Cycle A

Kagan Goals:

Know and demonstrate how PIES principles make a more effective learner.

Know and develop multiple intelligences of verbal/linguistic, visual/special, bodily/ kinaesthetic, interpersonal/ social intrapersonal/ Introspective.

Curricular Overview

Design & Technology

Curricular Goals:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Component: Mechanisms and Mechanical Systems

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
New framework	**Mechanisms-sliders and levers**					
ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with design, texture, form and function; Share their creations, explaining the process they have used. Explore products / toys containing; cogs, gears, pulleys, levers and books containing lift the flaps. Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work.	**Designing** • Generate ideas and explain what they could make. • Develop, model and communicate ideas through drawings and mock-ups. **Making** • Plan by suggesting what to do next • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use suitable simple finishing techniques. **Evaluating** • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate the effectiveness of their product by discussing how well it works **Technical knowledge and understanding** • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary.					

	Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.			
	Component: Structures Design			
		Structures-freestanding structures	Shell structures (including computer-aided design).	Frame structures
	ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Explore construction materials such as lego, duplo, knex, inter-star, building bricks (large and small scale). Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations.	**Designing** • Generate ideas and explain what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawing **Making** • Plan by suggesting what to do next • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build own structure. • Use suitable simple finishing techniques. **Evaluating** • Explore a range of existing freestanding structures in the school and local environment • discuss how well the structure works in relation to the purpose, the user and whether it meets the design criteria? **Technical knowledge and understanding** • Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	**Designing** • Generate realistic ideas and design criteria collaboratively through discussion and the analysis of existing shell structures. • Use computer-aided design to model and communicate ideas. **Making** • Plan the order the stages of making • Select and use appropriate tools to measure, mark out, cut, score, shape and assemble using with some accuracy. • Explain their choice of materials. • Use computer-generated finishing techniques suitable for the product. **Evaluating** • Investigate and evaluate a range of shell structures. • Test and evaluate their own products against design criteria. **Technical knowledge and understanding** • Develop and use knowledge of nets of cubes and cuboids. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.	**Designing** • Carry out research into user needs and existing products. • Develop a simple design specification to guide the development of their ideas and products. • Generate, develop and model innovative ideas through discussion, prototypes and annotated sketches. **Making** • Formulate a clear plan, including a list of what needs to be done and the resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product. **Evaluating** • Investigate and evaluate a range of existing frame structures. • Critically evaluate the product made against design specification, intended user and purpose, identifying strengths and areas for development. • Research key events and individuals relevant to frame structures. **Technical knowledge and understanding** • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.

	Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.			
	Component: Textiles			
			2D shape to a 3D shape.	
	ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Weaving of natural materials and synthetic materials. Threading and exploring a range of textiles. Nursery- Explores how things work. Make marks with meaning.		**Designing** • Generate ideas through discussion and design criteria for an appealing product fit for purpose. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. **Making** • Plan the main stages of making. • Select and use a range of tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics. **Evaluating** • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original criteria and with the intended user. • Take into account the views of others. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. **Technical knowledge and understanding** • Know how to strengthen, stiffen and reinforce existing fabrics.	

	Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.		• Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances.	
			Component: Electrical Systems	
				More complex switches and circuits.
	ELG Creating with Materials. Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Talk about electrical products when arises through child led questioning /focus.			**Designing** • Use research to develop a design specification for a functional product that responds automatically to changes in the environment. • Generate and develop innovative ideas. Share and clarify these through discussion. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. **Making** • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select and accurately assemble materials. Securely connect electrical components to produce a reliable, functional product. • Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. **Evaluating** • Continually evaluate and modify the working features of the product to match the initial design specification.

	Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.			• Test the system to demonstrate its effectiveness for the intended user and purpose. • Investigate famous inventors who developed ground-breaking electrical systems and components. **Technical knowledge and understanding** • Understand and use electrical systems in their products. • Apply understanding of computing to program, monitor and control their products. • Know and use technical vocabulary related to the project.
	Component: Food Design			
		Preparing fruit and vegetables (including cooking).	Healthy and varied diet (including cooking).	Celebrating cultures and seasonality.
	ELG Creating with Materials Children at the expected level of development will: Share their creations, explaining the process they have used. Use age appropriate tools to cut a range of foods. Name and identify a range of food items including fruits and vegetables.	**Designing** • Design appealing products for a particular user based on design criteria. • Generate initial ideas and design criteria through investigating fruit and vegetables. • Communicate ideas through talk and drawings. **Making** • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables to create a chosen product. **Evaluating**	**Designing** • Generate and clarify ideas through discussion and develop design criteria for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate ICT to communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products. **Evaluating**	**Designing** • Generate ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches ICT to develop and communicate ideas. **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose.

	Nursery- Hold a pencil by the thumbs and 2nd and 3rd finger – static tripod grip to make marks. Eat independently using a knife and fork. Use one handed tools and equipment. Reception- Make healthy food and drink choices.	• Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. **Technical knowledge and understanding** • Understand where fruit and vegetables come from • Understand and use basic principles of a healthy and varied diet to prepare dishes, including *The eatwell plate*. • Use technical and sensory vocabulary relevant to the project.	• Carry out sensory evaluations of a variety of ingredients and products and record using e.g. tables and simple graphs. • Evaluate ongoing work and the finished product with reference to the design criteria. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	**Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking account of the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.
		Component: Make & Evaluate		
	Creating and thinking critically - *having their own ideas *using what they already know to learn new things * choosing ways to do things and finding new ways. Share their creations, explaining the process they have used. Nursery- Creates from imagination and observation. Displays emotions through their creations. Talks about what they have made. Reception- Talk about what they have produced and the process of creating it. Evaluate and improve what they have created. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context.	**Designing** • Generate ideas and explain what they could make. • Develop, model and communicate ideas through drawings and mock-ups with card and paper. **Making** • Plan: suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product **Evaluating** • Explore a range of products. • Evaluate their product by discussing how well it works in relation to the purpose Does it meet the design criteria?	**Designing** • Generate ideas through discussion with peers and adults to develop design criteria. • Use annotated sketches and appropriate information and technology to develop and communicate ideas. **Making** • Plan the main stages of creating the product. • Use appropriate tools with accuracy and control. • Select from a range of ingredients to make appropriate products, thinking about sensory characteristics. **Evaluating** • Carry out evaluations of final product. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	**Designing** • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project.

	Ask questions to find out more using who, when, where, why?			

Cycle B

Kagan Goals:

Know and demonstrate how PIES principles make a more effective learner.

Know and develop multiple intelligences of verbal/linguistic, visual/special, bodily/ kinaesthetic, interpersonal/ social intrapersonal/ Introspective.

Curricular Overview

Design & Technology

Curricular Goals:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Component: Mechanisms

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
New framework.	Mechanisms- wheels and axles		Mechanical systems-levers and linkages.		Pulleys or gears	
ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with design, texture, form and function; Share their creations, explaining the process they have used. Explore products / toys containing; cogs, gears, pulleys, levers and books containing lift the flaps.	**Designing** • Generate initial ideas and simple design criteria through talking. • Develop and communicate ideas through drawings and mock-ups. **Making** • Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining • Select from and use a range of materials and components such as paper, card, plastic and wood based on characteristics. **Evaluating** • Explore and evaluate products with wheels and axles. • Evaluate products against original criteria. **Technical knowledge and understanding**		**Designing** • Generate realistic ideas and own design criteria through discussion. • Use annotated sketches and prototypes to develop, model and communicate ideas. **Making** • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select and use finishing techniques. **Evaluating** • Investigate and analyse books and, where available others' products with lever and linkage mechanisms. • Evaluate products and ideas against criteria and the user's needs as designing and making. **Technical knowledge and understanding** • Understand and use lever and linkages. • Distinguish between fixed and loose pivots.		**Designing** • Generate ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. **Evaluating** • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.	

	Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.	• Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	• Know and use technical vocabulary relevant to the project.	• Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project. **Technical knowledge and understanding** • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project.
	Component: Structures			
	New Framework			

	ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Explore construction materials such as lego, duplo, knex, inter-star, building bricks. Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.			
	Component: Textiles			

		Templates and joining techniques		Combining different fabric shapes (including computer aided design).
	ELG Creating with Materials Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Weaving of natural materials and synthetic materials. Threading and exploring a range of textiles. Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen. Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care.	**Designing** • Design a product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate ideas through talking, drawing, templates, mock-ups and ICT **Making** • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. **Evaluating** • Explore and evaluate a range of existing textile products relevant to the project • Evaluate final products against original design criteria. **Technical knowledge and understanding** • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, and ribbons. • Know and use technical vocabulary relevant to the project.		**Designing** • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. **Making** • Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. **Evaluating** • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. **Technical knowledge and understanding** • A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate.

	Use tools efficiently and safely. Make and construct representations from observation and imagination.			
			Component: Electrical Systems	
			Simple circuits and switches (including programming and control).	
	ELG Creating with Materials. Children at the expected level of development will: Draw using a range of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used. Talk about electrical products when arises through child led questioning /focus Nursery- Explores how things work. Make marks with meaning. Represent and construct objects with a variety of materials. Creates from imagination and observation. Displays emotions through their creations. Explores how things work. Reception- Explores and asks questions about how things work. Identifies and interacts with technology that is around them. Make and construct representations from observation and imagination. Select materials and tools needed, explaining why they have been chosen.		**Designing** • Gather information about needs and wants; and develop design criteria. • Generate, develop, model and communicate ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. **Making** • Order the main stages of making. • Select and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use construction materials and electrical components based on functional properties and aesthetic qualities. **Evaluating** • Investigate and analyse a range of existing battery-powered products. • Evaluate ideas and products against design criteria and identify the strengths and areas for improvement in their work. **Technical knowledge and understanding** • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply understanding of computing to program and control products. • Know and use technical vocabulary relevant to the project.	

	Use specific vocabulary in appropriate context. Hold pencil using tripod grip to draw and write efficiently and with care. Use tools efficiently and safely. Make and construct representations from observation and imagination.			
	Component: Food Design			
		Preparing fruit and vegetables (including cooking)	Healthy and varied diet (including cooking)	Celebrating cultures and seasonality
	ELG Creating with Materials Children at the expected level of development will: Share their creations, explaining the process they have used. Use age appropriate tools to cut a range of foods. Name and identify a range of food items including fruits and vegetables. Nursery- Hold a pencil by the thumbs and 2nd and 3rd finger – static tripod grip to make marks. Eat independently using a knife and fork. Use one handed tools and equipment. Reception- Make healthy food and drink choices.	**Designing** • Design appealing products for a particular user based on design criteria. • Generate initial ideas and design criteria through investigating fruit and vegetables. • Communicate ideas through talk and drawings. **Making** • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables to create a chosen product. **Evaluating** • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. **Technical knowledge and understanding** • Understand where fruit and vegetables come from • Understand and use basic principles of a healthy and varied diet to prepare dishes, including *The eatwell plate*. • Use technical and sensory vocabulary relevant to the project.	**Designing** • Generate and clarify ideas through discussion and develop design criteria for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate ICT to communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products. **Evaluating** • Carry out sensory evaluations of a variety of ingredients and products and record using e.g. tables and simple graphs. • Evaluate ongoing work and the finished product with reference to the design criteria. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	**Designing** • Generate ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches ICT to develop and communicate ideas. **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking account of the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.
		Component: Make & Evaluate		
	Creating and thinking critically - *having their own ideas	**Designing** • Generate ideas and explain what they could make.	**Designing** • Generate ideas through discussion with peers and adults to develop design criteria.	**Designing** • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.

	*using what they already know to learn new things * choosing ways to do things and finding new ways. Share their creations, explaining the process they have used. Nursery- Creates from imagination and observation. Displays emotions through their creations. Talks about what they have made. Reception- Make and construct representations from observation and imagination. Talk about what they have produced and the process of creating it. Evaluate and improve what they have created. Select materials and tools needed, explaining why they have been chosen.	• Develop, model and communicate ideas through drawings and mock-ups with card and paper. **Making** • Plan: suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product **Evaluating** • Explore a range of products. • Evaluate their product by discussing how well it works in relation to the purpose Does it meet the design criteria?	• Use annotated sketches and appropriate information and technology to develop and communicate ideas. **Making** • Plan the main stages of creating the product. • Use appropriate tools with accuracy and control. • Select from a range of ingredients to make appropriate products, thinking about sensory characteristics. **Evaluating** • Carry out evaluations of final product. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	• Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project.

- Year 1/2 Mechanisms - Sliders and levers
- Year 1/2 Structures - Freestanding structures
- Year 1/2 Food - Preparing fruit and vegetables
- Year 1/2 Textiles - Templates and joining techniques
- Year 1/2 Mechanisms - Wheels and axles
- Year 3/4 Mechanical Systems - Levers and linkages
- Year 3/4 Mechanical Systems - Pneumatics
- Year 3/4 Structures - Shell structures using computer-aided design
- Year 3/4 Electrical Systems - Simple programming and control
- Year 3/4 Textiles - 2-D shape to 3-D product
- Year 3/4 Food - Healthy and varied diet
- Year 3/4 Structures - Shell structures
- Year 3/4 Electrical Systems - Simple circuits and switches
- Year 5/6 Food - Celebrating culture and seasonality
- Year 5/6 Textiles - Combining different fabric shapes
- Year 5/6 Structures - Frame structures
- Year 5/6 Electrical Systems - More complex switches and circuits
- Year 5/6 Mechanical Systems - Pulleys or gears
- Year 5/6 Mechanical Systems - Cams
- Year 5/6 Textiles - Using computer-aided design in textiles
- Year 5/6 Electrical Systems - Monitoring and control