Watchfield Primary School – DT topics overview Updated Nov 25

	Autumn	Spring	Summer
Y1/2 (A)	Textiles – hand puppet **Project Outcome:** Explore methods of joining fabric. Design and make a character-based hand puppet using a preferred joining technique, before decorating. **Key knowledge:** • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.	Mechanisms – moving vehicle **Project Outcome:** Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle. **Key knowledge:** • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move it must be attached to a rotating axle. • To know that an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced. • To know some real-life items that use wheels.	Cooking – healthy wrap **Project Outcome:** Design and make a healthy wrap **Key knowledge:** • Name the main food groups and identify foods that belong to each group. • Describe the taste, texture and smell of a given food. • Think of four different wrap ideas, considering flavour combinations. • Construct a wrap that meets the design brief and their plan.
Y1/2 (B)	Mechanisms - moving monsters **Project Outcome:** Explore levers, linkages and pivots through existing products and experimentation; use this research to construct and assemble a moving monster. **Key knowledge:** • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and an output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.	Cooking – fruit kebabs/smoothies Y1: fruit kebab (no Kapow planning) (fruit or veg) NB - no Kapow planning – use Y2 KO; some other resources maybe transferrable. Y2: smoothies/juicing (fruit or veg) **Project Outcome:** Learn to distinguish between fruit and vegetables and where they grow. Design a fruit and vegetable smoothie and accompanying packaging. **Key knowledge:** • To understand the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant.	Structures – constructing a windmill **Project Outcome:** Inspired by the song, 'Mouse in a windmill', design and construct a windmill for a client (mouse) to live in. Explore various types of windmill, how they work and their key features. **Key knowledge:** • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.

	Autumn	Spring	Summer
Y3/4 (A)	Textiles – fabric book covering **Project Outcome:** Analyse and evaluate a range of existing fastenings, then devise a list of design criteria to design, generate templates and create a fabric book covering **Key knowledge:** • To know that a fastening is something that holds two pieces of material together. • To know that different fastening types are useful for different purposes. • To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.	Cooking – seasonal tart **Project Outcome:** Create seasonal vegetable tart **Key knowledge:** • To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food that has been brought into the country.	Structures - shaduf **Project Outcome:** Design a shaduf – a hand-operated device used to lift water from the Nile. **Key knowledge:** • To understand what a frame structure is. • To know that a 'free-standing' structure is one that can stand on its own.
Y3/4 (B)	Mechanisms - pneumatic toy **Project Outcome:** Explore pneumatic systems, then apply this understanding to design and make a pneumatic toy including thumbnail sketches and exploded diagrams. **Key knowledge:** • To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.	Structures - pavilion **Project Outcome:** Design a pavilion; create a frame structure and add cladding **Key knowledge:** • To understand what a frame structure is. • To know that a 'free-standing' structure is one that can stand on its own. • To know that a pavilion is a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks.	Cooking – biscuits **Project Outcome:** Work in groups to adapt an existing biscuit recipe, whilst takin into account the cost of the ingredients and other expenses against a set budget **Key knowledge:** • To know that the amount of an ingredient in a recipe is known as the 'quantity'. • To know that it is important to use oven gloves when removing hot food from an oven. • To know the following cooking techniques: sieving, creaming, rubbing method, cooling. • To understand the importance of budgeting while planning ingredients for biscuits.

	Autumn	Spring	Summer
Y5/6 (A)	Structures – Bridges **Project Outcome:** Test and analyse various types of bridge to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge. **Key knowledge:** • To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on their properties. • To understand the material (functional and aesthetic) properties of wood.	Mechanisms - Pop-up book **Project Outcome:** Create a functional four-page pop-up storybook design, using lever, sliders, layers and spacers to create paper-based mechanisms. **Key knowledge:** • To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms. • To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	Cooking - scones **Project Outcome:** Adapt an existing recipe, taking account of dietary needs and preferences **Key knowledge:** • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can adapt a recipe to make it suitable for people with food allergies/intolerances. • To know that I can use a nutritional calculator to see how healthy a food option is.
Y5/6 (B)	Textiles - stuffed toy **Project Outcome:** Design a stuffed toy and make decisions on materials, decorations and attachments (appendages), after learning how to sew a blanket stitch. **Key knowledge:** • To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	Structures – Photo frame NO KAPOW PLANNING **Project Outcome:** Design a free-standing photo frame **Key knowledge:** • To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce corners. • To understand why material selection is important based on their properties. • To understand the material (functional and aesthetic) properties of wood.	Cooking – redesign bolognaise sauce **Project Outcome:** Discover the farm to fork process, understand the key welfare issues for rearing cattle. Compare the nutritional value of existing sauces and develop a healthier recipe. **Key knowledge:** • To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.