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| What? (Key Knowledge) |
| Prior Learning |
| - Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. - Basic understanding of what structures are and how they can be made stronger, stiffer and more stable. |
| Designing |
| - Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. - Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. - Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.  |
| Making |
| - Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. - Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. - Use finishing and decorative techniques suitable for the product they are designing and making. |
| Evaluating |
| • Investigate and evaluate a range of existing frame structures. - Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. - Research key events and individuals relevant to frame structures. |
| Technical knowledge and understanding |
| - Understand how to strengthen, stiffen and reinforce 3-D frameworks. - Know and use technical vocabulary relevant to the project. |
| Possible Experiences |
| Design, make and evaluate a Mangonel Catapult.See the source image Focus on :Measuringstrength and stability**What is the purpose of a Roman Catapult?** |
| What? (Key Vocabulary) |
| Spelling | Definition / Sentence |
| Ballista | Type of catapult that works a little like a crossbow |
| Trebuchet | Catapult that uses a counterbalanced weight to fling the object forward |
| Mangonel | Catapult that uses a bucket and long wooded arm to fling the object forward |
| Onager | Similar to a Mangonel, but uses a sling to throw items |
| Prototype | a first or preliminary version of a device or vehicle from which other forms are developed. |
| Triangulation | the use of triangular shapes to strengthen a structure.  |
| **Diagrams**  |
| <- Prototype of catapult |