

# Scouting at Home



Suitable for: Joeys | Cubs | Scouts | Venturers

Time needed: 40 minutes



Creative  
Challenge Area

## Tower Building

Discover the secrets behind some of the world's amazing feats of engineering and build your own – out of spaghetti and marshmallows!

### You will need

- Paper and pencil
- Spaghetti
- Mini marshmallows
- 4 large marshmallows (optional)

### Instructions

**1** First, plan your towers by drawing sketches. A well-planned tower will look better and be stronger than one that isn't sketched out first. A good tip is to use a combination of triangle and square shapes, this will help you to build a tall tower that is strong too.

**2** Referring to your sketches, cut spaghetti pieces to the sizes you need, making sure you cut shorter pieces exactly – failure to use pieces of equal length will cause your tower to twist and topple.

**3** When it comes to using the marshmallow pieces, decide when it is best to pass the spaghetti all the way through or partially through. The strength of the joints is dependent on it. To make the tower building easier, you can use the four large marshmallow pieces for the base of the tower.

### Eiffel Tower

Built in 1889, over 5,300 drawings were made of this 324-metre-high tower in Paris. Gustave Eiffel deliberately designed the legs of the tower at 54-degree angle for maximum wind resistance and to create perpendicular thrust for additional strength.



### The Great Pyramid Of Giza

The oldest and largest of the pyramids in Egypt, this 2580 BC construct is also the oldest of the Seven Wonders of the World. Pyramids have a wide base and a narrow top, creating an extremely sturdy and rigid shape.

### The Golden Gate Bridge

Opened in 1937, this suspension bridge over San Francisco Bay has a span of 1,300 metres and cost \$35 million to make. Suspension bridges work by transferring the weight of the bridge deck and vehicles up through the suspender rods to the main suspension cable, which then transfers the weight to the bridge towers and anchor rods.



### Outcomes

Think about which shapes make a strong structure and about compression and tension – how the individual parts of a structure are always pushing and pulling on each other. Look up three of the strongest man-made structures on Earth (see above) to see what makes a structure strong.