

Name: _____

Biomimicry Design Challenge

Student Sheet

Got a problem? Nature has a solution! Invent something that solves a problem using nature as your inspiration. Draw it in the space below.

Name of Invention: _____

What problem does your invention solve?

What plant or animal inspired your invention?

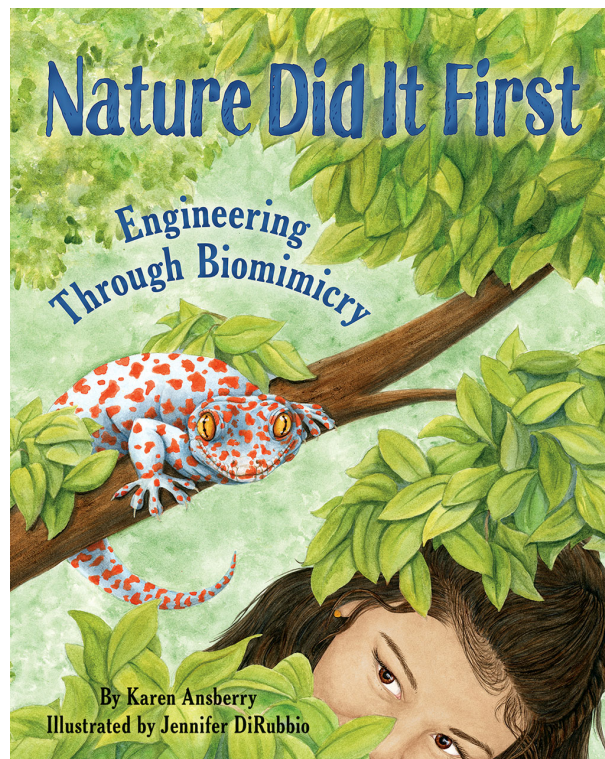
STEM Biomimicry Design Challenge

Bio means life; mimicry means to imitate. So **biomimicry** is the practice of imitating life to solve problems. For this STEM challenge, students will design a nature-inspired solution to a problem.

Download a Biomimicry Design Challenge Sheet* for students to follow. The challenge involves making observations of a plant or animal, describing its most unique or interesting structures and functions, identifying a human problem that mimicking the plant or animal could solve, and designing and advertising an invention using biomimicry.

Engineers build models. Provide a variety of craft supplies for students to use to make a model of their invention. When finished, have students share their invention. Discuss the design features of each invention and ask: What problem does it solve? Why should people use it? How is it an example of biomimicry?

*Available as a free download at www.dawnpub.com/activities/nature-did-it-first



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STEP 1: STUDY NATURE

Observe one of your favorite plants or animals up close (or by using books or Internet resources). What unique or interesting structures does it have that help it function, or survive in its environment?

Structure (Part)	Function (Purpose)

STEP 2: IDENTIFY A PROBLEM

Think about the plant or animal and its unique structures and functions. What human problem might the plant or animal help solve? How?

STEP 3: BRAINSTORM AND DESIGN

What could you invent that would imitate the plant or animal in order to solve the problem? Think about a tool, toy, article of clothing, robot, or other technology that could be designed to mimic the plant or animal. Sketch your invention below.



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STEP 4: BUILD A MODEL

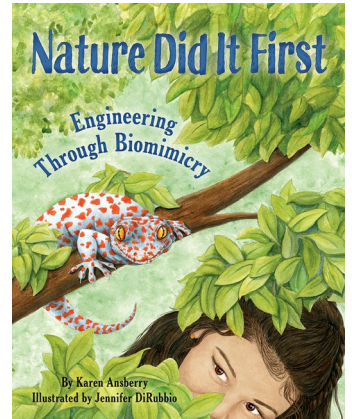
Experiment with simple materials you could use to build a model of your invention, then build it! List the materials you used below:

STEP 5: SHARE YOUR SOLUTION

Make an advertisement to “pitch” your invention. Give it a catchy name. Describe how it solves a problem and why people should use it. Tell how the invention is an example of biomimicry.

Student Glossary

Nature Did it First: Engineering Through Biomimicry



1. **Adhesive:** a substance used for sticking objects or materials together.
2. **Biomimicry:** the process of designing nature-inspired solutions to problems.
3. **Carnivorous:** (of animals) flesh-eating; (of plants) able to trap and digest insects and other small animals.
4. **Crustacean:** a type of animal, typically living in water, with a segmented body, a hard outer shell, and several pairs of legs.
5. **Echolocation:** the use of reflected sound waves (echoes) to locate objects.
6. **Engineer:** a person trained and skilled in using science and math to design or invent things.
7. **Robotician:** a person who specializes in designing, building, and programming robots.
8. **Streamlined:** having a shape that makes movement easier through air or water.
9. **Technology:** a tool or machine designed to help solve a problem or meet a need.
10. **Vibration:** a rapid back-and-forth movement.