Structure							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Design	**CL** •Begin to use the language of designing and making, e.g. join, build and shape. **CoeL** •Learning about planning and adapting initial idea	• Learning the importance of a clear design criteria • Including individual preferences and requirements in a design	• Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in the natural world and in everyday objects	• Designing a castle with key features to appeal to a specific person/purpose • Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials need and colours • Designing and/or decorating a castle tower on CAD software	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Building frame structures designed to support weight	• Designing a stable structure that is able to support weight • Creating frame structure with focus on triangulation	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs
Make	**EAD** •To learn to construct with a purpose in mind. - Selects tools and techniques needed to shape, assemble and join materials.	• Making stable structures from card, tape and glue • Following instructions to cut and assemble the supporting structure of a windmill • Making functioning turbines and axles which are assembled into a main supporting structure	• Making a structure according to design criteria • Creating joints and structures from paper/card and tape	• Constructing a range of 3D geometric shapes using nets • Creating special features for individual designs • Making facades from a range of recycled materials	• Creating a range of different shaped frame structures • Making a variety of free standing frame structures of different shapes and sizes • Selecting appropriate materials to build a strong structure and for the cladding • Reinforcing corners to strengthen a structure	• Making a range of different shaped beam bridges • Using triangles to create truss bridges that span a given distance and supports a load • Building a wooden bridge structure Independently measuring and marking wood accurately • Selecting appropriate tools and equipment for particular tasks • Using the correct	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures • Measuring, marking and cutting wood to create a range of structures • Using a range of materials to reinforce and add decoration to structures

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Evaluation	**CL / EAD** •Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Exploring the features of structures • Comparing the stability of different shapes • Testing the strength of own structures • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of o	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design • Suggesting points for modification of the individual designs	• Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective • Considering effective and ineffective designs	• Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges and those designed by others	• Improving a design plan based on peer evaluation • Testing and adapting a design to improve it as it is developed • Identifying what makes a successful structure
Technical knowledge	**PD / EAD** •To learn how to use a range of tools, e.g.	Describing the purpose of structures, including windmills	• Identifying natural and man-made structures	• Identifying features of a castle	• Learning what pavilions are and their purpose	• Exploring how to create a strong beam Identifying arch and beam	• Knowing that structures can be strengthened by

	scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. •Learn how everyday objects work by dismantling things.	• Learning how to turn 2D nets into 3D structures • Learning that the shape of materials can be changed to improve the strength and stiffness of structures •Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses •Understanding that windmill turbines use wind to turn and make the machines inside work •Understanding that axles are used in structures and mechanisms to make parts turn in a circle • Developing awareness of different structures for different purposes	• Identifying when a structure is more or less stable than another • Knowing that shapes and structures with wide, flat bases or legs are the most stable •Understanding that the shape of a structure affects its strength • Using the vocabulary: strength, stiffness and stability • Knowing that materials can be manipulated to improve strength and stiffness • Building a strong and stiff structure by folding paper	• Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension • Extending the knowledge of wide and flat based objects are more stable •Understanding the terminology of strut, tie, span, beam •Understanding the difference between frame and shell structure	• Building on prior knowledge of net structures and broadening knowledge of frame structures • Learning that architects consider light, shadow and patterns when designing • Implementing frame and shell structure knowledge • Considering effective and ineffective designs	bridges and understanding the terms: compression and tension • Identifying stronger and weaker structures • Finding different ways to reinforce structures •Understanding how triangles can be used to reinforce bridges • Articulating the difference between beam, arch, truss and suspension bridges	manipulating materials and shapes • Identifying the shell structure in everyday life (cars, aeroplanes, tins, cans) •Understanding man made and natural structures