

Year group 8	Subject: Structures
National curriculum	N.C. - DT Knowledge S 79.01 understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.
Rationale	Understanding how structures work is important knowledge that enables students to design and make useful projects. It builds on knowledge of structural forces taught in Science. Students are building on workshop confidence with materials and processes, and the previous project on sustainability.
Vocabulary:	Keywords - shell, frame, solid, tension, compression, torsion, shear, bending, triangle, truss, stability
Cultural Capital:	Understanding why structures, materials and joints fail which can be applied to practical day-to-day issues.
Key assessments- name the assessments	Assessment grid of tasks to show achievement and progress across the module. This includes a challenge task which requires students to justify their predictions about how structures might fail. There is a practical, paired competition to test structural design ability and understanding.
What do children know/ can do now (EDSM)	Record the 3 types of structure. Describe the 5 main structural forces. Build a bridge structure that takes account of triangles, stability and knowledge of forces. Predict how the different bridges will fail, commenting on the applied and resistant forces. Your bridge was successful at supporting larger weights. Explain why your bridge failed and how it could have been improved.