

ENGINEERING  
CHALLENGE

01

# GEODESIC DOMES



THE  
JAMES  
DYSON  
FOUNDATION

# GEODESIC DOMES

## ENGINEERING CHALLENGE 01

Designed by Hannah,  
Design engineer at Dyson

### The brief

Using gumdrops and toothpicks, make your own geodesic dome.

### The method

Follow steps 1 – 6 in the diagram below.

Key for cocktail sticks: — 2.5in — 2in

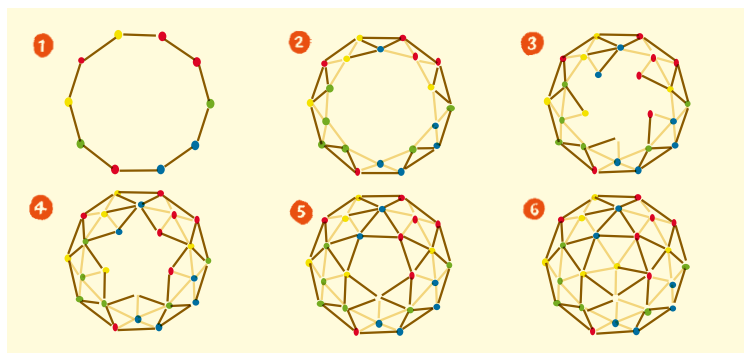
### Materials

Toothpicks: 35 at 2.5in  
long and 30  
cut down to 2in long

Gumdrops

Scissors

(with adult supervision)



### How does it work?

Geodesic domes are extremely rigid. Multiple interlocking triangles form incredibly strong structures.

To deform or buckle a triangle you have to compress or stretch the lengths of the sides, which is hard to do as they support each other.

### Design icons

Richard Buckminster Fuller,  
inventor of the geodesic dome.  
He was inspired by beehives,  
fishing nets and other 'networks'.

Today there are more than  
300,000 geodesic domes  
around the world.

