

Unit Title: Biomimicry

Grade Level: 1

Subject Area: Science, Reading, Math

Duration/Length/Number of class periods:

Description: Students engineer a solution to a relevant problem. i.e. - Use biomimicry to engineer a way to

Established Goals:

1L.3.2.23.2.2 Students will be able to use their understanding of scientific principles and the engineering design process to design solutions that meet established criteria and constraints.*

What Enduring Understandings are desired?

Humans mimic plant and/or animal features to solve problems.

What Essential Questions will be considered?

How have engineers and designers used biomimicry to solve problems in the past?

How can we use designs from a specific culture or community to learn more.

How can we use observations of plants and animals to solve problems around us?

How can we merge the engineering design process and what we know about biomimicry to solve our problem?

Students will know/be able to:

Students will use their understanding of biomimicry to plan and design a solution to a classroom or school challenge problem.

Description <i>Units must include at least one of each formative, summative, introductory activity and learning activity. Check the appropriate box; one per row.</i>	Fo rm ati ve	Su m ma tiv e	Intr odu ctor y Acti vity	Lea rnin g Acti vity	Stude nt Tec hno logy Use d	Teac her Tech nolo gy Used	ISTE Stan dard s
Walk through the field, notice burrs sticking to clothing. Look at slides showing animal/plant adaptations and engineering design solutions. (Make observational assessments of vocabulary & knowledge, and misconceptions). Introduce vocabulary needed, like “biomimicry.”	X		X			X	3
Students research animals or plants, in guided groups, and notice adaptations using Pebble Go, ReadWorks.org, and/or EPIC. (Make observational assessments of vocabulary & knowledge, and misconceptions).				X	X		3
Students match up animals/plants with their engineered counterpart on Seesaw. (Make observational assessments of vocabulary & knowledge, and misconceptions).	X				X		
Introduce the problem: Using the animal’s adaptations, students design work with a partner to engineer a solution to, using recycled materials or materials collected from outdoors (collect during recess or an outdoor walk) - grab a tennis ball off of a ledge 8 feet high and move into a bucket. Move through the engineering design process.				X			4
Students share their design (in class and on Seesaw or Flipgrid) with noting how they used biomimicry in their solution.		X			X		6

Materials, tools and resources:

Teacher Smartboard, Slideshow of plants/animals with adaptations that help them solve problems, Student iPads, Seesaw program, lesson matching animals/plants and with their human engineering solution, [Pebble Go](#), [Pebble Go Animal Activity Research](#), [ReadWorks.org](#)- hard copies of animal/plant stories of students animal interest, and EPIC. Poster or graphic of the engineering design process. Ledge 8 feet high, tennis ball, bucket, recyclable materials & objects from outdoors (burrs, sticks etc.) STEAM/science notebook or Seesaw lesson to draw designs. Classroom microphone.

Unit Plan Author (name, school and optional email address or hyperlink to teacher's web page):

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