



Getting Started with Fieldwork

A guide to support educators in building and conducting fieldwork exercises and programs

Introduction to Fieldwork & Spatial Thinking

Why do fieldwork?

The purpose of fieldwork is not just to map out vegetation or a walking route, or to do a survey of the number of cars on the road. To reach meaningful outcomes, fieldwork uses **observation, primary data,** and **outdoor experiences** to facilitate authentic, real world learning. Students exercise their spatial thinking skills and practice collecting and representing data. Fieldwork gets students outside into different environments and encourages them to look at these environments from various geographical perspectives. Fieldwork can be conducted in a single class period or extended over a whole term; it can be as simple or complex as you require. Fieldwork is about helping students observe and analyze the human and physical environment around them; it does not matter if you are in an urban or rural setting, a lush or dry environment. This guide can help you explore fieldwork topics and provide points to consider in setting up or conducting your fieldwork activities.

Selecting an objective/purpose:

You can conduct fieldwork to...

- **measure** where certain things are. This objective is used in cases where you know what you are looking for and what you are trying to collect, record and represent using location points.
- **describe** or map what you find in a certain location. Sometimes these objectives can be done simultaneously, but it is important to understand that they are two different activities.

Location is always a fundamental part of fieldwork, as it provides the context for learning, and often is the canvas for representing data (as a map) and for further analysis. Spatial thinking is a vital part of any fieldwork in both data collection and interpretation.



Key Ingredients for Fieldwork study

While the time and place of your fieldwork will be determined by your **goal**, **resources**, and **locale**, all fieldwork activities have the following common key ingredients. Each ingredient is important to help students think spatially and to represent spatial data.



..... Observe:

Think of the context of your fieldwork study, and your overall objective, and what you want your students to notice or measure. Regardless of where you are, something of spatial nature or with a spatial component will be observed.

KEY QUESTION: *Where are you, and what type of information do you want your students to collect?*



..... Collect:

Students can measure or describe their observations using quantitative or qualitative methods. Both types are possible but require different methods and recording mechanisms. The data collected and the methods used must align with the overall objective.

KEY QUESTION: *How will students describe their observations and location?*



.. Record:

Student recordings can be on paper, using tablets or notes, or using technology through a GIS data collector app. Regardless of how your data is captured, your recording plan has to align with your fieldwork objective and should be planned out ahead of time.

KEY QUESTION: *What means of data recording makes sense, given the environment, resources, and type of data collected?*



.. Analyze:

This inquiry can be done by asking questions like what patterns and trends do you see? What has changed over time? What changes/enhancements can you suggest based on the data that you have collected?

KEY QUESTION: *How will students organize and make sense of the data they collect?*



..... Represent:

Representing the data collected can be done through a map, spreadsheet, table or even a written expression.

KEY QUESTION: *How will the results of the analysis be presented and shared?*



.. Apply:

Students can use their findings in a number of ways. They should try to answer the questions: Why are we doing this? Who else would benefit from our data? This can be done through group discussion and/or responses to analytic or reflective questions.

KEY QUESTION: *How can students bring this activity and experience into a real-world context?*

Possible Fieldwork topics

Land use change: Explore how the **environment** and land use has changed over time by viewing past aerial photographs and comparing to present use.

Urban renewal: Select an area in your town or city and have students investigate, map, and assess how **sustainable** it is and how this location could be improved upon to be more sustainable.

Survey: Students can **survey** a location, such as a school yard or conservation area, and propose the best location for a new feature (ex: a picnic area, a play structure).

Water analysis and use: Visit a local stream or **waterway** and collect data on the types of animals that live within and around it, what human constructions are located nearby, and the overall health of this location. Students can offer suggestions on changes and action items that need to be taken in order for this waterway to be sustainable.

Community program monitoring: Have students investigate a **program** that has recently been implemented in your community (ex: recycling, compost, skateboard park) and have students determine its influence and impact on their community.

Accessibility: Create an **accessibility** or safety map of a local area, and invite government leaders to improve areas that pose challenges.

Citizen science: Collect **data** to contribute to the knowledge of a community or join a scientific community to aid in their data collection (e.g. migrating birds, water quality, hazards).

Materials & Tools

Tools and materials will differ based on the **theme** and **objectives** of your fieldwork. Here is a list of common tools that can be used to assist students in data collection:



Measuring tape



Compass



Printed maps (old or current)



Past photos of the area



GPS



Smart device with GIS collector app



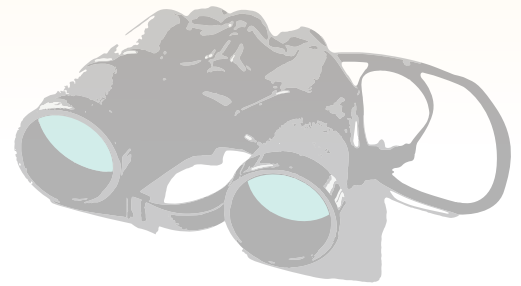
Camera



Pens, paper, notepad



Clear jars for sample collecting




Fieldwork Example:


Water systems & sustainable communities


Objective: Students will collect and analyze data pertaining to a waterway in their local community and suggest ways to make this system sustainable.


Materials:

- notebook, pen, paper
- hand-held device (if recording data using an app)
- past and present maps of the area (optional, if available)


 **Observe:** Students arrive at the waterway, observe its location in relation to the rest of their community, how long it is, how it is used and what is developed around it. (Past and present maps, as well as aerial photos, can be used here at the site).


 **Collect:** Students will collect information on the waterway's flow, structure, what functions it serves in their community, and the water quality indicators (ex: clarity, obstacles, depth, velocity, smell, presence of aquatic animals).

 **Record:** Students will record ideas and observations on paper or using a collector app such as Google forms or ArcGIS. If a map of this water system is available, students can also annotate a map to record the exact location of their observations.

 **Analyze:** Students will review their recorded data and suggest changes to the water system relating to:

- Water quality and sustainability
- Human use (ex: industrial, commercial, residential, recreational)

 **Represent:** Students will highlight their suggestions using a new base map or updating the map they created before (either online or hand drawn).

 **Apply:** Students will be asked to answer analytical questions such as:

- What is the pattern or distribution of...
 - * water velocity
 - * human use
 - * water quality
 - * aquatic animals
- How does the water flow change?
- What challenges does this location face in terms of maintaining water quality?
- What examples exist where land and water use practices are applied in a sustainable manner?
- Which areas are of particular concern? Why?

Fieldwork Resources

Here is a list of resources that will help you **brainstorm** fieldwork ideas and **develop** your own fieldwork activities. If you have a fieldwork idea share it with us in an email to info@cangeoeducation.ca.

- **Nature Canada**
naturecanada.ca
- **CWF/ Bioblitz Canada**
bioblitzcanada.ca
- **Citizen Science**
citizenscientists.ca/Citizen_Scientists.html
- **ArcGIS collector app**
esri.com
- **National Geographic Society**
nationalgeographic.org/encyclopedia/field-work/
- **Geographical Association**
geography.org.uk/resources/fieldwork/fieldworkideasandresources/
- **ABCEE Five Minute Fieldtrips**
abcee.org/cms/wp-content/uploads/2012/02/5min-fieldtrips.pdf
- **National Air Photo Library Collection**
nrcan.gc.ca/earth-sciences/geomatics/satellite-imagery-air-photos/air-photos/9693
- **Free Canadian Data: GeoGratis**
nrcan.gc.ca/earth-sciences/geography/topographic-information/free-data-geogratis/11042

Acknowledgements: The development of the key ingredients for fieldwork and the creation of this guide has been made possible with the help of **Dr. Lynn Moorman** and the **McLean Foundation**.

My Fieldwork Ideas

Fieldwork can happen anywhere and in any environment. Use this page to **record your fieldwork ideas** and put them into **action!**













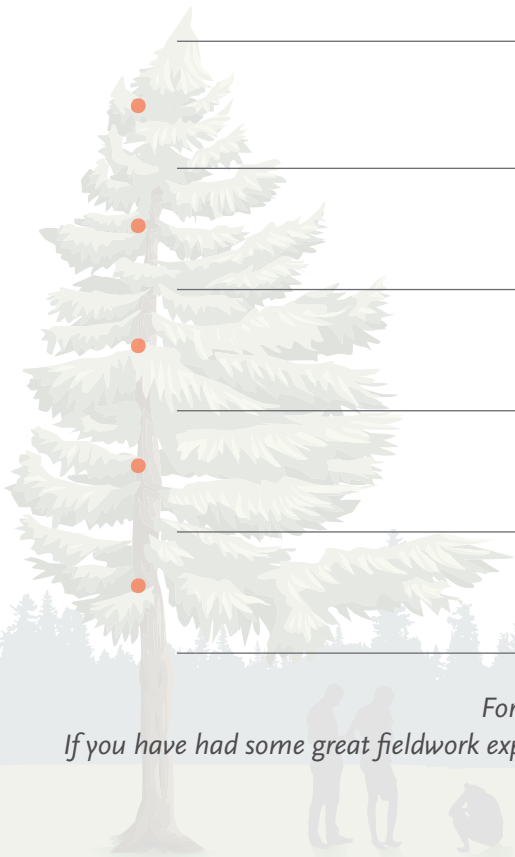












For more resources, go to www.cangeoeducation.ca.

If you have had some great fieldwork experiences or resources you would like to share, contact us at info@cangeoeducation.ca.

