

Competencies for the Foundation of Citizen Science Badge

1. Recognize how citizen science can address real-world challenges and questions.

- Elaborate on how participation in citizen science projects benefits the scientific community and society.
- Identify, explore, and access one or more citizen science projects.
- Articulate the purpose of Citizen Science and explain how it can be used by citizen scientists and research scientists to connect curiosity with impact.

2. Understand the importance of ethical practices in data collection and use.

- Knowledge of strategies for protecting science and the validity of findings
- Understand confidentiality and information privacy and security.

3. Understand how data is gathered and used to test hypotheses

- Contribute to an active project by generating, coding, analyzing, and/or displaying data.

4. Evaluate strengths and limitations of scientific studies

- Identify aspects of a research project that indicate validity, reliability and/or proper research methodology.
- Identify aspects of a research project that indicate weaknesses or biases in methodology, participant preparation, and/or project application.
- Discuss how strengths and weaknesses can affect the validity of research findings/conclusions.

5. Communicate about the scientific process

- Tell us what you did
- Summarize
- Interpret
- Say why it's important
- Reflection and personal connection

Rubric

Competency	Activities/Exercises/Assignments/ Student Artifacts	Competent	Not competent
<p>CS application <i>Recognize how citizen science can address real-world challenges and questions.</i></p>	<ul style="list-style-type: none"> • Find and describe an example of a citizen science project that has resulted in a major discovery or is having a significant real-world impact. • Identify local organizations that run citizen science projects and describe what problem they are trying to solve and how. • Complete and pass the SciStarter “Foundations of Citizen Science” tutorial and quiz. 	<ul style="list-style-type: none"> • Elaborate on how participation in citizen science projects benefits the scientific community and society. • Identify, explore, and access one or more citizen science projects. • Articulate the purpose of Citizen Science and explain how it can be used by citizen scientists and researchers to connect curiosity with impact. 	<p>Did not complete one or more of the listed actions.</p>
<p>Ethics <i>Understand the importance of ethical practices in data collection and use.</i></p>	<ul style="list-style-type: none"> • Complete and pass the SciStarter “Data Ethics for Practitioners” tutorial and quiz. 	<ul style="list-style-type: none"> • Knowledge of strategies for protecting science and the validity of findings • Understand confidentiality and information privacy and security. 	<p>Did not complete one or more of the listed actions.</p>
<p>Data <i>Understand how data is gathered and used to test hypotheses.</i></p>	<ul style="list-style-type: none"> • Contribute observational, survey, and/or experimental data to active citizen science projects; explain what research question is being investigated 	<ul style="list-style-type: none"> • Contribute to an active project by generating, coding, analyzing, and/or displaying data. 	<p>Did not complete at least one(?) of the listed actions.</p>

	<ul style="list-style-type: none"> • Categorize, identify, and/or transcribe images/videos for active citizen science projects; explain what research question is being investigated 		
Evaluate <i>Identify research strengths and weaknesses and understand their potential impacts.</i>	<ul style="list-style-type: none"> • Write an analysis • Contact project scientists or coordinators and provide feedback directly to them. • Group work – students collectively identify weaknesses in a study and determine how they would change the study to address them. 	<ul style="list-style-type: none"> • Identify indicators of validity, reliability and/or proper research methodology. • Identify aspects of a research project that indicate weaknesses or biases in methodology, participant preparation, and/or project application. • Discuss how strengths and weaknesses can affect the validity of research findings/conclusions. 	Did not complete one or more of the listed actions.
Communication <i>Communicate about the scientific process.</i>	<ul style="list-style-type: none"> • Write a paper • Create a narrated PowerPoint presentation • Create and present a scientific poster 	<ul style="list-style-type: none"> • Tell us what you did • Summarize • Interpret • Say why it's important • Reflection and personal connection 	Did not complete one or more of the listed actions.

References:

European Citizen Science Association (ECSA). (2015). [Ten Principles of Citizen Science](http://doi.org/10.17605/OSF.IO/XPR2N). Berlin. <http://doi.org/10.17605/OSF.IO/XPR2N>

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