

Subject: Technology

Year: 7

Term: 1

Topic: Structures

Key Assessments

Knowledge Organiser tests and class work mark.

Core Texts / Websites

Design and Technology KS3 class book.
BBC Bitesize.
Technologystudent.com

The things you need to learn in this knowledge organiser are:

- Describe the different types of bridges.
- Understand the types of forces.
- Know the types of levers and linkages.
- Understand how a CAM works.
- Know the different types of CAMS

Year 7 Structures, Linkages & Mechanisms Knowledge Organiser

Key Words:

Compression, Tension, Bending, Torsion, Pushing, Pulling, Beam, Arch, Truss, Suspension, Cantilever, Levers, Linkages, CAMS, Followers, Pulleys.

Key Skills:

Drawing, designing, assembling, testing, following instructions, working in a team.

Knowledge summary:

Compression occurs when a pushing force is applied to either end of a material.

Tension occurs when a pulling force is applied to either end of a material.

Bending is both tension and compression forces; tension on 1 side with compression on the other.

Torsion forces occur when a material is twisted.

Beam bridges, also known as stringer bridges, are the simplest structural forms for bridge spans supported by an abutment or pier at each end.

The basic principle of **arch** bridge is its curved design.

Truss bridge, with its load-bearing structures composed of a series of wooden or metal triangles, known as trusses.

A **suspension** bridge is a type of bridge in which the deck (the load-bearing portion) is hung below suspension cables on vertical suspenders.

A **cantilever** bridge is a bridge built using cantilevers, structures that project horizontally into space, supported on only one end.

A **lever** is a rigid bar resting on a pivot, used to move a heavy or firmly fixed load with one end when pressure is applied to the other.

A **linkage** is a mechanism made by connecting together rigid links or levers.

A **cam** is a rotating or sliding piece in a mechanical linkage used especially in transforming rotary motion into linear motion. It is often a part of a rotating wheel.

A cam **follower** is a component that is intrinsically tied to a cam.

A **pulley** is a wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights.

Visual Reminders

