

# Mastering Mimicry

## Unit Overview



### DRIVING QUESTIONS:

*How can plant parts inspire human inventions? How can we use biomimicry from plants to help protect a campsite?*

### ANCHORING PROBLEM:

*When families go camping, they often use tents as shelter, but they can fall apart during bad weather or when animals strike in search of food. We can use inspiration from nature to design a better campsite.*

- *Students use plant structures and their functions as inspiration to design a better campsite. They investigate plant parts and their functions, and connect to modern-day inventions based on them. They compare plant parts between young plants and old plants and determine why older plants are so strong. They use their findings about plant parts and their structure and function to design a campsite that can withstand the elements.*

### STORYLINE

#### Section 1: How can plant parts inspire human inventions?

Students are introduced to biomimicry, or using inspiration from nature to solve human problems. They make observations with hands-on plant investigations to identify parts of plants and their functions. They connect each plant part back to biomimicry, thinking about how they could be used as inspiration to help protect a campsite. They make comparisons between plant parts as a plant grows, and throughout seasons, to determine how plants change, and how young plants are alike, but not exactly like, their parents.

- **DCI:** Structure and Function, Information Processing, Inheritance of Traits, Variation of Traits
- **SEP:** Constructing Explanations and Designing Solutions
- **CCC:** Structure and Function, Patterns

#### Section 2: How can we use biomimicry from plants to help protect a campsite?

Students apply their learning about plant parts and their functions by engaging in the engineering design cycle. They use what they've learned about plant parts to develop, model, and test campsite solutions, and compare the results with other teams. Students use the data from their initial tests and feedback from other groups to design a final campsite solution and present it.

- **DCI:** Structure and Function, Defining and Delimiting Engineering Problems, Developing Possible Solutions, Optimizing the Design Solution
- **SEP:** Constructing Explanations and Designing Solutions
- **CCC:** Structure and Function, Patterns

## OVERVIEW

### Introducing the ANCHORING PROBLEM and DRIVING QUESTIONS

(1 day ≈ 30 instructional minutes)

#### ANCHORING PROBLEM

When families go camping, they often use tents as shelter, but they can fall apart during bad weather or when animals strike in search of food. We can use inspiration from nature to design a better campsite.

(1 day)

#### Section 1

*How can plant parts inspire human inventions?*

#### Section 2

*How can we use biomimicry from plants to help protect a campsite?*

*Total Time: 23-24 days*

#### LESSON 1

What biomimicry ideas can we get from seeds?  
(4 days)

#### LESSON 2

What biomimicry ideas can we get from the plant parts on sprouts? (5-6 days)

#### LESSON 3

What biomimicry ideas can we get from flowers?  
(4 days)

#### LESSON 4

What biomimicry ideas can we get from fruits?  
(5 days)

#### LESSON 5

What biomimicry ideas can we get from roots?  
(5 days)

*Total Time: 10 days*

#### LESSON 6

What plant parts could we use as inspiration for our campsite? (5 days)

#### LESSON 7

How can we use inspiration from plant parts to design a campsite solution? (5 days)

**Unit 6 Teacher Guide** (version 7) *Mastering Mimicry*

Washington University in St. Louis Institute for School Partnership