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Beit Shvidler Primary School

DESIGN TECHNOLOGY LEARNING JOURNEY

TRANSITION TO SECONDARY

YEAR 6

Burgers

Anderson Shelters

Build a Bear

Fashion and Textiles

Building Bridges

YEAR 5

Chinese inventions

Purses

If you were an engineer what would you do?

Seasonal Food

YEAR 4

Story Books

British Inventors

Shadow Theatre

YEAR 3

Perfect Pizzas

YEAR 2

Puppets

Vehicles

Stable Structures

Moving Minibeasts

YEAR 1

Eat More Fruit and Vegetables

Designing & making. Cookery

Textures & Materials

EYFS

Topic		Core Coverage
Early Years		
		Handle equipment and tools effectively, including pencils for writing. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Use what they have learnt about media and materials in original ways, thinking about uses and purposes. Represent own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories. Understand basic food preparation and how to make an activity safe and hygienic.
Year 1	**Eat More Fruit and Vegetables**	Name a variety of fruit and vegetables. Use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables. Understand basic food hygiene. Use a knife, grate and peel safely.
	Stable Structures	Identify the features of toy garages. Know what the word 'stable' means. Make changes to the design of a stable structure to make it fit for purpose. Explore a range of materials and evaluate the usefulness of their properties for a particular project. Explore how to make stable structures that hold a given object. Follow a design to make a stable structure. Evaluate my finished structure against a set of given criteria. Know some ways to make a structure more stable.
	Moving Minibeasts	Make sliding machines out of card. Know what a pivot and lever are. Use a pivot and lever mechanism using card and a split pin. Make a wheel mechanism using card and a split pin. Match a mechanism to the type of movement they produce. Design a moving minibeast picture to include a variety of moving mechanisms. Follow a design to crate a moving minibeast picture for a particular purpose. Evaluate a finished moving minibeast picture by identifying things that worked well and things that can be improved.
Year 2	**Puppets**	Explore a variety of puppets, identifying and labelling their features. Cut out felt using a simple template. Stick pieces of felt together to make a finger puppet. Add pieces of felt and other materials to a finger puppet to create features. Use a running stitch to join two pieces of fabric together. Use an overstitch to join two pieces of fabric together. Sew a button onto a piece of fabric. Design a glove puppet for a particular purpose. Follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations. Evaluate a finished glove puppet by identifying what went well and what can be improved.
	Vehicles	Investigate a range of vehicles identifying and labelling their features. Know what an axle and a chassis is. Explore different ways of using axles, chassis and wheels to create a moving base. Design a vehicle with wheels, axles, and chassis as well as a body. Follow and evaluate a design to make a moving vehicle.
	Perfect Pizzas	Name a variety of pizza toppings. Use the model of the balanced plate to evaluate how healthy different pizzas are. Explore different types of bread and evaluate which would work best for a pizza base. Identify which food group a variety of pizza toppings belong to. Sort pizza toppings into groups based on different criteria, eg. animal vs. plant products. Explain why each of the food groups is important for a balanced diet. Design and make a healthy pizza following given criteria. Evaluate a finished pizza, giving opinions.
Year 3	**Storybooks**	Explore the moving parts in storybooks, suggesting how they work and what purpose they serve. Explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean. Use a paper concertina to make an object pope out of a book. Arrange and stick paper between pages to create a pop out. Use levers to create moving parts. Create moving wheel mechanisms to create different effects. Experiment with different fonts and graphic design features. Design the pages of a storybook to include moving mechanisms and appropriate graphic features.

		Follow designs to create a storybook with moving mechanisms. Evaluate how well moving mechanisms work. Evaluate the overall effectiveness of a storybook.
	British Inventors	Explain how concrete is used to make it more stable. Create a structure strong enough to hold a dictionary using just newspaper and tape.
	Light Up Signs	Explore and analyse illuminated signs. Create a simple circuit with incandescent bulbs and a switch. Describe the difference between an LED and an incandescent light bulb. Create a simple circuit with an LED bulb and a resistor. Make a circuit with a string of LED lights. Design an illuminated light box against a set of design criteria. Select materials, tools and components to create a free standing structure. Make a stable, free standing structure to house an electrical circuit. Strip, twist, and join wire to make permanent connections. Insert an electrical circuit into a free standing structure to create an illuminated light box. Evaluate the effectiveness of a finished product against design criteria.
Year 4	**Pencil Cases**	Investigate a range of pencil cases. Practise and compare sewing stiches. Investigate ways of opening and closing pencil cases. Sew embellishments to a piece of fabric. Design a pencil case. Make and evaluate a pencil case based on a design.
	Making Mini Greenhouses	Know what a greenhouse is and how they work. Explore a range of different greenhouses. Know how greenhouses are used today. Explain how the shape of a structure affects its stability. Know that the weight of a structure needs to be evenly spread on the base to make it secure. Know that the wider a structure's base is, the more stable it will be. Use 3D nets to explore potential structures for a greenhouse, assessing their stability. Investigate ways of making a structure more stable. Experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse. Design a mini greenhouse using specific design criteria. Select appropriate tools and materials to make a mini greenhouse. Follow a design and evaluate a finished product for stability, effectiveness and visual appeal.
	Seasonal Food	Explain what 'seasonal food' means. Know that different parts of the world have different seasonal food and discuss the benefits and problems of unseasonal food being available in shops all year round. Know that some foods, like wheat, are available all year round in the UK. Practise cooking skills including slicing, dicing, beating, whisking, folding sieving, rolling and grating. Follow a recipe to make fairy cakes, fruit tarts, meatballs and stuffed peppers. Describe the cycle of wheat production in the UK. Distinguish between fruits that are grown in the UK and those that re grown abroad. Know how food producers can speed up or slow down the ripening process. Know some of the nutrients we get from fruits, vegetables, meat fish and dairy products. Know when certain meats are in season in the UK and which are available all year round. Know some vegetarian options that provide the same nutrients as meat. Explain how fish are caught or reared, processed and used in healthy meals. Design a healthy meal and menus.
Year 5	**Building Bridges**	Know what beams and pillars are and how they are used in bridge constructions. Predict which beams will be strongest from their cross section. Test the strength of different beam shapes using paper and card. Explain what a truss is and how trusses make bridges stronger. Identify the three types of trusses commonly used in bridge design. Build a truss bridge spanning a width of 40cm using paper straws. Use a fair test to evaluate the strength of my truss bridge. Explain how arches work to make bridges stronger. Test the archetypes to see which can bear the most load. Make an arch frame. Explain how suspension bridges use tension forces to work. Design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.
	Chinese Inventions	Explore how different transmissions create different movements. Use a crank to change the motion on a transmission from circular to linear motion.
	Fashion and Textiles	Explain the process of turning raw cotton into cloth. Know that products that are woven together are called textiles. Know that different textiles have different properties and can match thee to their purpose. Identify straight stitch, zigzag stich, whip/blanket stitch, blind stitch, buttonhole stitch and overlock strict on a variety of ready-made garment. Describe what the job of a fashion designer entails. Sew a basting stitch, whip stitch, a hem, back stitch, an applique decoration.

		Use back stitch to embroider. Know what a pattern piece is and why they are important when designing a garment. Design a drawstring bag, including the necessary pattern pieces. Use pattern pieces to measure, mark, cut and sew fabric. Sew design elements according to design criteria. Join two pieces of fabric by hand sewing, using an appropriate stitch. Evaluate a finished product against a set of design criteria.
Year 6	**Programming Pioneers**	Explain how computers and computer programs are used in a variety of products. Explain how modern memory chips work to store information. Write an algorithm to suggest how various appliances might work. Know what a computer engineer is and what they do. Describe some examples of how computer hardware and software specialists work together to create new products. Develop and build prototype pedestrian crossing using computer programming. Develop, model and communicate ideas for an embedded system which monitors and controls a door, room or both. Describe the typical design process for computer controlled electronic products. Debug errors in an algorithm. Suggest ways to change an algorithm to improve to improve a system. Select and use electronic components to construct a prototype of an embedded computer controlled room system. Evaluate a design for a computer controlled system and consider the views of others to improve work. Know that Charles Babbage created the first mechanical computer. Know what Ada Lovelace is referred to as the worlds first computer programmer. Know that Steve Jobs and Steve Wozniak co-founded Apple Inc to make the first Apple computers.
	Anderson Shelters	Use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market. Use their knowledge of a broad range of existing products to help generate their ideas. Design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user. Explain how particular parts of their products work. Use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas. Generate a range of design ideas and clearly communicate final designs. Consider the availability and costings of resources when planning out designs. Work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment. **Planning** Independently plan by suggesting what to do next. With growing confidence, select from a wide range of tools and equipment, explaining their choices. Select from a range of materials and components according to their functional properties and aesthetic qualities. Create step-by-step plans as a guide to making. **Practical skills and techniques** Learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures. Independently take exact measurements and mark out, to within 1 millimetre. Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components. Cut a range of materials with precision and accuracy. Shape and score materials with precision and accuracy. Assemble, join and combine materials and components with accuracy. Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product. Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch. refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape. Critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make. Evaluate their ideas and products against the original design criteria, making changes as needed. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products.
	Burgers	Know that most foods have nutrition labels to help make informed choices about what we eat. Know that calories come from fats, proteins, and carbohydrates. Evaluate how healthy a burger is based on its nutrition label. Compare different burgers and assess which is healthiest. Explain some of the different ways in which burger patties are cooked. Follow a recipe to make a beef, turkey or vegetable burger. Add ingredients to a basic burger to reflect global cuisine. Follow a recipe to make different burger sauces. Design a burger menu to incorporate different patties, sides and sauces. Explore taste and asses different types of bread and their suitability for a burger bun. Offer suggestions for alternatives for bread. Add mixtures of herbs and spices to a bread dough recipe to make flavoured burger buns. Design a burger for a particular purpose. Deign a burger for someone with particular dietary requirements. Make and evaluate a burger, following a recipe and design.