

Max's Magnificent Structures Challenge

Learning objective: To understand the key terminology and principles of building stable structures as part of the Year 4 Design and Technology curriculum.

Read each question carefully. These flashcards help you learn the vocabulary needed to build strong and stable structures. Max the monkey thinks these are the perfect maths puzzles!

What is a 'Load' in terms of a structure?

A load is the weight or force that a structure has to support, such as people, furniture, or the roof itself.

What does it mean for a structure to be 'Stable'?

A stable structure is one that stays upright and does not wobble or fall over easily.

What is a 'Strut'?

A strut is a structural piece designed to resist compression, often used to prop up or support a frame.

What is 'Compression'?

Compression is a force that squeezes or presses an object, like you pressing down on a sponge.

What is 'Tension'?

Tension is a pulling force that stretches an object, like pulling on a piece of string.

What is a 'Frame Structure'?

A frame structure is made from a skeleton of parts joined together, like the wooden beams inside a house wall.

What is a 'Shell Structure'?

A shell structure uses a thin, outer layer to provide strength, like an egg or a football.

What is a 'Solid Structure'?

A solid structure is made of a solid material throughout, like a stone wall or a mountain.

What is a 'Tie'?

A tie is a structural part that resists tension by holding two other parts together so they cannot pull apart.

Why do we 'Reinforce' a structure?

We reinforce a structure to make it stronger, often by adding extra supports or using stronger materials.

If Max builds a tower, what is the best shape to use for a base to make it stable?

A wide, flat base is best for stability because it lowers the centre of gravity.

What is the purpose of triangulation in a frame structure?

Triangulation is used because triangles are the strongest shape; they do not change shape easily when pushed.