



# Bedstraw is sticking to me!

(March / April | Grades 2-8) • **Map Stop 7 & Fun Fact** • Bedstraw grows everywhere during spring, especially near the snag and parking lot

How is this plant well-designed to go home with you?

## Background Information:

Commonly called **bedstraw**, **cleavers** or **catchweed**, *Galium aparine* is an early spring plant closely related to coffee, visible approximately from late February through April. During colder springs, bedstraw may not emerge until a week into March. Bedstraw grows along the ground, with straggling square stems. Its leaves occur in a **whorled** arrangement around the stem. Stems with **tiny white flowers** grow from the whorls of leaves.



## For the Activity:

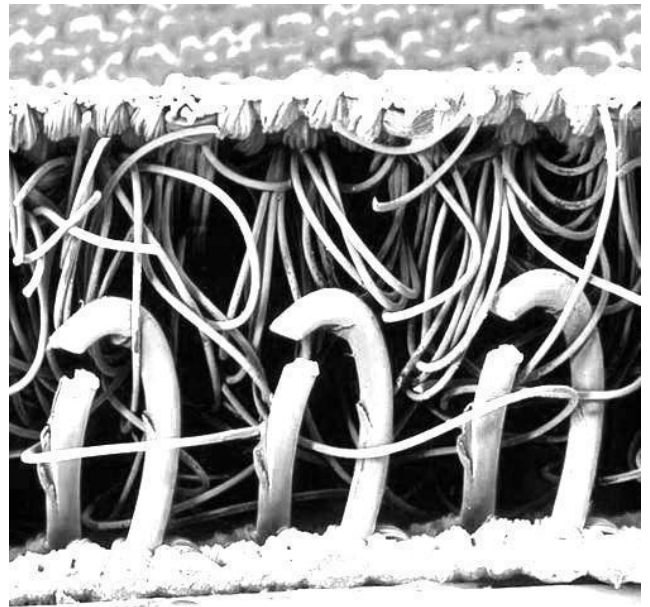
Use the map in the beginning of this packet to locate some bedstraw in the area between the yucca and the picnic table. This plant also grows in the parking area, along the wall close to the alley. It grows in many other places at Twelve Hills too - if you spot any during your walk, mark it down on your map!

Once you've found some, pull off a piece of the plant (just **two inches** or so will do the trick) and put it on your clothes. What happens? Why?

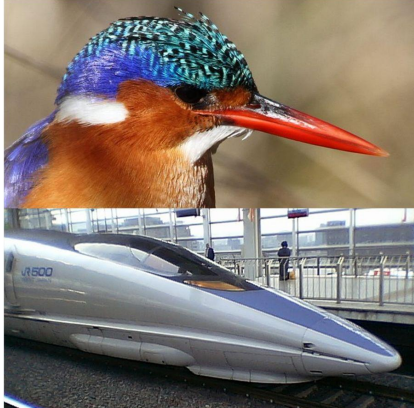
Have you found an **ANSWER**? The bedstraw **sticks** to your clothes! Look closely to see if you can spot what makes it stick. You should be able to spot a bunch of **tiny hooks** across its surface. How do you think these hooks help the plant to grow and spread?

These hooks help bedstraw seeds spread by sticking to animals passing by, and help bedstraw grip and climb above other plants while growing. Can you think of a man-made material similar to this plant? **Velcro** uses a similar set of tiny hooks paired with a fluffy second fabric to stick together! The inventor of Velcro, the Swiss engineer George de Mestral, was inspired by the hooks on **burdock** seeds, a plant with burrs and hooks similar to bedstraw, that stuck to him and his dog when they went out for hikes in the mountains. This burdock-inspired design is an example of **biomimicry** - the imitation of things in nature to develop human technology.

Can you think of other examples of biomimicry? We've included a few examples on the next page, but see how many others you can think of!







## High-Speed Trains

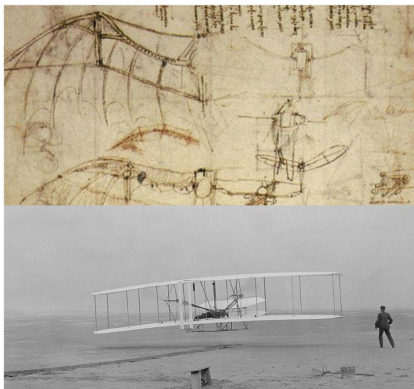
High-speed trains face a lot of difficulty overcoming drag from all the air they have to quickly pass through, and can create problematic sonic booms when exiting tunnels. To minimize this, Shinkansen 500 trains were modeled after the streamlined beak of a kingfisher.

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## Fabrics and Colors

Some organisms, like morpho butterflies and *Cyphochilus* beetles, appear iridescent or intensely-colored due to microscopic reflective structures like tiny, finely-tuned prisms. Thanks to designers and engineers, these structures have now been replicated in fabrics, paints, and makeup.

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## Airships

Leonardo Da Vinci based his early glider shapes after bat wings, while the Wright brothers modeled their planes after pigeon wings. Modern planes also use bird-like designs to help shape their wing curvature.

## Extra Traction

Gecko feet are able to grip sheer glass without trouble, and frogs can climb slippery rocks even when wet. Both have been used as models to help develop more effective tires and climbing equipment in use today.

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