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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 :  Measuring  strength 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 | |