

2017 Report

Native Plant Society of New Mexico Jack and Martha Carter Conservation Fund Award **Elementary Student Education on the Yucca and Yucca Moth** Asombro Institute for Science Education

Summary

With the generous \$600 Jack and Martha Carter Conservation Fund Award grant awarded in February 2017, the Asombro Institute for Science Education conducted 12 classroom science lessons for our 3rd grade Desert Stories project, including three lessons each with two classes at Fairacres Elementary in Las Cruces, New Mexico and two classes at Berino Elementary School in Anthony, New Mexico. Asombro's 3rd grade Desert Stories program engages students in the fascinating story of the mutualism between the yucca and the yucca moth with several hands-on activities. During these activities, students learn about native plants and other science concepts while also covering math and language arts standards.

Desert Stories Program: Yucca and Yucca Moth

In fall 2017, Asombro staff delivered the three-lesson Desert Stories program to 88 students in four 3rd grade classes. Each of the three lessons builds upon the last and is described below.

Lesson 1: The first lesson begins with students receiving a journal and making observations of a “mystery object” using rulers, magnifying glasses, and scales. Students discover that their mystery object is a yucca seedpod through a reading of *Night Life of the Yucca: The Story of a Flower and a Moth* by Catherine B. Hauth. To explore the life cycle of the yucca and learn new vocabulary, students then develop a storyboard with a real yucca seed and hand-illustrated stickers of eight stages of yucca development.

Lesson 2: Students play the roles of yucca flowers, moths, and moth larvae while acting out a skit about the yucca moth life cycle. To reinforce the parts of speech, students use text describing the yucca moth life cycle to conduct a scavenger hunt for nouns, verbs, and adjectives. They then complete a scientific investigation of the number of insect holes in yucca seedpods to practice measurement and graph creation.

Lesson 3: The program concludes with another interactive scientific investigation in which students measure the roots of a yucca model. They complete unit conversions, draw graphs, and describe their results and conclusions.

Results

Students completed an end-of-program drawing and writing assignment. We assessed their understanding by reviewing the variety of items and people from the program included in their drawings and descriptions, such as drawings of themselves using a meter tape, drawings of yucca flowers being pollinated by yucca moths, and descriptions of how they notice the yuccas near their homes and schools much more now. From the assignment, it was clear that students were enthusiastic about native plants, being scientists, and learning science concepts.

On an anonymous teacher evaluation, every teacher rated all seven categories (e.g. overall evaluation of program, correlation with science content standards, etc.) as “excellent,” the

highest rating possible. Teacher comments on these evaluations provide evidence of our program objectives of increased student excitement, improved student skills, and provision of a model for teachers:

“The program offered copious opportunities for students to have hands-on experiences. The students are able to explain the material without prompts.”

“The authentic learning was well presented, rigorous, and thought provoking! My students (and I) are sad that this was our final learning session!”

“The students have enjoyed every lesson. As a teacher, I have also learned, and [the experience] has made me reflect on my own lessons. These lessons have improved my own by using more visuals and using the students to model the skill.”

“I love how the lessons were well integrated and interactive. My students really looked forward to Asombro each week.”

The outcomes of the program were: bringing the program to the attention of school district administrators; increasing students’ excitement about reading, writing, math, and science; increasing students’ reading, math, and science skills; helping students see the potential of science careers for themselves; and providing a sustainable model for teachers that incorporates science into language arts and math standards.

By teaching the program at Berino Elementary in the Gadsden School District, we were able to showcase the program to administrators and teachers in a neighboring district. On the teacher evaluation, one of the Berino Elementary teachers said, *“please come back.”*

On behalf of all the students and teachers who participated in these lessons, we thank the Native Plant Society of New Mexico for supporting quality science education for New Mexico students.

More Information

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