





Steps to Success

Lockdown	
Date	
Subject/s	Design and Technology
Learning Objective 	To strengthen and reinforce a 3d structure.

	SA 	TA 
Success Criteria 	I can experiment with shapes and structures.	
	I know how to reinforce square frameworks.	
	I can make a free standing structure.	
Support	Independent	Adult Support ()
<u>Key vocabulary for the lesson:</u> Joining base frame structure strengthen reinforce prototype		

What is a structure?

- ▣ *A structure is something that will support an object or a load.*

- ▣ *A structure must be strong enough to support its own weight and whatever load is put on it !*

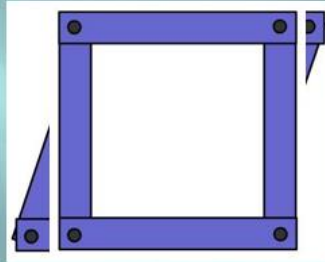
What is a structure?



Stability - why things don't fall over

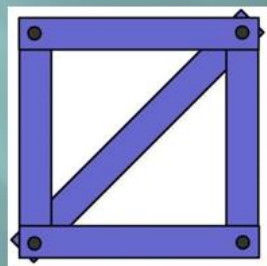
- All structures need to be **stable**.
- Stable structures are not likely to move beyond the limits they were designed for.

Force

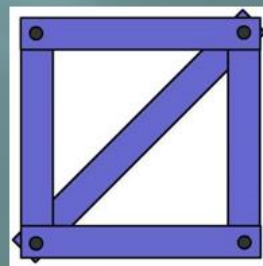


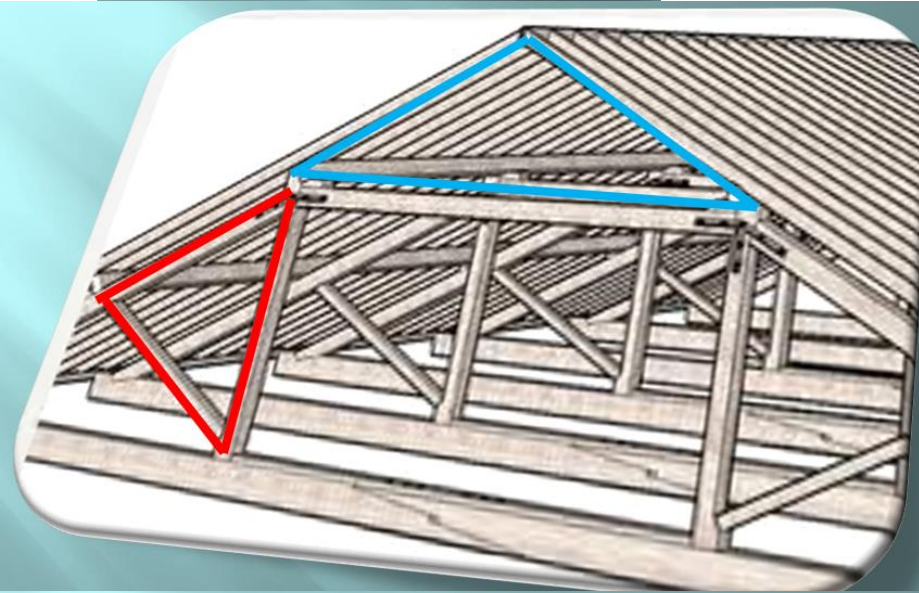
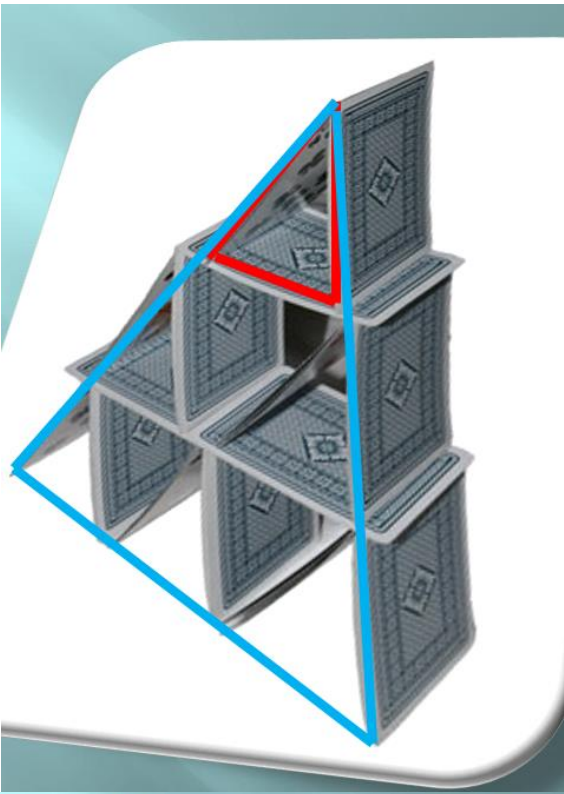
Unstable structures can sometimes be made more rigid by adding triangles to the shape.

The triangle -
making structures rigid

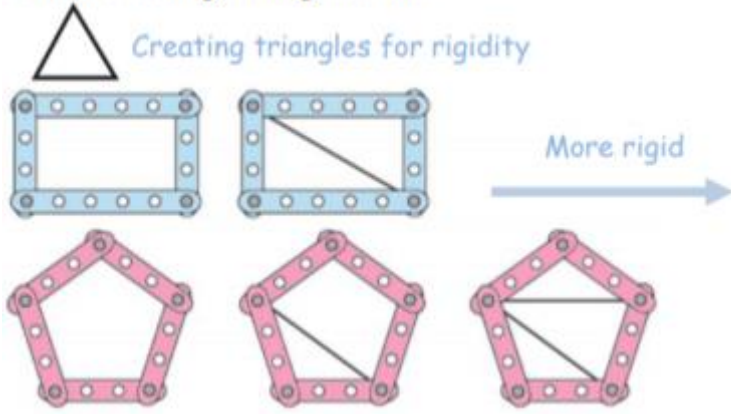


Force





Understanding triangulation



Task

If you have knex, lego or anything you can build with at home, you may want to have a go at building your own structure (you could even use un-cooked spaghetti and marshmallows).

Investigate? What shapes allow you to create the tallest structure? What does a wider base help do? Then evaluate your structure using the questions below.

Evaluation of structure.

- ▣ *What was the weakest area of your structure? How could this be strengthened?*
- ▣ *Could your structure have gone higher? What would you have to do keep it stable if you made it higher?*
- ▣ *If you were to make your structure again what would you do differently?*

If you haven't got anything to build with, draw a structure that you think would be strong and why. Use the pictures below as clues



