

Biomimicry Pre-Program Activity



Time: About 45 minutes

Number of Students: One class, about 20 - 30 students

Materials:

- Projection setup
- Biomimicry Design Worksheet (two-sided, found at the end of this guide)
- Whiteboard and markers
- Something to write with (one per student)

Overview:

- Biomimicry 101 Videos: 10 - 15 minutes
- Biomimicry and Your Favorite Animal: 20 - 30 minutes

Purpose:

We have found that our Bug Biomimicry programs are most successful and impactful for classes that are already studying biomimicry in class. Towards that end we have designed this Pre-Program Activity to give students a general introduction to the concept of biomimicry.

Lesson Steps: Biomimicry 101 Videos & Discussion: 10 - 15 minutes

Start this activity off by watching one or both of these videos.

SciShow Kids - "Inventing with Plants" (YouTube)

- 4 minutes long
- <https://bit.ly/Biomimicry101A>

Generation Genius - "Inspired by Nature (Biomimicry)"

- Link is embedded on the Generation Genius site. A free, quick account setup (email and name) is required.
- 7.5 minutes long
- <https://bit.ly/Biomimicry101B>

After watching the "Biomimicry 101" videos, lead your students through a discussion about what they saw and learned. A few recommended prompts include:

1. Had you ever heard of the term biomimicry before? If not, had you heard about inventions being inspired by nature, even if you hadn't heard the term?
2. What is the most surprising thing you learned from watching the video(s)?
3. Did you have a favorite invention that was shared in the video(s)? Why was that your favorite?
4. How can humans benefit from making inventions that are inspired by nature, through biomimicry?

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Lesson Steps: Biomimicry and Your Favorite Animal: 20 - 30 minutes

This next activity is designed to let students use their imaginations to come up with a new invention based on their favorite animal. We recommend working through the activity once as a class using your own personal favorite animal (or perhaps on a classroom pet) before releasing your students to work on an invention based on theirs.

- Write the animal on the board and then ask the class to share what they know about the animal and its adaptations. Keep track of their answers by listing them on the board.
- Ask the class, based on this list, what kinds of inventions they think could be created by studying how the animal does all of these cool things. Encourage students to connect their new inventions back to something on the list of attributes and adaptations. Encourage students to think not just about cool inventions, but inventions that solve a human problem. These inventions don't have to be precise or even currently feasible to create - your students' imaginations are the only limit!

For example, if your favorite animal is an owl, the list your class generates might include the fact that owls are really good at flying quietly to sneak up on prey. One potential invention might be a super quiet helicopter or drone that scientists can use to fly over the animals they're studying to learn about them without scaring them away.

- After going through the activity together as a class, pass out the Biomimicry Design Worksheet and let them know that now is their chance to brainstorm ideas for inventions based on their own favorite animal.
- Once students have had a chance to work on their inventions, allow time for them to share their work with the whole class or in small groups.
- Wrap up the activity by letting your class know that during the upcoming field trip they will learn more about how insects and their relatives are inspiring new biomimicry based inventions.

Biomimicry Design

Your Favorite Animal



Draw a picture of your favorite animal.

Your name: _____

Your favorite animal: _____

Facts about your animal: _____

Biomimicry Design

Your Invention



Draw a picture of your invention.

Your invention: _____

Describe your invention: _____
