

Engaging Students as Citizen Scientists: Apps, Data, and the Outdoors

Anne Fege and Su Scott-San Diego Children and Nature, afege@sdchildrenandnature.org

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Students participate with scientists and other observers in research projects by collecting and entering data about plants, birds, insects, weather, and astronomy. Educators can use online programs and smartphone apps that can enhance learning in and out of the classroom.

Research outcomes

- Documenting range shifts
- Identifying vulnerable species
- Health planning
- Anticipating effects on water sources

Learning outcomes

- Science practices
- Critical thinking
- Social capital
- Improved policy

What is citizen science? Members of the public engaging in real-world scientific investigations: asking questions, collecting data, and/or interpreting results

Why invite Public Participation in Scientific Research?

- Improves understanding of local conservation issues
- Observe, collect and interpret data in meaningful experiences in the natural world
- Open doors to authentic student investigation, science practice and reasoning skills
- Engage local scientists, grad students, park/natural resource professionals

NGSS Science and Engineering Practices

- Asking questions and defining problems
- Planning and carrying out investigations
- Analyzing and interpreting data
- Engaging in argument from evidence

Approaches

- Start with driving question
- Incorporate into Project Based Learning
- Compare with other regions and countries
- Ask local scientist to visit classroom

Some citizen science projects to explore

www.inaturalist.org/projects/rascals
www.aza.org/frogwatch
www.gbcbirdcount.org
www.monarchwatch.org
www.lostladybug.org
www.celebrateurbanbirds.org
www.eBird.org
www.usanpn.org
www.budburst.org
www.imapInvasives.org
www.sdplantatlas.org

www.seafloorexplorer.org
www.ibol.org and www.barcodeoflife.org
www.sdbiodiversity.ucsd.edu
www.citizenscience.org
www.citizenscienceacademy.org
www.iNaturalist.org
www.projectnoah.org
www.zooniverse.org
www.galaxyzoo.org
www.scistarter.com
www.openscientist.org

Local projects:

- San Dieguito River Park
http://sandiequitrivervalleyconservancy.org/sdrvc1_citizenscience1.html
- River Watch--San Diego River Park http://www.sandiegoriver.org/river_watch.html
- San Diego Zoo Global <http://blogs.sandiegozoo.org/2013/01/31/citizen-science/>
- Phenology—Cuyamaca Outdoor School
- Canyon trash—Ocean Discovery Institute
- San Diego Children and Nature <http://sdchildrenandnature.org/wp/natural-history/>