Citizen Science

Citizen Science is a means of gathering data through public participation. It allows scientists and institutions to have help with their research, while providing a real-world vehicle for engaging students in science. Examples include: regularly surveying the insects in your yard and reporting them to the local natural history museum; uploading photos of animals you come across to an app like iNaturalist or eBird; partnering with NOAA to learn to take air quality measurements in the school yard and sharing the data with their scientists.

You can use citizen science to enrich a particular unit of study or you can build a unit around the practice and skills of citizen science. You can also turn a unit or project that focuses on data collection in outdoor environments into a citizen science project by looking for online platforms (websites or apps) to add your class's data to.

GRADE: All

INTENDED OUTCOMES: hands, head

SUGGESTED SUPPLIES:
- Depends on the specific investigation, but paper and pens, cameras, and internet are often helpful

Suggested steps and/or focus for each grade level*:

All Grades:
- Train students on data collection methods
- Collect data
- Upload or share data with the public and/or scientific community

ECE-2nd Grade:
- Remember that "collecting data" can be as simple as counting, taking measurements, or recording what colors you see outside one day a month. "Analysis" includes noticing patterns in your observations or calculating simple fractions.
- Focus on the school community and collect data on living and non-living things on or around the school grounds

3rd Grade:
- Try setting up a data collection that relates to cycles and change (the rock cycle, the water cycle, life cycles, etc.) For example, many scientists are interested in tracking when certain plants bloom in the spring, as comparing this to data from previous years can tell us how climate is affecting plant life cycles.

- Alternately, focus on collecting geographic data that helps students understand their region's watershed and the impact that people have on it. Depending on the tools at your disposal (or available through community partners and providers), this may include recording trash in storm drains or disolved oxygen levels in streams and ponds.

4th Grade:
- Focus on the interaction and interdependce between living and non-living components of a system. For example, make observations about soil type and plant diversity.

5th Grade:
- Focus on the cycling of matter and energy within ecosystems. This can include taking air and surface temperature readings.

Middle and High School:
- Use this as an opportunity for civic engagement and exercising civic voice. Pick projects that add to our collective understanding of global trends over time, such as climatic observations.

*For more detail on the grade-level focus for natural and social concepts and sense of place, please refer to the Guidelines

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TIPS AND TRICKS

- It may be helpful to look for a local community partner, such as a natural history museum, university, or government entity to see if they have any on-going projects that your class can help with. They may even have a specific citizen science program. Check our list of partners!
- Try adding a bit of competition to the data collection to increase engagement. Try awards for most entries, most accurate or detailed entries, or rarest species found.
- Often you are adding data to a study which will not be published for some time (if ever). Consider analyzing your own data as a class so that you have some "results" to show for your efforts.
- Join together with other classes in your school or in your region to create your own "study." Present the finding to the school board, city council, or other public agency.

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Relevant Standards

MA10-GR.5-S.3-GLE.1, SS09-GR.HS-S.3-GLE.2, RWC09-GR.5-S.4-GLE.1