

Summer Bee Camp at Edith Bowen Provides Garden-Based STEAM Learning for 3rd and 4th Graders

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Students at the 2023 Bee Camp use magnifying glasses to examine native bees and other pollinators.

During the middle of June, 30 energetic third and fourth graders from the Cache Valley and Logan School Districts learned about ecosystems, pollinators, pollen, plants, soil conservation, biodiversity, and sustainability at the first annual Summer Bee Camp. The camp was hosted at Edith Bowen Elementary School, part of the Emma Eccles Jones College of Education and Human Services at Utah State University.

The Summer Bee camp was part of the larger [Smart Foodscapes](#) project, which aims to use plant biodiversity in rangelands to create more sustainable beef production systems while engaging and educating current and future land stewards. Smart Foodscapes is a collaboration between multiple departments at USU and other universities across the nation, and it is funded by a grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture.

The education component of the five-year Smart Foodscapes grant involves six K-12 partner schools with the goal of integrating garden-based learning into science, technology, engineering, arts, and mathematics (STEAM) teaching and learning, both in K-12 schools and in informal science contexts like botanical gardens and museums.

Dr. Kathy Cabe Trundle, a professor in the USU School of Teacher Education and Leadership, is a co-principal investigator and education coordinator on the Smart Foodscapes project. She stated that the purpose of this initial Bee Camp was to pilot and revise the camp's curriculum, which will be freely available online for use by families and teachers.

"The week-long camp allowed the children to experience and learn about targeted pollinator conservation concepts through an arts integration approach that involves learning through dance, writing, painting, planting, reading, observing, investigating, and experimenting," Cabe Trundle said. She added that the Bee Camp's activities and lessons follow the framework of the 3H Learning Model, creating "hands-on, heads-on, and hearts-on" learning experiences through inquiry exploration, cognitive discussion, and affective play.

Over the course of the week, campers learned about the critical role bees play in food production and sustainability of the environment by building native bee homes, studying soils and composting, creating gardens in jars, journaling about pollinators and plants, learning about the life cycle of a native bee through interpretative dance, and using technology to examine various species of insects.



Dr. Kathy Cabe Trundle teaches a group of students about plants and soil at the 2023 Bee Camp.

Students commented that some of their favorite activities were learning about Utah's many native bee species, observing and drawing details of flowers, and planting and tending a school garden. Each camper was able to "adopt" a plant in the garden that they cared for and observed throughout the week. The end of the camp was marked with a showcase where students shared what they had learned and exhibited their creative projects, including paintings of flowers and three-dimensional models of insects.

"My son absolutely loved everything about this camp, and the things he learned continue to come up in our day-to-day conversations," said Jessica Schad, parent of a Bee

Camp student. “The variety of activities they did, the in-depth and experiential learning, and their great teacher partners all contributed to his overwhelmingly positive learning experiences. We are already excited for next year!”

Cabe Trundle attributed the Bee Camp’s success largely to the dedication of the education team involved. “This group of experts truly makes up a ‘dream team’ of researchers, teachers and undergraduate and graduate students who share a passion and vested interest in helping children become pollinator protectors, guardians of the soil, and water watchdogs,” she said.

As the grant continues through its five-year timeframe, Cabe Trundle said that there will be another summer bee camp for elementary school children and two camps in following years that will include middle and high school students. “Our goal is to develop a K-12 garden-based STEAM curriculum that effectively develops content knowledge, improves environmental attitudes and behaviors, supports interpersonal skill development, and encourages overall student wellbeing,” Cabe Trundle said.

Key members of the USU Smart Foodscapes team include the grant’s principal investigator, Dr. Juan Villalba of the Department of Wildland Resources, and co-principle investigators across multiple departments at Utah State:

- Kathy Cabe Trundle and Aurora Hughes Villa (School of Teacher Education and Leadership)
- David Dahlgren, Doug Ramsey, and Eric Thacker (Department of Wildland Resources)
- Jennifer MacAdam (department of Plants, Soils and Climate)
- Jessica Schad (department of Sociology, Social Work and Anthropology)