects food growth
2. To understand the advantages of eating seasonal foods grown in the UK
3. To create a recipe that is healthy and nutritious using seasonal vegetables
4. To safely follow a recipe when cooking
 | ClimateDietImportedIngredientsNaturalProcessedRearedRecipeSeasonalSeasonsSugar |
| **Spring Term** |
| Unit: Textiles: Cushions | * 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’
* Design purposeful, functional, appealing products for themselves and other users based on design criteria’
 | Children learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion.1. To learn how to sew cross-stitch and appliqué
2. To design a product and its template
3. To decorate fabric using appliqué and cross stitch
4. To assemble a cushion
 | appliquécross-stitchdesignequipmentfabricpatchrunning stitchthreadseamtextureknot   |
| **Summer Term** |
| Unit: Structures- constructing a castle  | * 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
* 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
* Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 | 1. To recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure
2. To design a castle
3. To construct 3D nets
4. To construct and evaluate my final product
 | 2D shapes3D shapesCastleDesign criteriaEvaluateFacadeFeatureFlagNetRecyclableScoringStableStrongStructureTabWeak |
|  | **Stand alone lessons available** * Cross-stitch and appliqué
* Exploring pneumatics
* Designing a pneumatic toy
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| **Year 4** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Structures- pavilions  | * 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 and CAD
* Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics
* Investigate and analyse a range of existing products
* Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
 | 1. To create a range of different shaped frame structures
2. To design a structure
3. To build a frame structure
4. To add cladding to a frame structure
 | 3D shapesCladdingDesign criteriaInnovativeNaturalReinforceStructure |
| **Spring Term** |
| Unit: Mechanical Systems: Making a slingshot car | * 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
* Investigate and analyse a range of existing products
* Understand how key events and individuals in design and technology have helped shape the world
* 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]
* 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
 | Children transform lollipop sticks, wheels, dowels and straws into a moving car. They will be using a glue gun to construct the materials, making the launch mechanism, designing and also making the body of the vehicle using nets and assembling these to the chassis1. To build a car chassis
2. To design a shape that reduces air resistance
3. To make a model based on a chosen design
4. To assemble and test my completed product
 | AestheticAir resistanceChassisDesignDesign criteriaFunctionGraphicsKinetic energyMechanismNet Structure |
| **Summer Term** |
| Unit: Electrical systems- torches | * Investigate and analyse a range of existing products
* Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
* Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
* Understand how key events and individuals in design and technology have helped the world
* 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 their ideas and products against their own design criteria and consider the views of others to improve their work
 | In this topic, children apply their scientific understanding of electrical circuits to create a torch made from easily available materials and objects. They will also design and evaluate their product against set design criteria.* To learn about electrical items and how they work
* To analyse and evaluate electrical products
* To design a product to fit a set of specific user needs
* To make and evaluate a torch
 | BatteryBulbBuzzerCellComponentConductorCopperDesign criteriaElectrical itemElectricityElectronic itemFunctionInsulatorSeries circuitSwitchTestTorchWire |
| Unit | **Stand-alone lessons available** * Following a recipe
* Evaluating fastenings
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| **Year 5** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Doodlers | * Investigate and analyse a range of existing products.
* Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].
* apply their understanding of how to strengthen, stiffen and reinforce more complex structures
* 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
* 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
* apply their understanding of how to strengthen, stiffen and reinforce more complex structures
 | The Doodlers unit encourages children to develop their critical thinking skills, by tinkering with and exploring an existing product – in this case, the Doodler\*.Pupils will investigate which components affect the Doodler’s form and function by taking it apart and rebuilding it in teams and, by doing so, will begin to understand how the Doodler was put together without the need for instruction. Pupils will problem-solve any issues to inform and make their version of a Doodler independently. Once the children have made their Doodler, they will use what they have learnt to write a set of instructions for someone else to make a Doodler of the same design.* To understand how motors are used in electrical products.
* To investigate an existing product to determine the factors that affect the product’s form and function.
* To put findings from research into practice to develop a unique product
* To develop a DIY kit for another individual to assemble their product
 | Circuit componentConfigurationCurrentDevelopDIYInvestigateMotorMotorisedProblem solveProduct analysisSeries circuitStableTarget user |
| **Spring Term** |
| Unit: pop up books | * 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
* 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
* 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]
* 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
 | After choosing a simple story or nursery rhyme, children create a four-page pop-up storybook design. They will also add accompanying captions, incorporating a range of mechanisms and decorative features, including: structures, levers, sliders, layers and spacers* To design a pop-up book
* To follow my design brief to make my pop up book
* To use layers and spacers to cover the working of mechanisms
* To create a high-quality product suitable for a target user
 | Aesthetic Computer-aided design (CAD) Caption Design Design brief Design criteria Exploded-diagram Function Input LinkageMechanism Motion Output PivotPrototypeSlider Structure Template |
| **Summer Term** |
| Unit: Food- What could be healthier | * Understand and apply the principles of a healthy and varied diet.
* Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
* Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed
* 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.
* 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.
* Apply their understanding of computing to program, monitor and control their products.
 | Focusing on nutrition, children research and modify a traditional Bolognese sauce recipe to make it healthier. They will cook their new and improved versions, making appropriate packaging and also learn about the ethical considerations of farming cattle.* To understand where food comes from
* To understand the term ‘healthy’
* To adapt a traditional recipe
* To complete a food product
 | BeefCross-contaminationDietEthical issuesFarmHealthyIngredientsMethodNutrientsPackagingRearedRecipeResearchSubstituteSupermarketVeganVegetarianWelfare |

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| **Year 6** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** |
| Unit: Textiles- Waistcoats | * Generate, develop, model and communicate their ideas through discussion, annotates sketches, cross-sectional and exploded diagrams, prototypes, patterns pieces and computer aided design
* Select from and use a wider range of tools and equipment to perform practical tasks
* Understand how key events and individuals in design and technology have helped shape the world
* Evaluate their ideas and products against their own design criteria and consider the views of others.
 | In this unit, the children will use their skills to design and create a waistcoat. Choose the focus and theme for the unit and how much autonomy you want to give your pupils. For example, the project could be: a leaver’s waistcoat, decorated to celebrate their time at the school, a festive waistcoat for Christmas, a waistcoat from a specific period in history that the children are studying or something for the children to wear in an assembly or production.* To design a waistcoat
* To mark and cut fabric according to a design
* To assemble a waistcoat
* To decorate your waistcoat
 | AccurateAdapt AnnotateDesignDesign criteriaDetailFabricFasteningKnotPropertiesRunning-stitchSeamSewShapeTarget audienceTarget customerTemplateThreadUniqueWaistcoatWaterproof |
| **Spring Term** |
| Unit: Structures- Playgrounds | * Use research to develop and inform the design of innovative, functional and appealing products that are fit for purpose and aimed at particular groups
* Generate, develop, model and communicate ideas through discussion and annotated sketches
* 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
* Apply understanding of how to strengthen, stiffen and reinforce complex structures
* Select from and use a wide range of tools and equipment to perform practical tasks
* Select from and use a wide range of materials and components, including construction materials, according to their functional properties and aesthetic qualities
* Inform the design of innovative, functional and appealing products, aimed at particular individuals or groups
 | This topic draws upon pupils’ skills and knowledge of structures, challenging them to design and create a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils can practise visualising objects in plan view and also get creative with their use of natural features and cladding for their structures* To design a playground with a variety of structures
* To build a range of structures
* To improve and add detail to structures
* To create surrounding landscape
 | AdaptApparatusBench hookCladdingCoping sawDesignDowelEvaluationFeedbackIdeaJelutongLandscapeMark outMeasureModifyNatural materialsPlan viewPlaygroundPrototypeReinforceSketchStrongStructureTenon sawTextureUserViceWeak |
| **Summer Term** |
| Unit: Digital world: Navigating the world | * 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
* Apply their understanding of computing to program, monitor and control their products
* 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
* Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
* Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 | Children program a navigation tool to produce a multifunctional device for trekkers. They combine 3D objects to form a complete product in CAD 3D modelling software. The unit accumulates with a pitch to share and 'sell' the children's final product concepts and programs to the Adventure Awaits company guest panel.* To write a design brief and criteria based on a client request
* To write a program to include multiple functions as part of a navigation device
* To develop a sustainable product concept
* To develop 3D CAD skills to produce a virtual model
* To present a pitch to ‘sell’ the product to a specified client
 | 3D CADApplication (apps)BiodegradableBooleanCardinal compassClientCompassConceptConvinceCorrodeDuplicateEnvironmentally friendlyEquipmentFeatureFiniteFunctionFunctionalGPS trackerInfiniteInvestmentLightweightLoopManufactureMaterials (wood,metal, plastic etc.)MouldableNavigationNon-recyclableProduct lifecycleProduct lifespanProgramRecyclableSmartSustainableSustainable designUnsustainable designVariableWorkplane |