

Stemazing Structures



Exploring the importance of shape in design. This is important in the World around us as different shapes have different properties which do different things for us.

You may want children to work in pairs for this one.

Key Steps

1. Explain what we are doing today
2. Check everyone has what they need
3. Fold paper to make 4 triangular columns. Take it slow as may take children a while to do sellotape. Ensure top and bottom of towers are flat so they stand straight
4. Test loading with books slowly until towers collapse. Remember how many books your own columns with edges took.
5. Look at towers that collapsed. What was the point of failure?
6. Make 4 columns with no edges/corners - cylindrical towers. Ask if children think ones with no corners will be stronger or weaker?
7. Test loading with books slowly until collapses or run out of books.
8. Think about where you see different shapes in design all around us.

Resources

- 8 sheets of A4 paper
- Sellotape
- Big pile of books

Risks

- Paper cuts
- Pile of books getting too high and toppling over onto child

Key STEM Messages (also see completion certificate)

- Shape is design is very important. We see different shapes all around us in buildings, bridges, tunnels, ships, cranes, cars, planes etc.
- Different shapes have different functions.
- A shape that has curved edges like a pillar, arch or dome is very good at spreading the load evenly when loaded top to bottom.
- Edges and corners create stress concentrations which are points of weakness, therefore are less strong.
- However connected shapes make a difference - if you connect a lot of triangles together they make a strong structure called a truss - you see this in bridges and cranes and the Eiffel Tower!

Your Notes