



## TIPS FOR EFFECTIVE INTEGRATION OF COMMUNITY/CITIZEN SCIENCE PROJECTS

These tips are designed to help teachers seamlessly integrate community/citizen science initiatives into their classroom practice. These approaches aim to create an engaging learning environment that fosters scientific inquiry, data literacy, and environmental stewardship among students through participation in real-world research projects.



### Project Selection and Integration

#### Curriculum Alignment

- Choose community/citizen science projects that align with your curriculum goals and standards/outcomes. Platforms like SciStarter and Zooniverse offer a range of age and developmentally appropriate projects across various subjects.

#### Local Relevance

- Prioritize projects that have local significance or impact to increase student engagement and connection to their community.

#### Long-term vs Short-term

- Consider both long-term monitoring projects and short-term data collection efforts to suit different classroom schedules and learning objectives.



### Hands-in, Minds-on Participation

#### Data Collection and Fieldwork

- Organize regular field trips or outdoor sessions for students to collect data for projects like the water quality monitoring initiatives of Water Rangers (freshwater) and Ocean Diagnostics (marine environments).

#### Student-led Investigations

- Encourage students to design their own community science investigations addressing local environmental issues.



### Cross-Curricular Connections

#### Science and Math

- Integrate data analysis and visualization techniques using real data sets from citizen science projects. This will spark student interest by moving away from the predictable 'cookbook' investigations often presented in school.

#### Language Arts

- Encourage students to communicate their scientific findings through various digital and multimodal formats. This can include project reports, class newsletters, blog posts, school-based social media channels, or presentations.



### Develop Competencies - Communication and Critical Thinking

#### Hypothesis Formation

- Encourage students to form hypotheses based on community/citizen science data and design follow up investigations.

#### Data Interpretation Workshops

- Conduct sessions where students analyze and interpret data from community/citizen science projects, developing critical thinking skills.

#### Peer Review Process

- Implement a peer review system for student-generated data to emphasize the importance of data quality in scientific research.



### Technology Integration

#### Mobile Apps

- Utilize citizen science apps like iNaturalist or Parks Canada Coastie for easy data collection and submission.

#### Data Visualization

- Teach students how to use AI tools like Tableau to create visual representations of collected data.



### Community Engagement and Partnerships

#### Local and Global Expert Involvement

- Involve scientists, naturalists, or researchers who can provide insights into regional ecosystems and ongoing research.
- Involve Indigenous knowledge keepers, who can provide valuable place-based ecological knowledge.
- Virtual field trips to research stations or laboratories, allowing students to witness science in action.

#### Intergenerational Learning

- Partner with local senior centres or retirement communities to involve older community members in community/citizen science initiatives alongside students.
- Collaborate with early childhood centres or elementary schools allowing older students to mentor younger ones in data collection and analysis.
- Invite young professionals to share their expertise and enthusiasm with K-12 students.



### Assessment and Reflection

#### Digital Portfolios

- Have Students maintain digital portfolios documenting their contributions and reflections.

#### Project Impact Essays

- Assign reflective essays on how participation in community/citizen science has impacted students' understanding of scientific processes.

#### Peer Evaluation

- Implement peer evaluation systems for group citizen science projects to develop collaborative skills.