

# Ecology Explorers: Bringing CAP LTER to community stakeholders



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## Introduction

A unit of the Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) program, Ecology Explorers seeks to provide a broader impact of CAP LTER by giving students, teachers, and community members the opportunity to learn about the ecology of our desert cities and its complex dynamics being studied. Ecology Explorers:

- **Strengthens science curriculum** by developing lessons based on current urban ecology research performed by CAP LTER that follow state and national science standards
- Engages students in the **scientific process** of developing hypotheses, planning the experiment, collecting data collection, and analyzing results
- Provides teachers with lesson plans, slide sets, facilitated lessons by Ecology Explorer staff, and **professional development**
- Extends **community awareness** of urban ecology in Sonoran Desert to include relevant sustainability issues

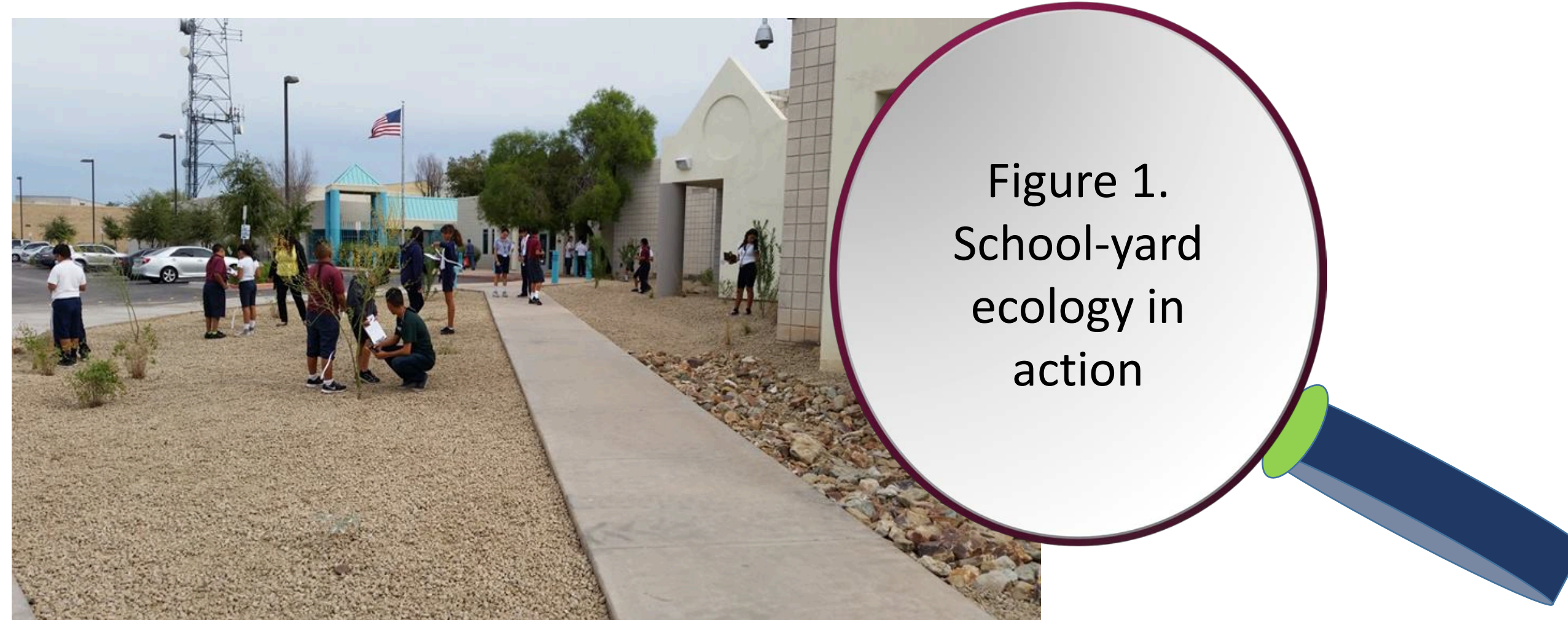


Figure 1. School-yard ecology in action



Figure 2. Summer teacher workshop



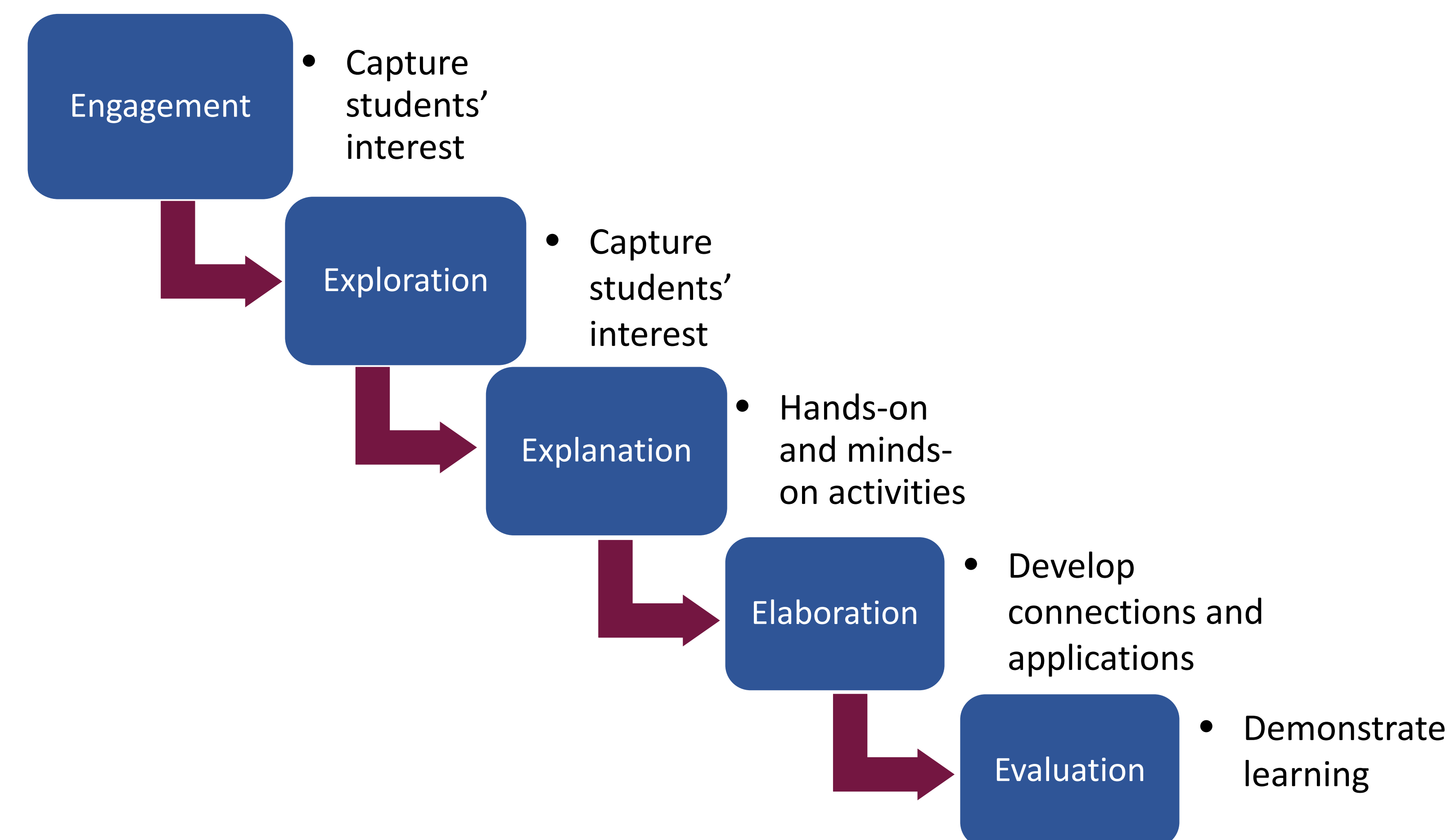
Figure 3. 'My Yard' activity about landscape type affect on water and energy usage

## Lessons and Outreach

Ecology Explorers develops and publishes lessons at the elementary and middle school levels. The topics of each lesson originate from published work by CAP LTER scientists. In the lessons, vocabulary and/or techniques are defined, background information is given, and the results or protocols represent those used in the actual research that inspired them. **Ecology Explorers lessons:**

- Include the following topics:
  - Birds and arthropod identification
  - Urban Heat Island
  - Land use and policy
  - And response to environmental change by organisms
- Follow the **BSCS 5E Instructional Model of Learning** to create an engaging, experiential learning experience for both students and teachers that allow students to build their own understanding of scientific concepts and skills

Figure 4. BSCS 5E Instructional Model of Learning by Bybee, R.W. et al.



- Meet certain Arizona Department of Education Science Standards, Next Generation Science Standards, and Common Core **standards** in order to make them relevant and applicable to state educators, as well as usable by educators across the nation

## Outcomes

The mission and goals of the Ecology Explorers program is achieved through:

- Introducing **ecology concepts** into the classroom using actual scientific research
- Expanding teachers' **research skills** and increase breadth of scientific knowledge
- Providing undergraduate and graduate students opportunity to serve as **educational outreach volunteers**; students gain experience in both formal and informal environmental educational settings.



Figure 5. Students working on Nature's Water Filter Activity

## Conclusions

Ecology Explorers focuses its educational efforts within the field of urban ecology. By utilizing the research performed by CAP LTER to create and implement environmental education programming for elementary and middle school age students.

The program's work demonstrates that residents of the Valley or Central Arizona-Phoenix are stakeholders of CAP LTER as the research taking place involves the urban ecosystem of which they are a part. Similarly, the Ecology Explorers program signifies the importance of bridging the academic sphere with the public sphere through environmental education. The lessons on what it means to live in an urban area within the Sonoran Desert both increase environmental and scientific literacy across all age-groups and contribute to the public's sense of place.

Members of this program work to increase ecological understanding across the state by performing education and outreach work at schools, after school programs, public events.

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## For Further Information

More information on Ecology Explorers and related projects can be obtained by emailing:

[ecology.explorers@asu.edu](mailto:ecology.explorers@asu.edu)

or by visiting our website at:

[sustainability.asu.edu/ecologyexplorers](http://sustainability.asu.edu/ecologyexplorers)