

ENGINEERING  
CHALLENGE

03

# SPAGHETTI BRIDGES



THE  
JAMES  
DYSON  
FOUNDATION

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## ENGINEERING CHALLENGE 03

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### The brief

Construct a free standing bridge out of spaghetti, strong enough to support a 1/2lb bag of sugar.

### The method

Think about bracing strands together for strength. Some shapes are better at absorbing loads – triangles are particularly strong. Rubber bands make for good junctions.

### Top tip

Be patient. Through trial and error, you'll become proficient at working with spaghetti.

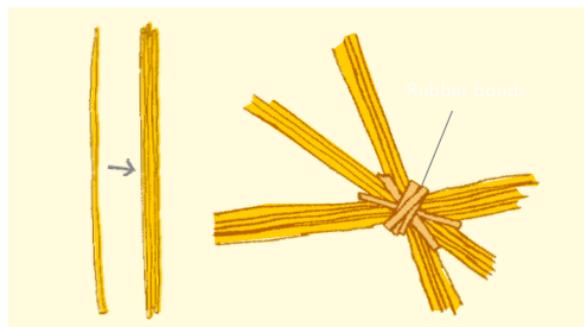
### Materials

Spaghetti

Small rubber bands  
or bag ties

Tape

1/2lb bag of sugar



### How does it work?

Bridges manage two important forces: compression and tension – pushing and pulling. Too much of either and they buckle or snap.

### Design icons

Why not take inspiration from these iconic bridge designs?



Beam bridge



Truss bridge



Cable stayed bridge



Arch bridge



Suspension bridge



Cantilever bridge