



What is Biomimicry?

Subject: Biomimicry

Grade Level: K-5

Topic: Biomimicry

Time: 40 minutes

Learning Objectives

Students will:

- learn about inventions that were inspired by nature (biomimicry)
- apply what they learned about biomimicry to brainstorm new inventions

Materials

Biomimicry Examples Document, book, “Nature Did it First--Engineering Through Biomimicry” by Karen Ansberry, pieces of velcro, sea shell, pine cone, turtle shell (either actual items or pictures)

Procedure

Engage: To promote student curiosity, have students examine pieces of velcro. *Ask: Who knows what this is? What is it used for? Does anyone know how it was invented?*

Explore: Help students build understanding by reading “Nature Did it First--Engineering Through Biomimicry”, by Karen Ansberry. The first story in the book is about the invention of Velcro. Next, share the *Biomimicry Examples* with students and allow them to comment on

each one. *Ask: How is this an example of biomimicry?*

Explain: Have students begin to show what they have learned by asking students if they can think of any other examples of biomimicry. Show students the sea shell, pine cone and turtle shell. *Ask: What inventions could these items found in nature inspire?* Encourage a class discussion.

Elaborate: Have students use what they have learned by having students draw inventions inspired by animals. These can be ones they heard about in class or ones they came up with on their own.

Assessment

Evaluate: Evaluate student learning by having students answer the following questions?

- Name one animal we talked about today.
- Name one invention we talked about today.
- Can you provide a simple explanation of the word biomimicry?

Extension Activities

- Have students use recycled material to create models of their ideas for inventions.
- Select a unique animal or plant and have a class discussion about how the characteristics of this organisms could inspire inventions.

NGSS Alignment

Grades K-2

K-2-ETS1-1 - Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2 - Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Grades 3-5

3-5-ETS1-1 - Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2 - Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.



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