

# Assessment Rubric for Describing Impacts of Citizen Science Engagement with Students

## About this Rubric

Determining your intended goals and indicators of those goals prior to starting to engage students in citizen science will make it easier to guide students toward achieving your learning outcomes and objectives, and will make expectations for evaluation clear. As you fill out this rubric, feel free to add more subjects under each impact category as well as defining and adding concrete content/concepts based on the citizen science project chosen and your intended learning outcomes for the unit.

This rubric is adapted from *Table 2. Assessment Rubric for Describing Impacts of Public Participation in Scientific Research Projects* in Bonney, R., Ballard, H., Jordan, R., McCallie, E., Phillips, T., Shirk, J., and Wilderman, C. C. 2009. *Public Participation in Scientific Research: Defining the Field and Assessing Its Potential for Informal Science Education*. A CAISE Inquiry Group Report. Washington, D.C.: Center for Advancement of Informal Science Education (CAISE).

**Stated goal(s)** | What learning goal(s) do you have for your students about each of these topics?

**Potential indicators** | What will indicate that your students are understanding these subjects and reaching your learning goals?

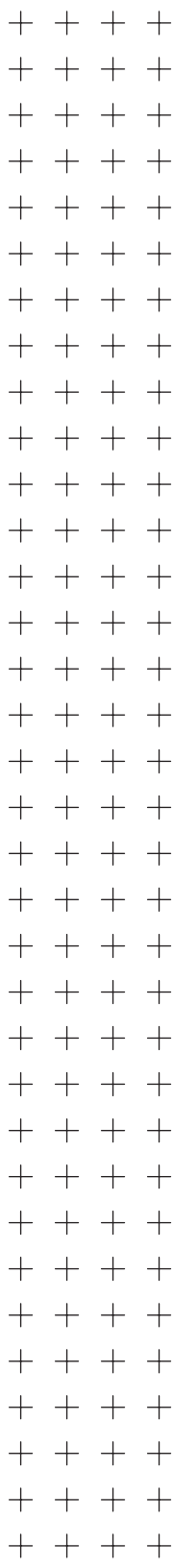
**Measurable outcomes** | How can you qualitatively or quantitatively measure and evaluate that your students are learning and understanding?

**Inferred outcomes** | What outcomes seem to be happening but are based on your observations or perceptions of your students as opposed to qualitative or quantitative evaluation?

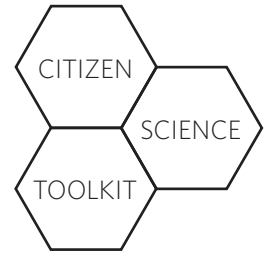
## Impact Category

**Mindsets** | When framing citizen science, goals should not just be focused on understanding of what citizen science is, but creating a deeper understanding of science in general, how science works, and how it relates to everyday life, as well as students feeling empowered that they, too, can be a scientist and/or contribute meaningfully to science. Some standardized metrics for evaluating attitudes are available, but many rely on student self-reports. In the context of citizen science, outcomes may include changing students' attitudes about the role of science in their lives or in society, or a shift in seeing science as lab-based and potentially tedious, to something that happens everywhere and is interesting and fun.





**Skills** | As you guide students through the scientific inquiry process, goals should focus around students developing proficiency in and feeling comfortable in using the related skills. Indicators of skill development could include a demonstrated degree of proficiency (such as the ability to identify species) or adoption and employment of a science-related skill (for example, careful observation, questioning, logical arguments, etc.). See *Student Scientific Inquiry Skill Building Indicators* in the Assessment Check-in #2 for evidence of inquiry understanding and implementation.



**Awareness, knowledge, and/or understanding (of) content (concepts), process, nature of science, and citizen science community**

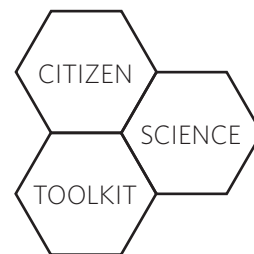
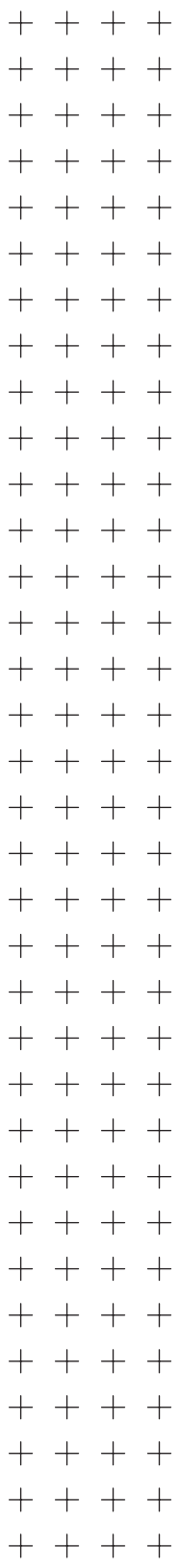
| Based on the specific citizen science project your class is participating in, determine what your goals are in these areas, in terms of student understanding and learning. Evidence for student awareness of these subjects can be observed through direct assessments, self-evaluation, or self-reflection.

**Engagement or interest (in) content (concepts), process, citizen science community**

| Based on the specific citizen science project your class is participating in, determine what your goals are in these areas, in terms of student interest. Indicators of engagement and interest may include depth of involvement with or commitment to a project, choices to further pursue content knowledge or related activities beyond a project’s scope, or continued interaction with the community of other volunteers in the project.

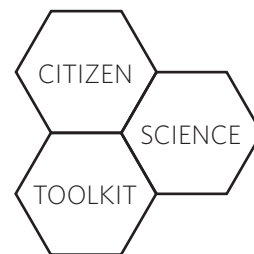
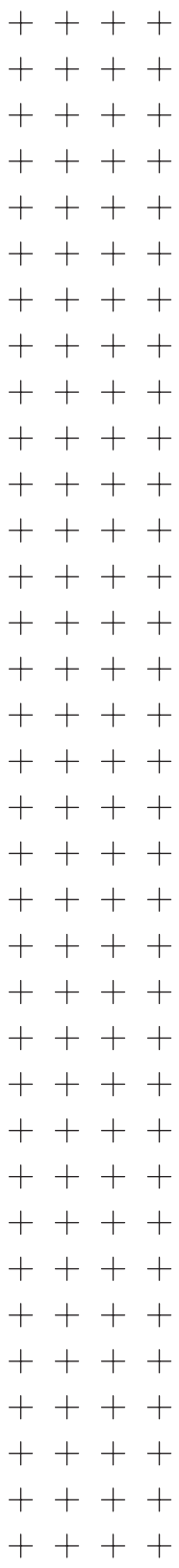
Impact category	Stated goal(s)	Potential indicators	Measured outcomes	Inferred outcomes
<b>MINDSETS</b>				
There remain unanswered questions in science				
Science serves society; society needs science and a scientifically literate populace				
Anyone can be a scientist				
Scientists are global citizens				





Impact category	Stated goal(s)	Potential indicators	Measured outcomes	Inferred outcomes
Curiosity and agency drive scientific research				
Science is work and play				
<b>SKILLS</b>				
Making observations				
Asking questions				
Planning and carrying out investigations				
Analyzing and interpreting data				
Constructing explanations, engaging in argument from evidence, and communicating information				





Impact category	Stated goal(s)	Potential indicators	Measured outcomes	Inferred outcomes
<b>AWARENESS, KNOWLEDGE, AND/OR UNDERSTANDING (OF)</b>				
Content (Concepts)				
Process				
Nature of science				
Citizen science community				
<b>ENGAGEMENT OR INTEREST (IN)</b>				
Content (Concepts)				
Process				
Citizen science community				

