Design Technology

<table>
<tr><td>Year 3</td><td colspan="3">Autumn Term: Create a healthy Pitta Bread</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children would have carried out food preparation in KS1 and started to learn about the basics of eating healthily.</td><td>The children will move onto using their experience of food to prepare a hot healthy dish and using cutting skills with increasing difficulty. They will start to evaluate products already on the market to determine their own success criteria.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Prove that my design meets some set criteria.
• Design a product and make sure that it looks attractive.</td><td>• Follow a step-by-step plan, choosing the right equipment and materials.
• Select the most appropriate tools and techniques for a given task.

• independently-begin to peel food(apple, potato)
• With moderate supervision cut materials accurately and safely by selecting appropriate tools
• Begin to use claw grip with serrated vegetable knife to cut harder foods e.g. carrot
• Cut foods into evenly sized strips or cubes (peppers, cheese)
• Use and select biscuit cutters</td><td>• Identify how I could improve my product.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">• Know what makes a healthy and balanced diet.
• Describe how food ingredients come together.
Know where food ingredients come from.</td><td></td></tr>
<tr><td>Vocabulary</td><td colspan="3">Protein
Carbohydrate
Fat
Dairy
Peel
Ingredients
Evaluate</td></tr>
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<table>
<tr><th>Year 3</th><th colspan="3">Spring Term: Earthquake Proof Tower</th></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have designed and make a range of simple products in KS1. They have made drawings of their designs and tried making mock ups before final product.
They have begun to use a range of equipment such as scissors to help cut paper and card.
Children have begun to understand how they can make simple structures stronger and more stable.</td><td>Children will learn to use layering to reinforce structures.
They will begin t create structures to support electrical components.
They will begin to understand that 3D structures can be created from nets and b manipulating materials and shapes.
Children will become more independent in upper KS2 to produce a step by step plan and a detailed diagram and to evaluate their products against a success criteria.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Create a design that meets a range of requirements.
• Consider the equipment and tools needed when planning.
• Describe a design using an accurately labelled diagram, and in words.
• Choose a material for both its suitability and its appearance.</td><td>• Follow a step-by-step plan, choosing the right equipment and materials.
• Use a range of tools and equipment with accuracy.
• With some support measure, mark out, join, assemble materials and components with increasing accuracy.</td><td>• Identify how I could improve my product.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">• Create an earthquake proof tower.
• Identify features of a structure e.g. an earthquake proof tower.
• Identify suitable materials to be selected and used for a structure, considering weight, compression, tension.
• Extend the knowledge of wide and flat based objects being more stable.
• Identify triangles as strong shapes.
• Know how to strengthen, stiffen and reinforce structures.</td><td>• Architect of Skytree tower - Nikken Sekkei</td></tr>
<tr><td>• Vocabulary</td><td colspan="3">Strengthen
Reinforce
Shaft
Camber curve
Tension</td></tr>
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<table>
<tr><td>Year 3</td><td colspan="3">Spring Term: Moving Arm</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have had the opportunity to follow the planning structure.
This is the first experience of more formal learning about mechanisms including linkages and levers.</td><td>Children will build on their knowledge of levers and linkages to create movement in future DT topics, such as the moving model in Y5 and Year 6 that also uses CAD.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>Design
Create a design that meets a range of requirements.
Consider the equipment and tools needed when planning.
Describe a design using an accurately labelled diagram, and in words.
Choose a material for both its suitability and its appearance.</td><td>Make
Follow a step-by-step plan, choosing the right equipment and materials.
Use a range of tools and equipment with accuracy.
With some support measure, mark out, join, assemble materials and components with increasing accuracy.</td><td>Evaluate
Identify how I could improve my product.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Create a moving robot arm for the Iron Man.
Understand how levers and linkages create movement.
Create a simple lever system to make a desired motion.
Use simple lever system to create a simple moving picture of a robot.
Select materials due to their functional and aesthetic characteristics.</td><td>Archimedes – make link to previous learning e.g. Ancient Greeks and Archimedes screw.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Mechanics
Levers
Linkages
pivot
Input
Output
Diagram
Step-by-step</td></tr>
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<table>
<tr><td>Year 4</td><td colspan="3">Spring Term: Electrical Instrument</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Prior Learning In year 1the children learned about basic levers and sliders and had the opportunity to experiment with examples and make their own. In Year 2 they built upon this by adding to their mechanism understanding by learning about wheels and axles. This unit will be their third time learning about mechanisms and exploring both the engineering and also the design aspects.</td><td>The children will move on to creating a circuit to move a motor and link to a mechanism to turn an axel in Year 5.
The children will create more independent detailed step by step plan and come up with their own success criteria that includes the success of the mechanism and the aesthetic appeal.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Create a design to a simple success criterion.
• Generate more than one idea for how to create a product.
• Gather information to help design a successful product (i.e. by asking others' views and exploring similar products).
• Produce a plan and explain it.
• Suggest improvements to develop and refine a planned idea.</td><td>• Use a range of tools and equipment with increasing accuracy.
• Independently measure, mark out, join, assemble materials and components with increasing accuracy.
• Persevere and adapt my work when my original ideas do not work.</td><td>• Evaluate and suggest simple improvements for my designs.
• Evaluate products for both their purpose and appearance.
• Explain how I have improved my original design.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Create a simple lever switch to sound buzzer for simple circuit.
• Follow a design brief to make a lever switch, neatly and with a focus on accuracy.
• Make mechanisms and/or structures using sliders, pivots and folds to produce movement to connect a simple circuit and sound a buzzer.
• Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result</td><td>Archimedes
(287 - 212 B.C.) Archimedes was a Greek philosopher, mathematician and inventor, who wrote about geometry and mechanics. He was born in Syracuse, Sicily, and educated in Alexandria, Egypt. Archimedes defined the principle of the lever and invented the compound pulley.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Mechanism-a device used to create movement.. Lever- a rigid bar that moves around a pivot

fixed pivot-</td></tr>
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<table>
<tr><td>Year 4</td><td colspan="3">Autumn Term: Simple Hot Dish</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">The children have previously prepared a cold dish in Year 3. They have begun to use knives to chop and spread, they will now develop their skills further to develop a hot meal.
Children have produced simple plans and evaluated how their design went.</td><td>The children will move into using increased chopping skills and an increased use of heat to cook food to produce a simple chutney.
Children will begin to come up with criteria for their product and evaluate against the criteria.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Create a design to a simple success criteria.
• Generate more than one idea for how to create a product.
• Gather information to help design a successful product (i.e. by asking others' views and exploring similar products).
• Produce a plan and explain it.
• Suggest improvements to develop and refine a planned idea.</td><td>• Independently measure, mark out, join, assemble materials and components with increasing accuracy.</td><td>• Evaluate and suggest simple improvements for my designs.
• Evaluate products for both their purpose and appearance.
• Explain how I have improved my original design.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2"><u>Prepare a simple hot dish on toast: beans on toast, toasted cheese sandwich, egg on toast</u>

• Know the importance of and how to make healthy food choices.
• Know how to be both hygienic and safe when using and preparing food.
• Know how to store food safely.
• use claw grip with serrated vegetable knife to cut harder foods e.g carrot
• use both claw and bridge grip to cut the same food using a serrated vegetable knife
• Cut foods into evenly sized strips or cubes (peppers, cheese
• Grate harder food using a grater
• Under supervision use a toaster and microwave
• Assemble and arrange ingredients for simple dishes
• Begin to cook foods (using toasters and microwaves with supervision).</td><td>Famous chefs the children may know.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Hygiene grate Claw grip

Serrated knife</td></tr>
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<table>
<tr><td>Year 4</td><td colspan="3">Autumn Term: Strong Roman Shield</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have previously learnt about earthquake towers. They have learnt that triangles help to strengthen structures. They have use layering to support and strengthen structures.
They have evaluated their towers.</td><td>Children will move onto applying their knowledge of strengthening structures to create a structure for a moving vehicle.
They will design their product using expanded diagrams and evaluate their product against criteria.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Create a design to a simple success criteria.
• Generate more than one idea for how to create a product.
• Gather information to help design a successful product (i.e. by asking others' views and exploring similar products).
• Produce a plan and explain it.
• Suggest improvements to develop and refine a planned idea.</td><td>• Use a range of tools and equipment with increasing accuracy.
• Independently measure, mark out, join, assemble materials and components with increasing accuracy.
• Persevere and adapt my work when my original ideas do not work.</td><td>• Evaluate and suggest simple improvements for my designs.
• Evaluate products for both their purpose and appearance.
• Explain how I have improved my original design.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2"><u>Make a Roman Shield</u>
• Know how to strengthen corners
• Use layering to stiffen and reinforce materials and designs
• Learn to create different textural effects with materials
• Design a strengthened structure, linked to the learning project or scheme unit, that is aesthetically pleasing, and select materials to create a desired effect.
Begin to measure and cut materials with moderate support</td><td>Roman Design</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Strengthen
Stiffen
Reinforce
Textural
layering</td></tr>
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<table>
<tr><th>Year 5</th><th colspan="3">Autumn Term: Preserve/Chutney</th></tr>
<tr><td>Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td></td><td colspan="2">Children have previously prepared a simple hot meal using simple chopping skills. They have previously used a toaster and microwave and will not move onto using other heating methods.
Children have previously chopped simple foods and will now move onto cutting harder food.</td><td>Children will move onto designing and making food to meet a criteria. They will develop their knowledge of heating methods and make a healthy meal applying all the skills learnt in previous years.</td></tr>
<tr><td>Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td></td><td>• Design
• Come up with a range of ideas after collecting information from different sources.
• Produce a detailed, step-by-step plan which could include: step by step instructions, cross sectional diagram, prototypes.
• Suggest alternative plans; outlining the positive features and draw backs.
• Explain how a product will appeal to a specific audience and criteria.</td><td>• Make
• Use a range of tools and equipment competently.
• Make a prototype before making a final version</td><td>• Evaluate
• Evaluate appearance and function against original criteria.
• Suggest improvements that could be made, considering material and methods.</td></tr>
<tr><td></td><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td></td><td colspan="2"><u>Make a preserve-pickle 2024: chutney, make the pickling vinegar using the class hob.</u>
• Know the different nutrients that are important to health and which foods contain these.
• Show that I can be both hygienic and safe in the kitchen.
• Know where different foods come from and how they may be changed to help preserve or make them safer or tastier.
• Understand seasonality and know how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable/tasty to eat.
• with support finely grate hard foods(zesting, parmesan)
• with support use a can opener,ring pull
• dice foods and cut them into evenly sized fine pieces(with moderate support)
• confidently use the claw grip to cut harder foods using a serrated vegetable knife
• peel harder food using a peeler (apple,potato)
• Confidently use a microwave/ hob
• With supervision use a food processor or electric blender to mash,blend puree hard ingredients</td><td>Famous Person: Nicolas Appert French - chef who invented air tight food preservation</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Seasonal foods
Zest
Vegetable peeler
Puree
preserve</td></tr>
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<table>
<tr><td>Year 5</td><td colspan="3">Spring Term 1: Moving Space Buggy</td></tr>
<tr><td>Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td></td><td colspan="2">The children have previously learnt how to make a simple circuit. They have learnt about structures and how to make structures for stable.
Children have previously had chances to explore products and begin to design products that meet a success criteria.</td><td>The unit starts to introduce measuring accurately which is buill.t on in Year 6 when children begin to make design using nets.
The children will move into evaluating the product more independently against success criteria that they have developed.
The children will use their knowledge of strengthening structures independently in a 3D shape.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>Come up with a range of ideas after collecting information from different sources.
Produce a detailed, step-by-step plan which could include step by step instructions, cross sectional diagram, prototypes.
Suggest alternative plans; outlining the positive features and draw backs.
Explain how a product will appeal to a specific audience and criteria.</td><td>Use a range of tools and equipment competently.</td><td>Evaluate appearance and function against original criteria.
Suggest improvements that could be made, considering material and methods.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Create a wooden frame for space buggy.
Create a wooden frame structure to support electrical components.
Understand the terms: compression and tension.
Independently measure and mark wood accurately.
Select appropriate tools and equipment for particular tasks.
Use the correct techniques to saw safely.
Identify where a structure needs reinforcement and use card corners for support.
Create a moving space buggy.
Make a product using both electrical and mechanical components.
Use a motor to turn an axis and create movement.
Describe mechanisms that can be used to change one kind of motion into another.
Use a hand drill safely to drill holes accurately in the project piece.</td><td>Karl Benz – inventor of car</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Axis
Mecha
Tension
Component
Cross sectional diagram
compression</td></tr>
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<table>
<tr><td>Year 5</td><td colspan="3">Summer Term 1: CAD 1</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">The children have previously studied levers. They have used their knowledge of joining techniques and axels to create a moon buggy.
They have started producing more detailed plans with diagrams and evaluating their final design against given criteria.</td><td>The children will further develop their CAD knowledge in a more complex project in Year 6, using more detailed mechanisms and more independently construct a programmable moving model.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Come up with a range of ideas after collecting information from different sources.
• Produce a detailed, step-by-step plan which could include step by step instructions, cross sectional diagram, prototypes.
• Suggest alternative plans; outlining the positive features and draw backs.
• Explain how a product will appeal to a specific audience and criteria.</td><td>• Use a range of tools and equipment competently.</td><td>• Evaluate appearance and function against original criteria.
• Suggest improvements that could be made, considering material and methods.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">• With support make a product using computer programming, monitoring and control to create movement.
• Understand and use mechanical systems in their products (gears)|

Science Objective
Explain how levers, pulleys and gears allow a smaller force to have a greater effect. (science objective to be covered in DT unit)</td><td></td></tr>
<tr><td>Vocabulary</td><td colspan="3">Computer aided design
construct, deconstruct, rotation, motor, mechanism, gear</td></tr>
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<table>
<tr><td>Year 6</td><td colspan="3">Spring Term 1: Periscope</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have previously learnt how to create 3D structures and strengthen them. They have begun to measure, mark and cut accurately and will build on these skills further using more precision.</td><td>Children will move onto the KS3 curriculum. They will use more tools and equipment to measure and create products. They will begin to understand more detailed structural elements. They will use further mechanical devices to develop working products.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Use market research to inform my plans and ideas and create a success criterion.
• Follow and refine my plans.
• Produce an increasingly detailed, step-by-step plan which could include step by step instructions, cross sectional diagram, prototypes.</td><td>• . Use a range of tools and equipment precisely and with increasing independence.
• Consider the aesthetic qualities and functionality of my product whilst making it, refining details as necessary.</td><td>• Show that I can test and evaluate my products.
• Evaluate my product against clear criteria.
• Suggest improvements that could be made, considering material, methods, sustainability of the product and how much a product costs to make.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Create a periscope.
• Understand that 3D structures can be created from nets.
• Measure accurately to create own net to make a 3D structure.
• Know that structures can be strengthened by manipulating materials and shapes.
• Identify the shell structure in everyday life in cars, aeroplanes, tins and cans.
• Build a range of structures drawing upon new and prior knowledge of structures.
• Measure, mark and cut accurately to create a range of structures.
• Use a range of materials to reinforce and add decoration to structures.</td><td>In 1854, French scientist Hippolyte Marié -Davy invented the first naval periscope, consisting of a vertical tube with two small mirrors fixed at each end at 45°.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Shell structure
Nets
Reinforce
Manipulation
Panels</td></tr>
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<table>
<tr><td>Year 6</td><td colspan="3">Spring Term 2: Healthy Hot Meal</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td>Previous Learning</td><td colspan="2">Next Steps in Learning</td></tr>
<tr><td>Children have previously used a range of techniques to create a healthy sandwich, a hot snack and a preserve.
They have begun to make a product that links to a success criteria and evaluate their produce against this.</td><td colspan="2">As children move to KS3 they will being to take into account cultures in their designs. They will become more proficient in using different ways of heating ingredients to create a healthy meal</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>Use market research to inform my plans and ideas and create a success criterion.
Justify my plans in a convincing way.</td><td>Use a range of tools and equipment precisely and with increasing independence.</td><td>Evaluate my product against clear criteria.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Use food labels to help choose the most healthy or appropriate ingredients and foods.
Use my understanding of healthy eating, hygiene and food safety to make my own menu.
Understand some of the ethical issues and social influences on the foods we choose to eat.
finely grate hard foods (zesting, parmesan)
confidently both claw and bridge grip to cut the same food using a serrated vegetable knife.
confidently peel
Confidently use a microwave
With supervision use a food processor or electric blender to mash, blend puree hard ingredients.
Join and combine ingredients appropriately.
Use hobs/oven to heat food, developing independence with this as appropriate.</td><td></td></tr>
<tr><td>Vocabulary</td><td colspan="3">Finely grate
Food labels
Food processor
Market research</td></tr>
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<table>
<tr><td>Year 6</td><td colspan="3">Summer Term 1: CAD 2</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">In year 5 children have previously used simple crown gears and levers to create movement using CAD. They will now use CAD and more complex structures independently to create moving models.
They will make and improve designs as they go along.</td><td>Children will move onto using technology and embedding electronics into products that respond to inputs such as sensors. They will use different ways of powering their products. They will begin to produce more detailed designs and inputs.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Follow and refine my plans.
• Justify my plans in a convincing way
• Produce an increasingly detailed, step-by-step plan which could include: step by step instructions, cross sectional diagram, prototypes.</td><td>• Work within a budget.
• Use a range of tools and equipment precisely and with increasing independence.</td><td>• Show that I can test and evaluate my products.
• Suggest improvements that could be made, considering material, methods, sustainability of the product and how much a product costs to make.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">• Use simple gears to create movement in different directions.
• With increasing independence use a computer to programme, monitor and control movement.</td><td></td></tr>
<tr><td>Vocabulary</td><td colspan="3">control movement
Success criteria

Gears

refine</td></tr>
</table>