# Natural Selection Island Simulation Activity: Evolution in Action

## Middle School (NGSS Aligned) Teacher Guide

### Overview

This guide supports implementation of the Natural Selection Island Simulation Activity: Evolution in Action using the 5E instructional model.

### Learning Objectives

- Students will observe how animals adapt to different environments
- Students will explain why some traits help survival
- Students will model how populations change over time

### Standards Alignment

- **MS-LS4-4:** Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing
- **SEP:** Constructing Explanations
- **DCI:** LS4.B: Natural Selection
- **CCC:** Cause and Effect

### Prerequisites

- Understanding that organisms have traits
- Knowledge that environments affect survival

## Time Estimate

15 minutes

## Materials Needed

- Computer with internet access
- Student Activity Sheet

## Teaching Tips by Phase

### Phase 1: ENGAGE (5-10 minutes)

- Start with the phenomenon or problem presented
- Elicit student predictions and prior knowledge
- Create cognitive dissonance if possible
- Build excitement for investigation

### Phase 2: EXPLORE (15-20 minutes)

- Allow students to investigate with minimal guidance
- Circulate and ask probing questions
- Encourage systematic data collection
- Note common discoveries and difficulties

### Phase 3: EXPLAIN (10-15 minutes)

- Have students share their findings first
- Build on their observations to introduce concepts
- Address misconceptions directly
- Connect to broader biological principles

### Phase 4: ELABORATE (10 minutes)

- Apply knowledge to new scenarios
- Make real-world connections
- Encourage deeper investigation
- Support transfer of learning

### Phase 5: EVALUATE (5-10 minutes)

- Use varied assessment strategies
- Focus on conceptual understanding
- Provide immediate feedback
- Plan follow-up based on results

> **Remember:**
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> The goal is student discovery through guided inquiry. Resist the urge to explain concepts before students have explored them!

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