



# How do spiders make webs?

KS2 KS3 Ages 7-14 ⌚ 3 min read

Spider silk is one of the most impressive materials in nature. Weight for weight, the strongest silks are tougher than Kevlar (used in bulletproof vests) and more elastic than nylon. A web the width of a pencil could theoretically stop a Boeing 747 in flight. Spiders produce this material from special glands in their abdomen and construct complex, precise structures with it.

## Types of silk

Most orb-weaving spiders (the classic web-builders) produce several types of silk for different purposes. **Dragline silk** forms the outer frame and spokes — it's the strong, non-sticky structural silk. **Capture spiral silk** forms the sticky spiral that catches prey — it's elastic and coated in tiny droplets of glue-like liquid. The spider walks on the non-sticky radial threads; only insects blundering into the sticky spiral get caught.

Building a web is like constructing a suspension bridge, then draping a sticky fishing net across it. The bridge (the radial threads) bears the structural load and stays put. The net (the spiral threads) catches what you're after. The spider runs on the bridge; the prey gets caught in the net. Except the spider builds both in under an hour, from materials it produces inside its own body, using only eight legs and no blueprints.

## How does the spider build it?

The spider starts by creating a "bridge" thread — it lets out silk that catches the breeze and attaches to a distant surface, or walks the silk across deliberately. This becomes the top of the frame. It then adds more frame threads, creates the radial spokes from the centre outward, and finally spirals the sticky capture thread inward from the outside. The whole process in a garden spider takes 30-60 minutes.

## Do spiders stick to their own webs?

No — because they walk on the dry, non-sticky frame threads rather than the sticky spiral. They also have special leg-tip structures that reduce contact area with silk, and some species have an oily coating on their legs. They're not immune to their own glue by magic; they just know where to step.

