Nature Did It First
Engineering Through Biomimicry
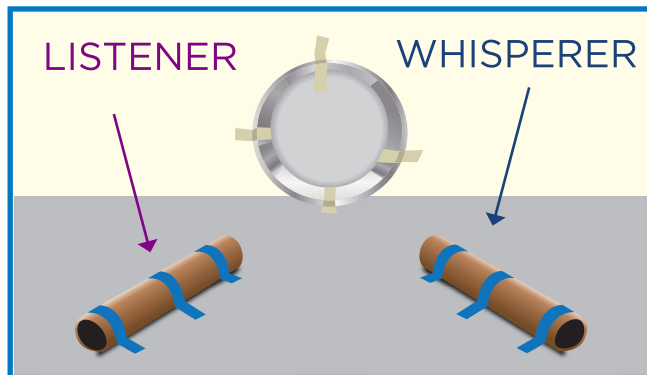
INTERDISCIPLINARY THEMES: ENGINEERING, SCIENCE, ART, SOCIAL STUDIES, WRITING
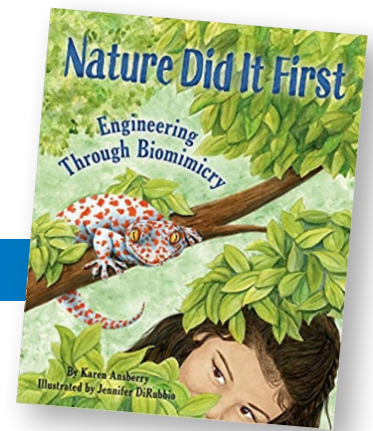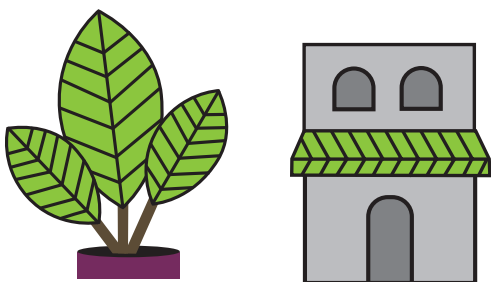
ENGINEERING, SCIENCE
ECHOLOCATION EXPERIMENT

Bats use echolocation to find their food at night. Try it out! On a table, tape an aluminum pie plate on its side. About a foot away, tape two paper towel rolls facing the pie plate at an angle. For the experiment have one child whisper into one of the tubes and the other child listen at the end of the other tube. The sound will travel through the tube, bounce off the pie plate, and travel back through the other tube.

LISTENER   WHISPERER

BIOMIMICRY DESIGN CHALLENGE

Bio means life and mimicry means to imitate. Put them together and you have imitating life! Engineers use biomimicry to solve human problems. In partners or small groups, have your students observe a plant or animal (photo, video, or in person) and write down it's unique structures and their functions. Have your students think about a human problem that could be solved by mimicking the plant or animal's structures. Then have them create a blueprint for their invention. If time and materials allow, try making the inventions and testing them out.

ART, SOCIAL STUDIES, WRITING
ADVERTISEMENT FOR HOOK AND LOOP TECHNOLOGY

George de Mestral was an engineer who used biomimicry to invent the hook and loop technology known as Velcro. Learn more about the history of Velcro and its many uses by searching online. Make a list of the many uses for hook and loop technology. Then create an advertisement (video or poster) for the many uses of the hook and loop technology!

TWITTERING MACHINE SOUNDSCAPE

Swiss artist, Paul Klee, painted the Twittering Machine (1922) which combines biology and machinery. As a class, take a close look at the painting. Try to look for 30 seconds without saying anything. What sounds do you imagine as you look at this painting? Now, altogether as a class make the sounds that you hear in this painting to create a soundscape.