


# BIOMIMICRY


## YOUTH DESIGN CHALLENGE


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### The MIMIC Instructional Framework


While there are many different ways practicing biomimics look to nature to inform design, we have created the MIMIC Instructional Framework to introduce young learners to the core concepts of biomimicry and how to apply them within the context of a creative engineering-design challenge. Each 5E instructional segment within the YDC curriculum addresses one of the five MIMIC phases, which together encompass the introduction of biomimicry as a concept (Motivate), the core elements of a Biomimicry Design Process (Investigate, Match, Innovate), and the preparation of an entry to the challenge (Communicate).

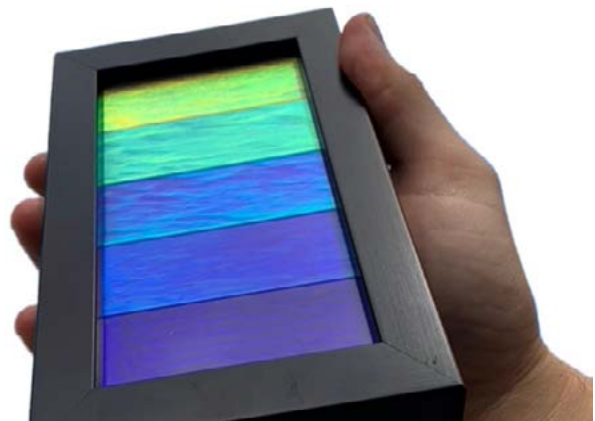
 **MOTIVATE** Get inspired! Motivate your team by exploring a local or global problem and introducing the concept of biomimicry. Learn how the unique abilities of organisms help them to survive and thrive and how people have been inspired by them to design solutions to challenging problems.

 **INVESTIGATE** Investigate the causes and effects of a problem learners are passionate about. Identify aspirational goals, constraints for the design, and the sustainable impact your solution will need to have to address the problem effectively.

 **MATCH** Explore how nature has solved problems similar to yours by matching what you need your design to do with organisms that have similar abilities. Examine why those organisms have those abilities, how those adapted strategies function, and whether they could inspire your solution.

 **INNOVATE** Create a biomimicry innovation that would help solve your selected problem. Refine your innovation after evaluating its strengths and weaknesses both in performance and how well it created conditions conducive to life.

 **COMMUNICATE** Use the power of inspiration, storytelling, and scientific evidence to explain how your biomimicry design solves the selected problem and how nature has inspired it. Offer gratitude for the natural world for sharing wise strategies to better inform design.



Cypris Materials