

2.5 Project Make a Water tower

Aim

You will often see towers made of concrete shaped like a giant mushroom that hold water. Some also have steel frames to hold them. This is so the water will fall down quickly through pipes to your house. This force is called **Gravity**.

To hold all that water you need a strong tower.

Your task is to make a strong tower to hold a 2 litre ice cream container of water (or sand if your afraid it might fall)

Minimum height of the tower: 30 centimetres



Equipment

Construction materials (Lego or other appropriate strong building material e.g. cardboard tubes, ply wood, dowel or some other plastic building material)

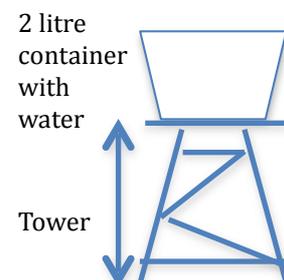
Testing equipment: books, force sensor or scales (optional)

Method

1. Decide the shape of your tower and how it will go together.
2. Decide on materials of the walls or frame based on your investigations about forces changing shape.
3. Explain to your teacher your ideas (you can draw, speak or show)
4. Once you have teacher's approval, construct your tower!
5. Test it to see if it works well by using the weight of books or by pushing down on some digital scales or force meter.

Remember it has to hold 2 kilograms which is the equivalent of 20 Newtons force.

6. Redesign if it crashes down
7. Final test – Add the water container. It must hold it for 30 seconds!



Water Tower Test Sheet

Name:

What Materials will you use?

Draw some shapes you will make:

How will it hold together?

Tests I did to see how strong it was:

1. Pushing down. What happened?

What I changed to make it better?

2. Twisting. What happened?

What I changed to make it better?

Parts I used

name					
number					

Final Test (Outside)

Put Ice cream container on your tower.
Start adding water till it breaks.

How much water did it hold before it broke ?

Draw a picture here

