

## Infosheet

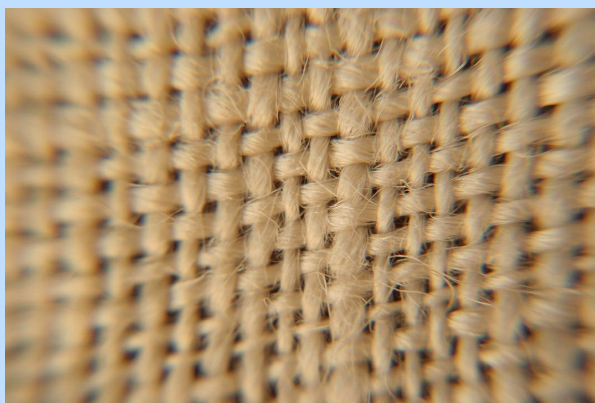
# How do materials science engineers choose fabrics for parachutes?

## Materials science

Have you ever wondered who designs an astronaut's space suit, a diver's wetsuit, or even a parachute? What about everyday items like your shoes, packaging, or the complex components that make up a smartphone or car? The creators of these essential items include materials science engineers, who help to choose and develop the right material for the job. Materials are what things are made of and can include ceramics, glass, metal, wood, natural fibres, and plastic.

## Fabrics

Fabrics are a type of materials in which fibres are worked into textiles through weaving, knitting, felting, or other manufacturing methods. Fabric can be made of synthetic or natural materials, a mixture of the two, or synthetically modified natural materials (called semisynthetic). Bundles of fibres may first be twisted together (spun) into yarns before being woven or otherwise joined to make a cloth.



*Example of a plain-weave woven fabric*

*Image: [Dee.lite/Wikimedia](https://www.wikimedia.org/), Public domain*

The individual fibres and yarns can vary in thickness and how tightly they are wound, and the weave of the final fabric can be tight or loose. All these characteristics affect the properties of the final fabric. Fabrics are mostly used by regular consumers for clothing, bedding, furniture coverings, bags, and decoration. Materials science engineers use fabrics to design parachutes, space suits, tents, and many other technical items for which the right fabric properties are very important.

## Parachutes

A parachute is a device that is used to slow the fall of an object or person through the air when falling from a large height. The most well-known use is to allow people jumping from planes to land safely on the ground below. However, they are also used to drop supplies, for example, after natural disasters, and for returning astronauts safely to earth inside specially designed landing capsules. They are often dome shaped, but other shapes are also commonly used. They work by ‘inflating’ with air after opening and increasing the air resistance of the falling object with their large surface area.



Landing of a spacecraft

Image: NASA, enhanced by Rawpixel/[Rawpixel](#), [Public Domain](#)