Alignment of Potential Monarch Waystation Activities with Elementary NGSS*

Some Questions to Explore: How can we attract monarchs and other pollinators to our Waystation?
What plants are growing in our Waystation? What are their needs?
What pollinators do we observe in the Waystation? What is their behavior?
How can we use the Waystation blog to connect with other Waystations?
Where do monarchs go when they migrate?
Why do monarchs need Waystations?

Grade level/subject: Elementary School Science; The Monarch Waystation Project and other Monarch Watch activities are most aligned with 4th grade NGSS standards that include life cycles, but all grades, K-5, can meet standards with Waystation Project activities. Note the grade level at the beginning of each NGSS citation in the chart below.

NGSS (Next Generation Science Standards) Performance Expectations

K-LS-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.
2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.*
3-LS4-4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth's features.
5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
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.

What NGSS Dimensions do Waystation projects support?		Potential student activities for Waystation projects
Science & Engineering Practices	S1. Ask questions and define problems. S3. Plan and carry out investigations S4. Analyze an interpret data S5. Use mathematics and computational thinking S6. Construct explanations and design solutions S7. Engage in argument from evidence S8. Obtain, evaluate, and communicate information.	• Schools journal or create blog posts about their garden/milkweed plantings and the pollinators observed. • Students observe, record, and identify plants and pollinators in their school garden. Use resources on http:www.monarchwatch.org/waystationnetwork • Students compare and contrast which plants attract more monarchs and pollinators • Use classrooms iPads and other devices ○ Use cameras to photograph milkweed and other plants and pollinators in the Waystation. ▪ How many visitors to a given flower in 5 minutes? How many types of insects in a designated area in 5 minutes? ○ Use compass apps to vector migrating monarchs ○ Use citizen science apps (Ex. citsci.org; iNaturalist) • Students raise monarchs and observe, document and graph their life cycle
Disciplinary Core Ideas	LS1.C: Organization for Matter and Energy Flow in Organisms LS2C Ecosystem Dynamics, Functioning and Resilience LS1.A Plants and animals have both internal and extern function in	

	growth, survival, behavior, and reproduction. ESS3.C Human impacts on earth systems. Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.	http://monarchwatch.org/rear/index.htm • Students tag migrating monarchs http://monarchwatch.org/tagmig/tag.htm • Students track the annual monarch migration using maps on the Journey North website https://www.learner.org/jnorth/maps/monarch.html • Students learn about the effects humans have on monarchs and other pollinators, brainstorm resolutions and create a final product/plan incorporating one resolution
Crosscutting Concepts	Cause and effect Structure and function Patterns Stability and change	

*Next Generation Science Standards