Year Group: 2	Unit: Freestanding Structures
National Curriculum Aims The national curriculum for design and technology aims to ensure that all pupils: ➢ 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	**Technical knowledge** ➢ build structures, exploring how they can be made stronger, stiffer and more stable **Product Outcome** Design and make a 3D castle using joining techniques.

Prior Learning: Experience of using construction kits to build walls, towers and frameworks. Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. Experience of different methods of joining card and paper

Curriculum	Learning Intention/possible activities	Knowledge and Key Vocabulary
Investigate and Evaluate ➢ explore and evaluate a range of existing products	**What shapes and special features do castles have?** Examine pictures of Castles. Identify 2D and 3D shapes seen on the photographs of castles. Identify key features of turrets, towers, walls (including shapes of battlements) and the drawbridge (including how hinges /metal chains allows the drawbridge to be pulled up).	**Knowledge:** - Know that a freestanding structure stands on its own foundation or base without attachment to anything else. - Name and explain at least three joining/attachment techniques (tabs, flange, slot, L-brace) - Know that a buttress is a structure added to a wall, tower or framework to make it more stable and/or reinforce it. - Know and explain how bricks can be arranged to make a strong wall (brick bonding)
Design ➢ design purposeful, functional, appealing products for themselves and other users based on design criteria ➢ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	**How can we make sure our castle will not fall over?** Build with and explore a variety of freestanding structures using construction kits, such as wooden blocks, interconnecting plastic bricks and those that make frameworks **What key features will I include in my freestanding castle?** Design a castle using set criteria. The castle must have 2 turrets and a wall. The turrets must fix to a base. The wall must fix to each turret and include key features such as arrow slits, battlements, an opening door and a drawbridge.	**Vocabulary:** cut, fold, join, fix structure, buttress, brick bonding, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function, stability

Make ➢ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ➢ select from and use a wide range of materials and components, including construction materials, textiles according to their characteristics	**How can I make towers and turrets?** Create a cylinder from a piece of paper and fasten using tape. Make a cylinder stand by cutting the bottom into a fan and gluing to a surface. **How can I connect walls and turrets?** Understand why castles have tooth shaped walls and I can cut that pattern on paper. Connect walls using flaps. **How can I make a working drawbridge?** Understand why castles have drawbridges. Use masking tape to connect two materials together and create a hinge. Use a pencil and playdough to create a hole in card. Create a model drawbridge. **Can I make a freestanding castle with an opening door and a working drawbridge?** Create a castle (following a design) with several features using DT skills. Demonstrate cutting, shaping, joining and finishing techniques with a range of tools to use to make their structures. Discuss the suitability of materials for their products according to their characteristics.	
Evaluate ➢ evaluate their ideas and products against design criteria	**How can I improve my castle structure?** Evaluate product and explain why I have built it that way, reflecting on where improvements could be made.	

Thinking Deeper: What would a modern-day castle look like? What would you include/not include?

Links to other subjects:

- Subject Specific links- Mathematics – use appropriate standard and non-standard measures. Recognise and name common 2-D and 3-D shapes. • Science – think about the properties of materials that make them suitable or unsuitable for particular purposes. • Spoken language – ask relevant questions to extend their knowledge and understanding. Build technical vocabulary. History (castles)
- Personal Development – teamwork, building resilience when ideas do not work straight away,
- SMSC – social – working with others, offering and receiving feedback on designs and products
- Cultural Capital – gaining knowledge of the structures in our local area
- Careers – architects, builders
- British Values – Discussion of monarchy and who lives in a castle – why were castles built?
- Equality – whilst working in a pair, ensure turns taken and ideas are listened to. Respect the ideas of others.