

Engineering Bridge Design Y8

week	Curriculum Overview Bridge Design
1	To explain the layout of the design graphics room and workshop. To introduce, discuss and recap on Health and Safety issues. To recap from Y7 of expectations for working in a practical environment. To explain and apply health and safety practices used. To develop skills in research and analysis. Next stage from Y7
2	To recognise how research and analysis can be used engineering principles. To discuss how research can be used in a design process. To Develop drawing skills by new 3D drawing techniques. How to use freehand perspective and isometric sketching.
3	To introduce bridge design brief. Introduce and explain research and analysis material for consideration. To present information in an informative and creative way. Use analysis to benefit a design process and improve knowledge around structures and forces.
4	Using research and analysis to inspire practical and creative thinking. To apply design principals around structures and forces to create a strong and stable structure. To create design concept ideas through visual communication. 2D drawing techniques. Understanding of structures. Understanding of forces.
5	To Discuss and explain development of design from concept ideas. Demonstrate an understanding of how to refine concept thinking and develop subject knowledge regarding engineering. Visually communicate development ideas through refined drawing techniques. How to use elevations in design How to use 3D isometric projection.
6	To plan a sequence of making activities through a specified criteria (specification) To understand the qualities of different materials How to use art straws to create a frame structure. Develop skills of working successfully in a team.
7	To understand how to use triangulation when creating a frame structure. Understanding the basic principles of struts and ties (structural components). Working out teamwork roles through successful and productive discussion.
8	To use quality checks to refine and finalise bridge frame prototype. To understand the importance of testing a frame structure design to destruction. Understand how to discuss and log results for future reference.
9	To use evaluation and reflection to improve general approach to a design and make task from start to finish. Understand the importance of discussing results as a team. ASSESSMENT WEEK: Go through all techniques covered in the project with Q&A and written test if required. (teachers' discretion, depending on progress.