Central RSA Academies Trust

Design Technology

Oldbury Park PRIMARY RSA ACADEMY

	Key concept/skills	What is the problem?	Knowledge/understanding	Key Vocabulary	Enquiry/Key questions/big ideas P4C questions	End points
EYFS						
1	*Design* *Make* *Evaluate* *Technical and practical* *Knowledge* Mechanisms …… Textiles –	Problems should be real and not contrived. Examples given are to represent a real event/purpose. *e.g. How do we make something move when designing and producing a Christmas/winter card (using a slider)* …… *e.g. We have no puppets for our theatre/storytelling, what can we do?*	Explore how mechanisms are used to make things move (sliders) Consider a range. Design ideas to solve the problem (link to art/literacy/RE) Choose materials and use them to make something move. (link to science – properties of materials) Share ideas and evaluate success of solving the problem. …… Consider a range – appearance, cost, materials, feasibility (link to maths, measuring, price) Design the appearance of the product. Test out the idea and adapt Cutting with scissors – safety/risk assess	Slider Lever Wheel axle materials select choose describe explain design plan problem range test adapt improve safe/safety risk fabric scissors knife cut/cutting	**Key questions** Where can we find examples as ideas? What is the problem to be solved? **P4C question** Is there a right way of doing something?	Children can talk about their designs and begin to evaluate their product. Describe, with correct vocabulary, how their product works. Explain why they made the choices they made.

	…… Cooking and nutrition	…… *e.g. We have harvested our vegetables/fruit. What shall we do with them now so we don't waste them? (fruit salad, soup)*	Use appropriate tools and materials including a range of fabrics Manipulate materials to achieve an outcome. Share ideas and evaluate success of solving the problem …… Understand where food comes from ground. Use the basic principles of a healthy and varied diet to prepare dishes.*(link with science - growing)* Consider a range of recipes *(link to reading)* Select a recipe to follow – prepare food. *(link to reading)* Cutting with a knife – safety and hygiene Make the dish *(link to science – heating)* Critique outcome	slice fruit vegetables		
2	*Design* *Make* *Evaluate* *Technical and practical* *Knowledge* Structures	Problems should be real and not contrived. Examples given are to represent a real event/purpose. *e.g. The candle stick/holder for our Christmas candles can't be found. Can we make one?*	Explore a range of products, considering shape, strength, safety etc. Experiment with structures to make them stronger/safer from a wide range of materials according to their properties. (link to science – use of every day materials). Design the appearance of the product. Select from and use materials according to properties. Use appropriate tools to cut, shape, join and finish. Test out the structure for strength, balance, durability, and safety. Make adaptations if necessary.	As year 1 plus … strong strength strengthen safe properties join justify decision balance durable durability adaptation weaving printing fixings collaborate tools	**Key questions** Why are different types of fruit successfully grown in different countries? Does it matter how fruit is cut up? What do we need to remember to stay safe? Are the materials suitable to solve the problem?	Evaluate the effectiveness of a material and identify how a structure can be made stronger and more stable. Explain why particular materials have been selected for a specific purpose according to their properties.

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	…… Textiles …… Cooking and nutrition	…… *e.g. Early Years need an area of shade in their outdoor area. It will need to be attached to… and they enjoy bright colours.* …… *e.g. There will be an end of year picnic this year but we have no food. We will need to make our own. How shall we do that?*	…… Research sails, shelters etc made using types of fabric. (link to science – properties of materials) Design the appearance of the product and decoration (link to art - printing) Investigate using a range of materials and fixings. (link to environment – recycle/reuse) Experiment with decoration ideas (link to art) Adapt the design as a result of tests Use appropriate tools and materials including a range of fabrics. Work with a range of different fabrics and be able to weave and thread. Evaluate final piece against the brief. …… Investigate where some varieties of fruit come from. (link to geography – countries/continents, science - weather) Using senses, test out a variety of fruits for taste and texture. Experiment with ways of cutting fruit for suitability of eating and appearance. (link to art – still life drawing/painting) Design a fruit salad using 3 types of fruit chosen from the investigation of suitability and taste. Make the dish. Investigate sandwich fillings considering healthy options. Plan the making of a sandwich (link to literacy – instructions/recipes) Practice spreading and cutting. Select the appropriate tools and make a sandwich following the exact instructions. Evaluate the success of finished item in a group. Make suggestions of any improvements.	brief thread needle spread/spreading/ spreadable sandwich fruit cooking cake measure weight stir taste sweet sour savoury ingredients mix/mixing recipe healthy	How can we use KASE to support the learning? **P4C question** Is it ever wrong to eat fruit?	Demonstrate appropriate choices through final design and makes. Use the basic principles of a healthy and varied diet to prepare dishes – explain choices.

			Explore a range of simple recipes -bread/cake. (link to literacy – following and writing instructions Use scales and every day containers to practice estimating, measuring amounts (link to maths – capacity and measure) Make a cake/loaf of bread by following a recipe accurately. Evaluate the end-product with peers.			
3	*Design* *Make* *Evaluate* *Technical and practical Knowledge* Textiles project …… Mechanisms – can include programming	Problems should be real and not contrived. Examples given are to represent a real event/purpose. *e.g. Needles often get lost and can cause injury if dropped and then stood on. We need to design and make a needle case to keep them safe.* …… *e.g. Easter Egg delivery transportation - How can I make a*	Research a variety of fabric products. Understand the difference between stitching for joining and for decoration Practice threading different sized needles with a variety of threads. Create test pieces for joining fabrics. Which thread is strongest and most suitable? Design the product. Annotate the sketches. Design a simple motif for the front of the product. Select suitable fabrics for the different parts of the product, cut fabric accurately and make up the design using stitching. Evaluate the strength of sewing to join, accuracy of cutting and aesthetics of motif design. …… Investigate pulleys used in real life and how they work. Make a pulley as a prototype. Evaluate and make adaptations.	As key stage 1 plus… Stitch/ stitching motif pulley gear dice peel chop movement mechanism textiles Computer programming	**Key questions** How does looking after the planet influence decisions on food choices? Are the tasks undertaken real and relevant? **P4C question** Is it ever good for you to eat chocolate?	Thread a needle Independently Demonstrate at least one basic stitch. Design and evaluate a product – identify how it can be improved. Demonstrate knife skills for slicing and/or dicing and peeling.

	(link with computing) …….. Cooking and nutrition	*reliable a vehicle that will carry an Easter egg?* ……. e.g. We have been asked to make a hot, healthy lunch for … but have to spend less than £1.00 per on the ingredients.	Design a product that can carry and move an object from one place to another by using a pulley system. Consider choices of materials to suit the purpose in the design. Use appropriate materials and use tools accurately and effectively to create the product. Test out the product and evaluate its success. Lego Wedo which runs a motor that could be used. …….. Research a selection of healthy seasonal produce and prices. (link to maths) Design a dish that will come within the costs and write a recipe including utensils ingredients, method and cooking time. Refine basic knife skills for slicing and peeling and safety understanding. Make the healthy savoury dish according to the recipe. Evaluate the dish in terms of taste, knife skills and costs.			
4	*Design* *Make* *Evaluate* *Technical and practical* *Knowledge* Structures	Problems should be real and not contrived. Examples given are to represent a real event/purpose. e.g. We need to help out Year 3 who need an indoor structure to use as a dark room so they can investigate light.	Give opportunities to erect various tents. Investigate how they maintain strength and stability. Consider shape and anchorage. Investigate fixings and materials that are opaque. (applying science knowledge from Year 3) Consider which design is most appropriate for the purpose. (link to maths – nets)	All previous vocabulary plus… Erect Assemble Disassemble Complex Equipment Circuit Switch Bulb Graphic design Linkage prototype	**Key questions** Are children learning practical skills? Are there opportunities to apply previous learning? **P4C questions** Who is responsible when	Carefully design a successful product to solve a problem. Produce annotated designs to add clarity Test and evaluate what they have built.

			Design a structure to meet the criteria. Annotate to add clarity and accuracy. Add an additional complexity – e.g. pulley/lever to open door (applying previous learning) ***Could use graphic design program*** Apply knowledge of understanding of how to strengthen structures and make a structure that will accommodate two children. Select from a range of tools and equipment. Test out structure and improve design and product. Evaluate the effectiveness of their own and others' work.		someone succeeds?	Explain their choices and how it meets the brief. Critically evaluate their own and others work.
	…… Mechanisms - can include programming (link with computing) …… Cooking and nutrition	…… e.g. We need to make some money for school fund. Make a Christmas decoration that lights up to sell at the Christmas fair. …… e.g. make a healthy meal to take home for your family within a budget. (e.g. meat/fish/ vegetable pasta bake and salad, baked potato with filling and salad,	…… Research a wide variety of Christmas decorations that can light up. (link to SMSC, RE, Geography) Design a decoration that can be reused year on year. Consider durability, materials, aesthetics and how it will light up. (link to science – electricity) Apply knowledge of various circuits with bulbs and switches. Make a prototype. Evaluate design and adapt. "Crumbleboard" could be used -Crumble software is free, very similar to Scratch Select materials, tools and circuits to meet the brief. Consider the finish as needs to be saleable. Test final piece and improve. Peer evaluation of success against the brief. Write up evaluation. (link to English) …… Investigate nutritional value of food groups. Research healthy one pot recipes. Apply knowledge and debate to select a recipe to use. Work out proportions and amounts. (link to maths – 4 rules) Consider methods of cooking and how to handle meat safely. Consider allergies. Consider principals of a healthy and varied diet. Design a salad as a side dish. Write a shopping list and shop for the ingredients. Follow the recipe step by step and make a one pot meal.			Wider range of knife skills to prepare food. Experimenting with a range of cooking techniques for effect. Visit a shop/market to buy ingredients for a family meal. By the end of LKS 2 children should have had the opportunity to use computer programming.

		toad in the hole and salad)	Make a salad side dish using more precise knife skills.			
5	*Design* *Make* *Evaluate* *Technical and practical* *Knowledge* Mechanisms …… Textiles project – Graphic design	Problems should be real and not contrived. Examples given are to represent a real event/purpose. e.g. imagine you are part of the road building team in England during the Roman occupation. How will you move all the materials to the places that you need them? (link to history – Roman Empire) …… e.g. design a panel for a plain cushion for your bedroom.	Understand the mechanics of how things move (gears, pulleys, cams, levers and linkages) and choose the most appropriate mechanism for the product they are developing. Investigate a range of mechanisms for different purposes. Research materials in order to make choices of mechanisms required do the job efficiently. Design a prototype using a combination of at least two mechanisms (gears, pulleys - building on from previous learning, cams, levers, linkages) Annotate and label cross-sectional design clearly. Make the prototype and test out. Evaluate and make adaptations to the design before making the final piece. Make the combination of mechanisms to move materials. (link to geography – areas). Will the mechanism move materials up and down hill? Write a written evaluation of success. (link to English – non chronological reports) …… Gather knowledge of design of fabrics. Consider environment – recyclable, re-useable, non-toxic. Explore different dying and printing techniques on a range of fabrics by analysing a range of existing products (link to science – properties of	All previous vocabulary plus … Cam combination cross-section embellishment reusable recycle toxic dye sauce herbs spices local locality seasonal	**Key Questions** Where are different mechanisms used in real life? How can we use more sustainable materials? **P4C** Philosophy for Global Learning tried and tested stimuli	Produce a working, moving product which utilising a range of mechanisms. Explain how choices of material's use impacts on the planet. Demonstrate various forms of stitching and explain their use – embellishment of fixing Design and prepare a simple lunch, making a sauce.

		Respond to a social problem.	materials and art – printing and dying, textile designers) Investigate how fabrics can be joined to each other using a range of stitching. Design a pattern which involves dying and/or printing in it. Make a paper pattern for the item. Select an appropriate fabric for the purpose and cut according to the pattern. Consider strength and durability when selecting fabrics and fixings. Carry out dying/printing on the fabric. Attach using the selected, appropriate stitching to embellish – incorporated into the design. Evaluate the product for durability, environmentally friendly and aesthetics. Present the finished product to a group with evaluation. (oracy)			
	…….. Cooking and nutrition	…….. e.g. We are going to hold a Year group lunch. We need to make it from local produce including a sauce. (e.g. cauliflower cheese, and a baked potato, creamed mushrooms on toast)	…… Investigate seasonal, local produce. (Link to science weather and geography – locality) Consider how the use of herbs and spices can impact the flavour of food. Consider allergies and food hygiene. Investigate simple sauces. Explore the impact on flavour of a variety of herbs and spices. Design a sauce to go with selected ingredients. Make the sauce and evaluate – make adaptations. Make a basic sauce to combine with seasonal ingredients. Add selected herbs and/or spices to enhance flavour. Set a table with appropriate cutlery, glass, napkin etc.			
6	*Design* *Make* *Evaluate* *Technical and practical* *Knowledge*	Problems should be real and not contrived. Examples given are to represent a real event/purpose.		All previous vocabulary plus … structural component	**P4C questions** Is it ever OK to eat meat?	Research, design, test, make a product and evaluate the effectiveness of it.

	Electrical / structural construction Programming …… Cooking and nutrition	*e.g. I have a secret cupboard that I keep my precious things in. I am worried that someone may find them without me knowing. Can you design and build a "safe box" with an alarm system to warn if anyone is trying to see inside?* …… *e.g. Let's design and cook a leaver's lunch to share with our parents.*	Understand and use electrical systems in their products (switches, bulbs, buzzers, motors). Investigate how to safely embed electrical circuits within a designed structure which maintains its aesthetic features. Make decisions on the use of appropriate materials according to their properties. (link to science) Consider how computer programming can benefit the design and use of the product. (Link to computing - Flowgo boxes can be used to connect components to) Design a box to hold a precious item. Design an alarm system. Consider the aesthetics of the box and the secrecy of the alarm. Design an opening mechanism – building on previous learning e.g. gears. Make prototypes of each component – box, alarm system, opening and closing mechanism. Use computer programming. Evaluate and adapt the design. Make final product. Peers evaluate against the brief. …… Exploration of meat alternatives. Research a healthy meal combining learned skills to produce a healthy meal of their choice including sauces, meat, vegetables, salad, fruit. Consider allergies, preferences and hygiene. Research simple table decorations. Design a table decoration. (link to art – developing and refining ideas) Create/select recipes according to decisions and preferencesand write shopping list of ingredients. (link to maths – quantities) Invite parents (link to English – writing for a purpose and audience)	alarm		By the end of UKS2 all children will explain their choice of how computer programming can be used in design. Presentation about design and choices for a health meal, considering the client.

			Make table decoration and set the table using the decoration. Follow design and recipes to make a healthy meal for 2/3. Evalaute work against the design and brief.			