



Vocabulary:

Biomimicry - The process of copying the features or habits of plants or animals to solve human problems

Engineer - A person who makes things to solve problems

Invention – Something that is designed, created, or made up to help solve a problem

What is Biomimicry?

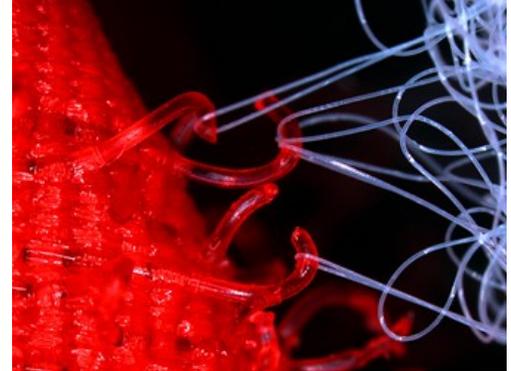
Have you ever wondered how people design inventions that we use in our everyday lives? Sometimes, people solve problems by copying solutions that they observe in nature. This type of problem solving is called **biomimicry**.

The next few activities will show you several examples of human **engineers** that use **biomimicry** to make **inventions**.

Biomimicry Story

One day back in 1941, an **engineer** named George de Mestral was walking his dog. Along the way, he noticed some spiky balls (called burrs) that came from a plant sticking to his pant legs and to his dog's fur. *How can burrs stick to things without falling off?* he wondered.

The **engineer** took one of the burrs home and looked at it under a microscope. He noticed that there were hooks on the burrs that were stuck in his pants.



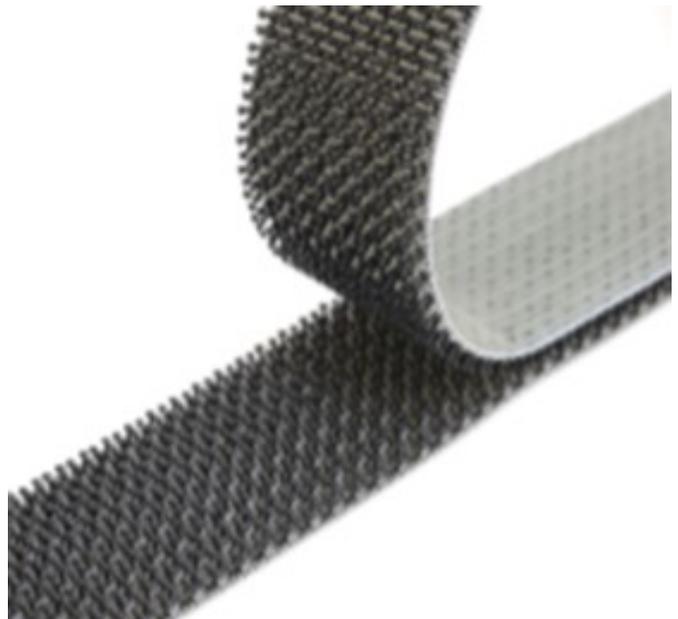
Velcro under the microscope

He thought of a brilliant idea:

he could use a similar design of hooks, like the burrs, that fasten onto loops, like in fabric or fur, to stay in place. The **invention** that he created is known to us today as Velcro. You might use it to hold your shoes on, or to fasten the sleeves on your coat.



Burrs on Burdock Plant



Velcro

Matching Game

Match the **inventions** (A, B, C, or D) to the animals they most closely represent

Animals



Monarch Butterfly _____



Firefly _____

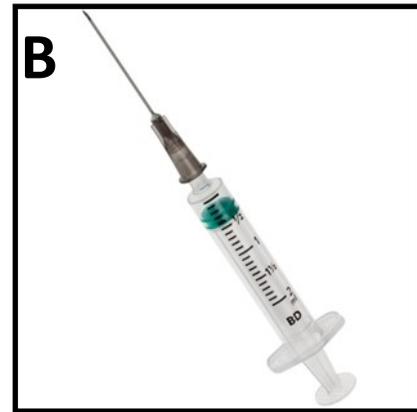


Mallard Duck _____



Mosquito _____

Inventions



Fun Facts and Answers:



Monarch butterflies are a bright orange color because they are poisonous, and they want to warn other animals not to eat them. Humans have used **biomimicry** to **invent** bright colored clothing so that we can easily be seen in dangerous



If you have even held a firefly, you know that its light is bright, but not hot. Humans have used **biomimicry** to **invent** lights that are bright, but not hot, just like fireflies.



Mallard ducks have webbed feet, making them very good swimmers. Humans have used **biomimicry** to **invent** fins that help us swim fast.



Mosquitoes have a very sharp mouthpart called a proboscis that helps them to suck blood. Humans have used biomimicry to invent needles that help doctors to take blood or give shots to patients.

Human Problems, Animal Answers!

Read the problems that each person is having. **Invent** a way to solve the persons problem using **biomimicry**. Write down your ideas below, using full sentences. Mimic the animals in the photos below.



1. Juanita is looking for a way to swim faster underwater. What feature would help her the most?

Human Problems, Animal Answers!

Read the problems that each person is having. **Invent** a way to solve the persons problem using **biomimicry**. Write down your ideas below, using full sentences. Mimic the animals in the photos below.

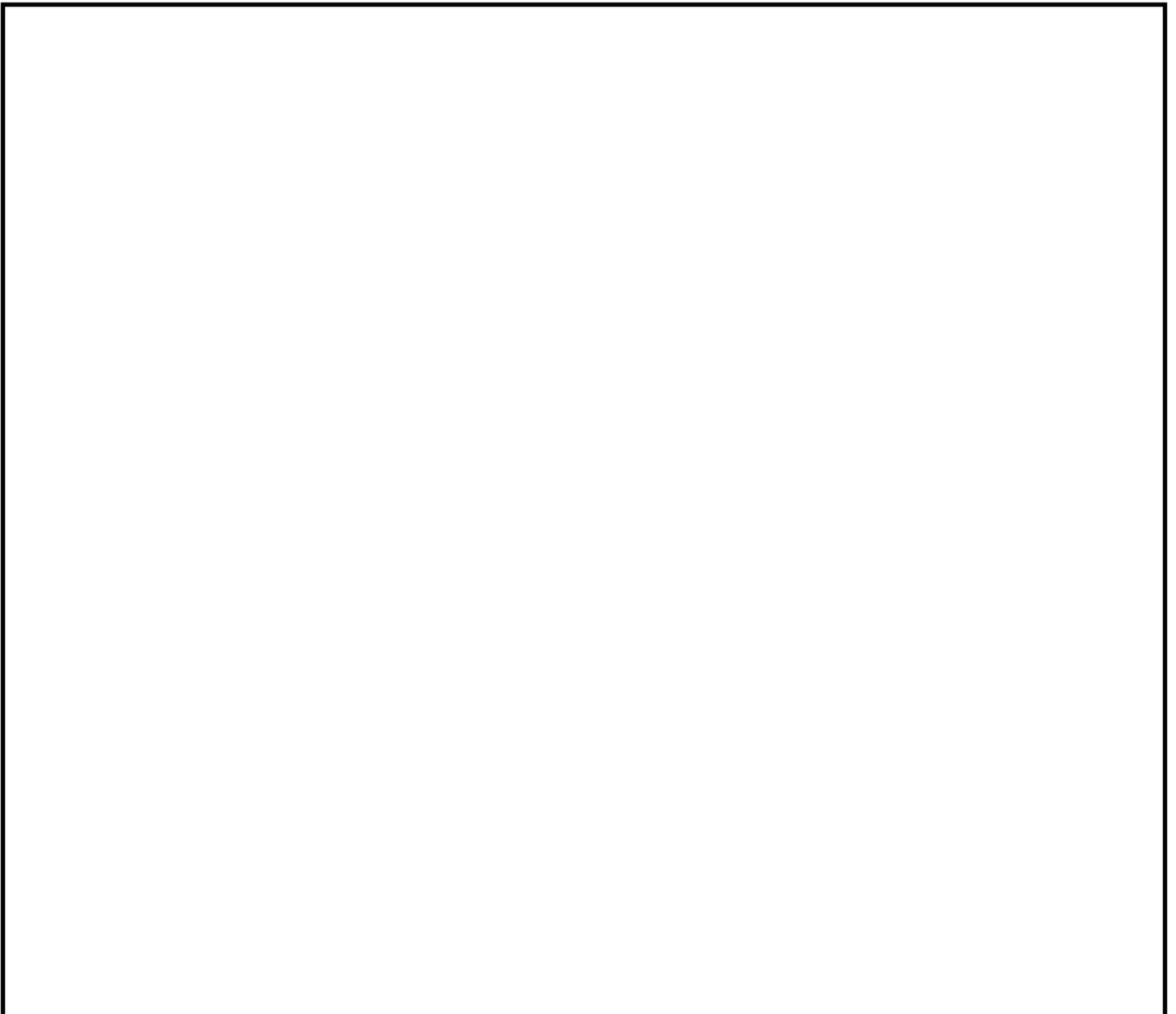


2. Cliff is a construction worker. He needs to wear visible clothing when he goes to work. What feature should he mimic?

Outdoor Exploration

Go for a walk in your local park, or look outside your house or school. Complete the following activities during your outdoor exploration.

Look up and find a bird flying in the sky. Draw a picture of the human invention that was made to mimic these crazy critters. Label your drawing.



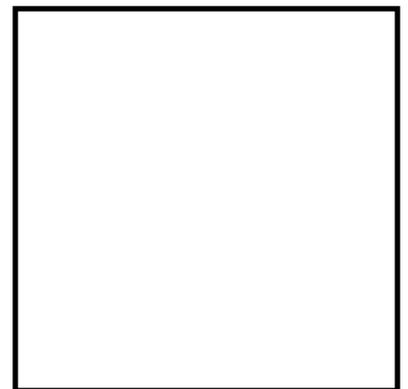
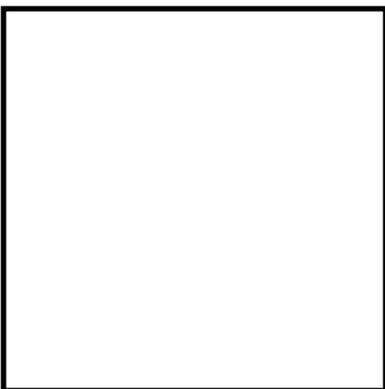
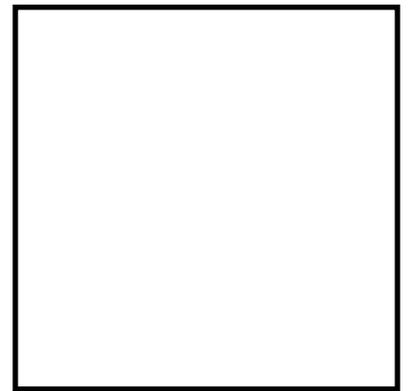
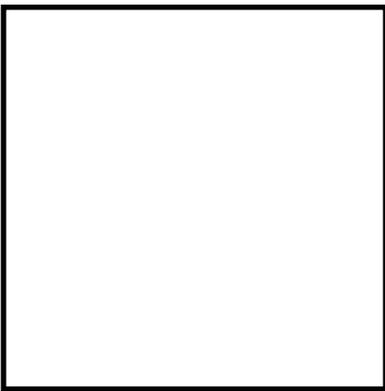
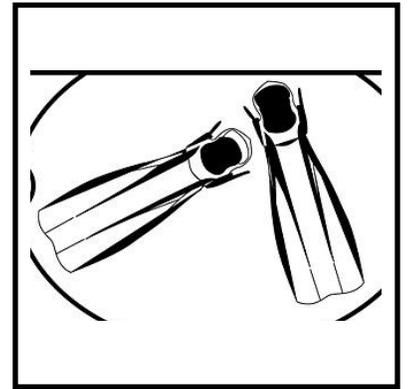
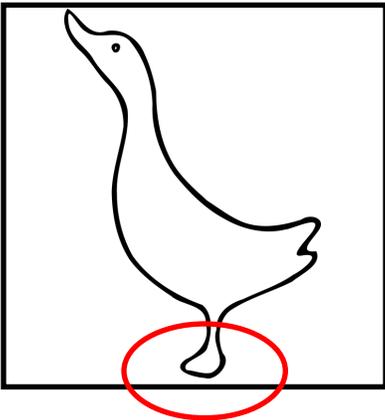
Find some plants and animals outside. Draw and label them in the boxes below. Then, search your house or classroom for items that mimic the natural objects. Draw and label these as well.

Natural Object

**House/Classroom
Items**

Goose

Swim Fins



Find some plants and animals outside. Draw and label them in the boxes below. Then, search your house or classroom for items that mimic the natural objects. Draw and label these as well.

Natural Object

House/Classroom

