Lesson Plan:

Tower Building Challenge

How high can you go? How creative can you be?

1. Learning Intentions

Design and Technology -

Learn about the forces operating in a structure.

Learn about 'Triangulation' how triangles can be used to stiffen a structure.

Relevant KS2 Curriculum

"K2 Design: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures"

Also helps pupils to explore:

Properties of everyday materials

Design/Planning

Evaluation of their and other students ideas

2. Resources

JUNKO Magic Corners

JUNKO STEM Builder shapes set

or STEM Builder Stencils Set and Scrap Cereal Box type card

Pens to children can put their name at the top of their towers

JUNKO Tower Fact Sheet

3. Key Vocabulary

Stability	Strong	Imaginative
Instability	Reinforced	Symmetrical
Base	Triangle	Asymmetrical
Flexible	Rigid	Skyscraper
Materials	Flimsy	Tower Block
Structure	Bendy	
Wobbly	Triangulation	
Unstable	Architecture	

4. Introduction

Prior to the lesson have pupils talk about what they think is important when they build a tower?

What are their goals for building their tower?

What do they think card will be like as a building material?

Take time to make sure pupils can wiggle on the Magic Corners properly ti

DESIGN BRIEF:

Design and Build a Cardboard Tower

It could be tall...

It could be imaginative...

It could be symmetrical...

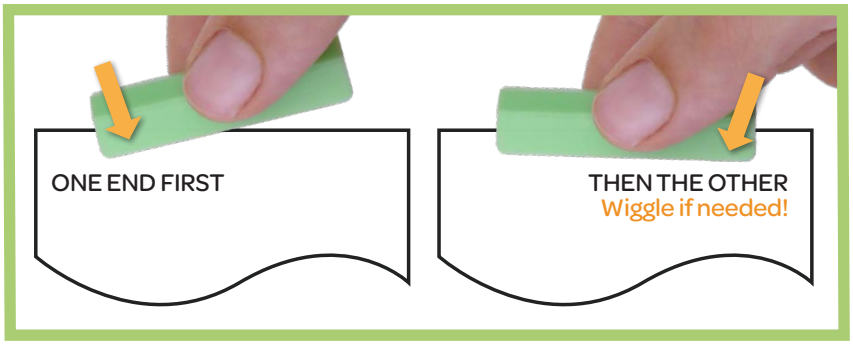
It could be irregular and wonky...

It could use squares, rectangles, triangles or a mixture...

Magic Corner Tip for Students

JUNKO Magic Corners are designed to work with cereal box style card (folding boxboard). As they're very grippy, it's best to wiggle them on one end at a time, particularly for thicker card.

We've found it's a good idea to get students to practise joining a few bits of card together and making something simple like a cube.



Plenary

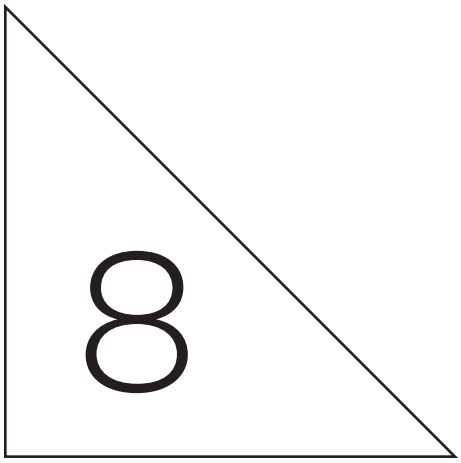
Definitions test / Spelling test: using the key vocabulary (extension: match up the opposites, e.g. flimsy, rigid

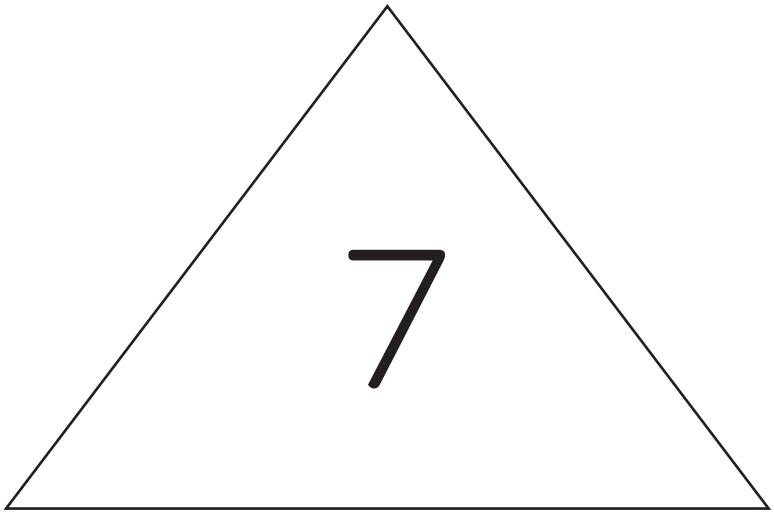
Mini quiz:

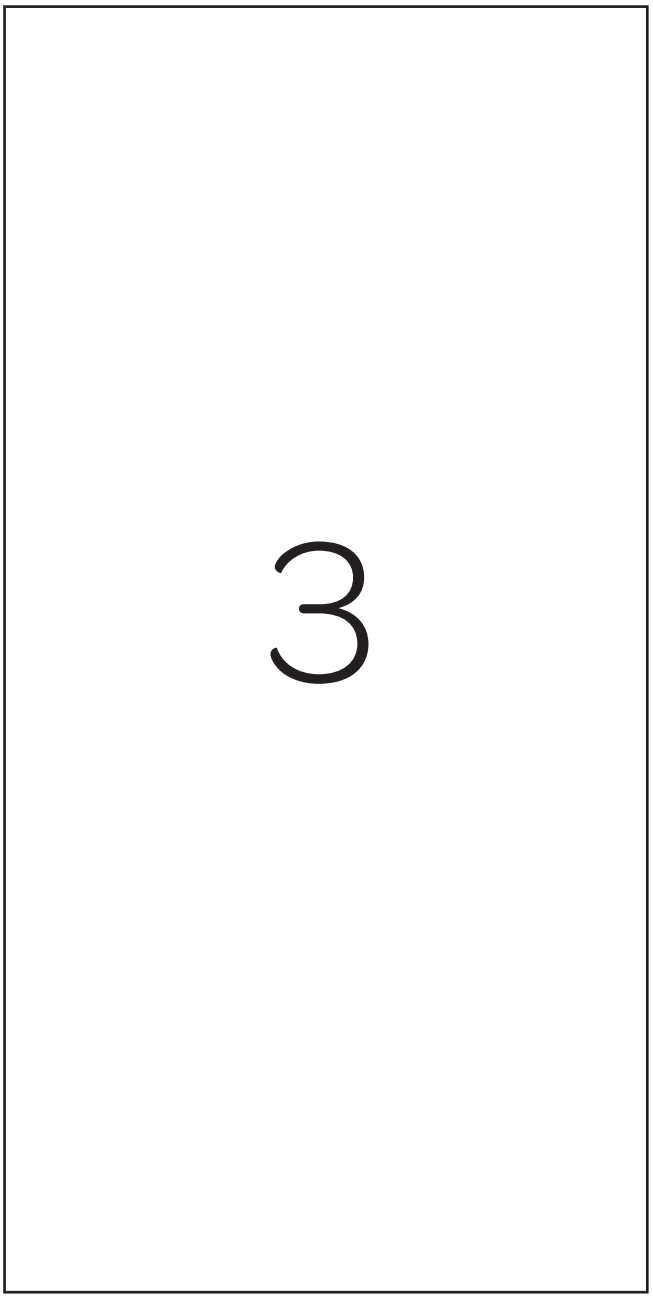
1. What did you think was good and bad about building with card?
2. Which part of your tower do you think is most important for stability? (The Base)
3. What techniques did you find made your tower more rigid? (eg Reinforcing to stop the card bowing, using the card in the direction in which it's strongest)
4. What would you do differently if you built another tower?

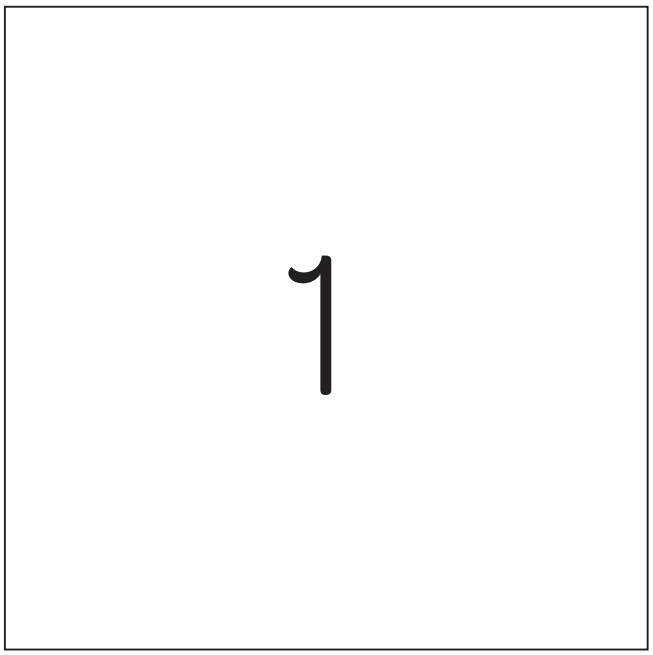
Resource: STEM Shape Set

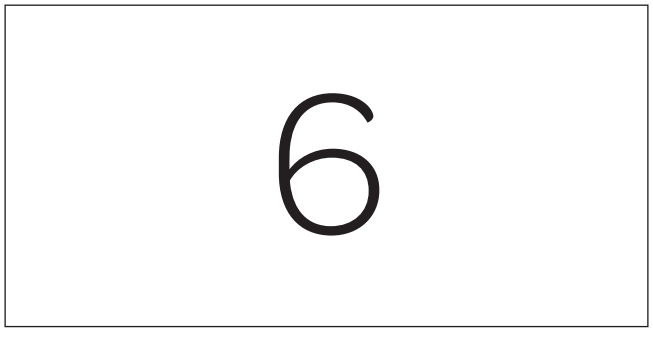
Students can make their own set using the below.
Also available is a 3D printed stencil set or
Pre-Cut shape sets for whole classes.











Example Towers

There are many more ways to build!