Community Science

Edu-Kit Information

Welcome to the Community Science Edu-Kit – a series of lesson plans designed to connect students to nature through the use of technology! This collection is the result of a long-standing collaboration between CPAWS Southern Alberta and Green Calgary. We hope you enjoy using this kit as much as we enjoyed creating it!

- The CPAWS SAB and Green Calgary teams

What is community science?

Community science (or as it may be referred to, citizen science) is the collection of scientific data by the general public. In the case of this Inquiry Collection, it refers to the collection of plant and animal sightings in our local area and uploading these to a citizen science app to share with scientists.

Community science is valuable as it allows for the broad collection of data over a long period of time, leading to a substantial data collection which would otherwise be too costly and time intensive for scientists to achieve.

Many community science apps display data so that this can be used by citizens as well as scientists. You may choose to spend some time exploring the data collections with your students.

Community science data can contribute to scientific research and may be shared with governments. Ultimately, this may impact laws and policies to protect habitats and particular species.

How can I frame community science in my classroom? How should I link community science to the curriculum?

Community/citizen science provides a way to deliver curriculum through meaningful, hands-on experiences, and a real-world context. It brings science to life and puts students in the role of being a scientist themselves. This increases scientific literacy, breaks down barriers for students interested in a scientific career, and opens student's eyes as to why scientific research is important to both society and the environment.

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Community science projects can help make concrete connections between classroom learning and life skills. Developing skills such as curiosity, agency, critical thinking, civic engagement, and collaboration prepares your students to thrive in a 21st century world.

You will find curriculum connections listed on each lesson plan. While these lessons have been designed to fit with particular grades and curriculum connections, they may be adapted to fit other curriculum connections, or for other groups.

Community science may be a quick project for your class, or you may choose to use this as the basis of an inquiry project. Our lesson plans are flexible, allowing students to follow their interests and passions in the natural world. All citizen science submissions can contribute towards local, national, and international data collection and scientific research.

Why pollinators?

Pollinators are an accessible way to motivate students to go outside, observe their environment, and develop a sense of place. In all areas around the world, and in all seasons pollinator species can be found.

Unfortunately, due to human impacts, such as climate change, global pollinator populations are declining. Pollinators such as insects and birds excellent bioindicator species. The presence, diversity, and abundance of birds in an ecosystem is an indicator of that area's health, or lack thereof. As such, conducting citizen science data on pollinators is beneficial for both students and the scientific community as participants can find pollinators in any habitat and scientists are provided with valuable observational data, otherwise inaccessible to them.

By utilizing the pre-existing citizen science project, iNaturalist, students are able to be a part of a well-established and global project, whose data has informed many scientific papers and conservation initiatives. One of the keys to enjoying species identification and citizen science is to embrace the unknown. Even teachers that are pollinator experts do not have all the answers. Learning alongside students provides a great opportunity to model and encourage a curious mindset.

Inquiry learning – what is it and how should I use this?

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Inquiry-based learning puts the student at the centre of the learning process. Students are given the freedom to explore, question, and discover at their own pace, rather than the teacher directly sharing information with students. Citizen science provides an ideal context for inquiry learning as the plant and animal submissions made by students contribute to real-world science. Spending time outdoors engaged in citizen science activities and observing the natural world provides an excellent environment for students to go beyond the curiosity stage into critical thinking and deeper levels of understanding.

How to use this kit

The Edu-Kit contains a series of curriculum-linked lesson plans. The first five lessons are introductory sessions; introducing citizen science and developing skills to use in the later practical sessions. It is recommended you complete these sessions in order. Lessons six-ten are practical outdoor sessions and can be completed in any order. The lessons have been designed so you can complete as many, or as few, as you like. Lesson plans:

Introductory:

- Lesson 1: What is community science?
- Lesson 2: How to identify a species
- Lesson 3: Indigenous Knowledge in citizen science
- Lesson 4: How to take part in community science
- Lesson 5: Knowledge review session

Practical outdoor:

- Lesson 6: Binocular ID
- Lesson 7: Observational Tree Mapping
- Lesson 8: Tree Life Stages Game
- Lesson 9: Tree Growth Patterns
- Lesson 10: Quadrant Study
- Lesson 11: Pollinator walk

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Contents of the kit

On each lesson plan, you will find a list of equipment needed for the session. Some lessons may include a PowerPoint Presentation, which will be shared with you when you rent the Edu-Kit.

All of the equipment needed can be found in the box and, if required, is labelled with the lesson number or theme.

If any of the equipment is missing, please contact us and we will deliver the equipment to you as soon as possible.

What should I do if I have questions about the kit?

If you have any questions about the Edu-Kit, please contact us!

Contact info:

CPAWS Southern Alberta:

Contact: Vanessa Bilan

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Green Calgary:

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