NAME: _____

DATE: _____

READING SPICY

JUST COPY NATURE!

FROM **SCIENCE FRIDAY** AND **NEWSELA.COM**

Vocabulary

mimic

SAY ☐ ☐ | WRITE - | COUNT SYLLABLES 1 2 3 4 | ACT OUT ☐

Definition:

Write a sentence using the word "mimic."

_____

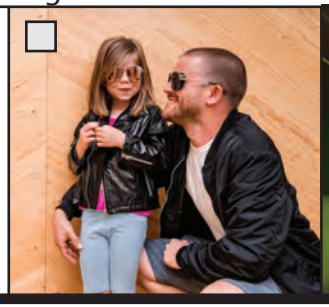
_____

_____

_____

Describe each picture using the word "mimic"

☐ DRAW



☐

☐

adhesive

SAY ☐ ☐ | WRITE - | COUNT SYLLABLES 1 2 3 4 | ACT OUT ☐

Definition:

Write a sentence using the word "adhesive."

_____

_____

_____

_____

Describe each picture using the word "adhesive."

☐ DRAW

☐

☐

Learned Words SPELL

new	now	they	their
been	any	pretty	some
break	walk	calf	move
shoe	built	build	touch
about	around	toward	people
country	trouble	enough	purpose

After you read, go back and circle a few interesting, new, or challenging words and write them in your Word List.

Word List

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Biomimicry: Just Copy Nature!

By Science Friday, adapted by Newsela staff on 03.08.17

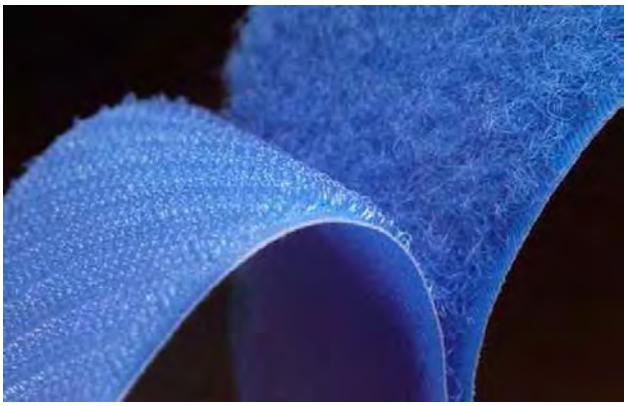
Cockleburrs, which stick to clothing and fur, inspired the invention of Velcro. Photo from: Wikimedia Commons.

If you want to invent something, why start from scratch? Just copy nature! After all, nature has solutions for just about any problem you can imagine. When new inventions or ideas copy nature, it is called bio**mimic**ry. Velcro is one example of bio**mimic**ry. Velcro's inventor got his idea from the cockleburr. This prickly plant sticks to clothing and fur. Here's how cockleburrs led to Velcro, along with a few other amazing examples of bio**mimic**ry.

Invention of Velcro Starts with a Dog

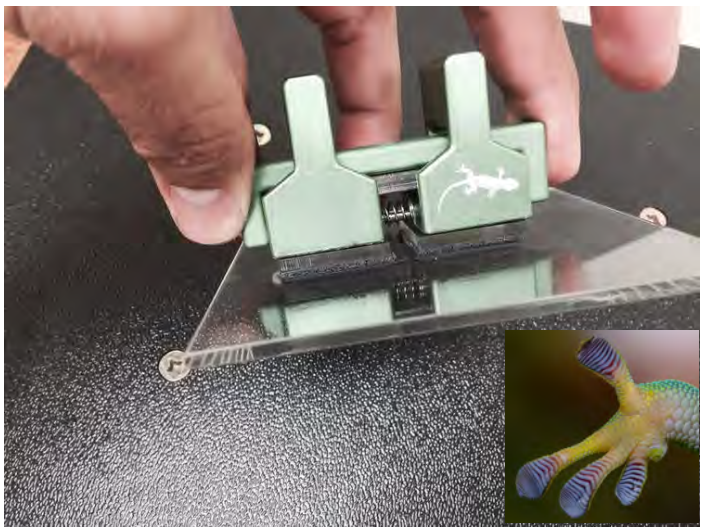
Velcro is one of the most famous examples of bio**mimic**ry — and it all started with a dog. Swiss engineer George de Mestral had just returned home from walking his dog. He spotted some burrs clinging to his pants and his dog's fur. He took a closer look and realized the burrs had thousands of tiny hooks. Those hooks had latched onto the tiny loops in the fabric of his pants.

What a useful idea, de Mestral decided. He went on to create what we now know as Velcro. His product has been used in shoe straps. It's been used to stick TV remote controls to the couch. It's even been used on the moon! The lunar rover was the robotic car astronauts drove during moon landings. It had Velcro seatbelts.



Adhesives Mimic Sticky-Footed Geckos

Geckos are best known for one thing: their sticky feet! They can climb even the smoothest surfaces. Their feet are covered in millions of tiny hairs. When a gecko's foot touches a wall, those hairs are attracted, or pulled, toward the wall. When the gecko wants to remove its foot, it curls its toes upward. That breaks the pull between the wall and the hairs.



NASA, the U.S. space agency, took a page from the gecko's book. It designed a device that has millions of tiny man-made hairs. When a force is applied, the device can bind, or stick, to any object with a flat surface. NASA's device is strong enough to move a 220-pound object. That's as heavy as an elephant calf!

Hand-Sized Robot Squishes Itself Like a Cockroach

Ever wonder how cockroaches manage to scurry around inside your walls? The explanation is pretty creepy. Cockroaches have a hard protective outer covering called an exoskeleton. That exoskeleton makes them hard to squish. Cockroaches don't have any trouble squeezing themselves, though. In fact, they can squish themselves to the height of two stacked pennies ... while whizzing along at a speed of about 8 inches per second.

Impressed? Robert Full, a professor at UC Berkley, was. He and his team

developed a hand-sized robot that can **mimic** a cockroach. The robot can squeeze to half its height and still travel at pretty high speeds. Its purpose is to help find people after natural disasters like hurricanes and tornadoes.

Mall in Africa Built Like a Termite Den

Imagine: It's the middle of the summer. You're in a big building with no air conditioning. You're sweating, right? Maybe not! Architects in Zimbabwe, a country in Africa, found a way to keep tall buildings cool without AC.
They copied one of nature's desert builders, the termite. The architects designed a shopping mall and office building based on how termites build their mounds. The building has a series of openings just like a termite's mound. Those openings let air flow into the building and keep it cool, even on a hot summer day.

This wooden structure shows what it is like inside a termite mound. Photo from: Wikimedia Commons.

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1. Which sentence tells what this article is mainly about?

(A) There are many endangered animals in nature that need our help.

(B) Engineers, architects, and astronauts are types of scientists.

(C) Many new inventions mimic things found in nature.

(D) Velcro is made with tiny hooks and loops.

2. Velcro's inventor got his idea from the _____ plant.

3. How has space travel been influenced by bio**mimic**ry?

(A) NASA invented a device with tiny hairs like the gecko and used Velcro on the moon rover

(B) Astronauts wear equipment that looks like exoskeletons inspired by cockroaches and termites

(C) NASA used cockleburrs to see how they would grow in space and studied termites in space

(D) Astronauts helped find people using robots that looked like geckos

4. Which section from the article helps the reader understand how architects use bio**mimic**ry?

(A) "Invention of Velcro Starts with a Dog"

(B) "Adhesives Mimic Sticky-Footed Geckos"

(C) "Hand-Sized Robot Squishes Itself Like a Cockroach"

(D) "Mall in Africa Built Like a Termite Den"

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4. **Connect:** Inventions are often created in order to solve problems. When architects built a mall that mimicked a termite den, what problem did they solve?

_____

_____

_____

_____

3. **Imagine:** Think of an invention you might like to make based on an animal or plant you like. Illustrate your creation below.

7. **Optional Research:** Find another example of an invention that **mimics** nature. Describe the invention below.

_____

_____

_____

_____