

Scope and Sequence

Time: 45 minutes/day

How might we create a business that teaches others that studying the diverse ways plants and animals move can help create a design solution to a human problem?

Day (45 min)	Topic	Description	Resources	Vocabulary
1	What is our next unit about?	- Start with slideshow - Ask the question :What will we be learning? - We will be studying birds to design and make our own airplanes. (show it off)	Slide show Learn about how birds fly Stories: Going Places Nature did it first	Biomimicry
2	Study Biomimicry	- Look at plant and animal superpowers through the research worksheet. - Read the story of velcro to learn about how plants inspired it to be made.	Research Worksheet Story of Velcro	Biomimicry Burr Product
3	How people have used things found in nature for humans	- Look at the animal inspiration slide deck- discuss. - Have students complete the product matching activity & color it	animal inspiration product matching	Product

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	What is the business of biomimicry?	- What do you own that is something that is bought from nature? - What is a business? - What is an entrepreneur?	video to learn what an entrepreneur is	Consumer Producer Business Entrepreneur
4	How have people used birds to make products?	- Watch the videos - Complete thinking map	How birds teach us How birds fly Airplane video thinking map	Airplane Compare Birds
5	Opinion Writing: In your opinion, can studying birds help humans learn how to fly (e.g. planes)?	Students write: ☐ Introduce topic (biomimetics) ☐ State their opinion ☐ Supply a reason for their opinion ☐ Provide a sense of closure	Use this template to support writing	
	Business of flight	- Can we make a toy airplane that looks like a bird? - What are our constraints? (budget) - What do other toy airplanes look like? - Talk about tools in lab (laser cutter)	Have a conversation about how they might build a toy airplane that someone else would want to purchase.	budget paper

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6	Laser Cutting	- What is a laser cutter? - How does it work? - Call students to watch the plane get cut.	SVG airplane file Student innovation helpers- June and Brooke	
		- How can we color our planes to show others that airplanes were inspired by birds/teach others about biomimicry? - Create a class logo to establish the classroom as a business. - Practice business school skills with class!	Creating a Logo Business School	
7	Enhancing the plane	- Show students plane designs - Have students color their own plane designs (rough draft)	Painted Planes Planes that look like birds SVG airplane file	
8	Enhancing the plane	Students color their own plane (final draft on wood)		
9	Test Flight	Students test their airplanes for flight	Have students make comparisons to birds and planes. Have students work on math	

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			skills with distance and time measurements.	
		Students sell their airplanes (with their opinion writing piece) at an open house.		
10	Summary of learning	- What did we learn about biomimicry? - What did we learn about business? - How much did we sell? - What did we learn about laser cutting?		

Training:

- Laser cutting

Other Support resources:

[Bird/Plane Budget Sheet](#)

[Biomimetics donation letter](#) (alternative to selling)

[Bird research worksheet](#)

[Deciding on a Business name worksheet](#)

Tips and Tricks:

- If you do not have a marketplace established, you may want to ask for donations and teach the economic concepts that way
- Pre-cut the airplanes ahead of time