

Climate Change in My Municipality Inquiry

Spiral Inquiry Activity
Grade Level 9-12
Climate Change Where I Live



About This Activity

Learners will use GreenLearning's Spark Inquiry Model to examine the impacts of climate change where they live, identify the mitigation and adaptation measures required to address these changes, and take action.

Learning Outcomes

By the end of this activity, learners will:

- Discover the implications of climate change on their municipality
- Investigate various topics surrounding the effects of climate change on their municipality, and present their findings to the class
- Collaborate amongst peers to develop their own focus question(s) and inquiry plan

Length of Activity

1 – 1.5 hours

Materials List

Internet-enabled device

Climate Change in My Municipality Inquiry Worksheet

Step 1: Spark (A Student Investigation)

- Begin by getting familiar with GreenLearning's Spiral Inquiry Model found here: <https://programs.greenlearning.ca/course/spiral-inquiry-model>
- Ask the students to imagine Christmas, Eid, Diwali or Passover, etc. with no electrical power in their house, apartment or condo.

- Pose the following question to learners: *What would a holiday celebration be like without electricity? What would be different? How would people feel? What alternative arrangements could be made? How would it be worse in winter? Are municipalities more vulnerable than small towns or rural dwellers?*
- In thinking about a spark for your students think of a situation where climate change has already shown evidence in your municipality. Think of the vulnerability of municipalities (especially large municipalities) where concentrations of people mean depending on infrastructure, being unprepared to live without amenities and being dependent on a functioning economy.
- A municipality faces particular challenges in terms of climate change. As the students prepare for their inquiry plan ask them to think about what challenges a municipality, or their municipality specifically, will face as and/or if climate change persists. Prompt them to think about:
 - The density of the population
 - General unpreparedness of urban dwellers to be without power and working infrastructure
 - The industries that operate in your area
 - The daily life of the people
- Allow learners to break out into think-pair-share groups to begin generating some ideas.

- g. Ask the groups to share their ideas, and record their responses in a bullet list.
- h. Each bullet can be discussed at large with the class by providing them with some teaser information on those points so it really gets them thinking further.

Step 2: Hypothesize and Plan

- a. As a class, decide the focus of your inquiry.
- b. Learners can be split up into groups so that they can brainstorm potential inquiry questions. Have the groups discuss what they have taken away from the class discussions.
- c. You will want the learners to choose how they structure their inquiry and this will emerge as you listen and help guide their discussions from the side. One way they might structure the inquiry is for small groups to each look at the effects of climate change on a different sector of their municipality. For example:
 - Changes in recreation
 - Health (respiratory and other)
 - Local economy
 - Agriculture in the surrounding area
 - Family budget impacts
 - Infrastructure
- d. Remind learners that the inquiry question needs to investigate both the impacts of climate change on their municipality and the actions required to address it.
- e. Allow learners to state their questions as a hypothesis using the “If...then...because...” format.
- f. Hypothesize: How do you think climate change is/can affect your community or municipality?
- g. Hand out the Climate Change in My Municipality Inquiry Worksheet to the learners in their groups and allow them to complete Part 1 of the worksheet.

Step 3: Explore and Research

- a. This step involves the groups of learners to research the information required for their topic.
- b. Inform learners in their groups to gather and review information needed to answer their questions or to test their hypotheses. The internet, libraries, or experts in the field are all great tools for research.
- c. Have learners complete Part 2 of the Climate Change in My Municipality Inquiry Worksheet. Be sure to remind learners to record their information and remember to keep track of their sources. Groups can evaluate their information they have collected and answer these questions:
 - i. Does your research answer your questions or test your hypothesis?
 - ii. Does it raise more questions, and how can you answer these?
- b. Allow groups to reflect and discuss their findings and observations to their previous knowledge. They may need to clarify and modify their focus question(s) and inquiry plan.

Step 4: Analyze and Check

- a. Allow learners to compare, sort and classify their information.
 - i. Learners reflect on and discuss their preliminary findings and observations to compare this to their previous knowledge and they clarify and modify their focus question(s) and inquiry plan.
 - ii. Learners review and evaluate the information they collected and record this information.
 - iii. Learners use their information to answer their inquiry question(s), test their hypotheses, describe patterns and draw conclusions.
 - iv. Learners reflect on their findings to create new questions and hypotheses.
- b. Get learners to draw conclusions about their questions and hypotheses.

- c. Have learners complete Part 3 of the worksheet.

Step 5: Communicate and Act

- a. Now the groups are ready to turn their knowledge into action. Allow the learners to communicate their findings to the class. Be sure to remind them about the message they want to get across and to tailor it to the classroom audience.
- b. During their research, learners may have come across many calls to action. There are many choices of student assessment that are possible for this inquiry. Look for opportunities for authentic tasks connected to your municipality. There might be a city official or elected representative who has talked about how climate change will affect the city budget and might be receptive to hearing from students. Maybe there are even hearings in your area and students could make deputations. Students might want to describe or illustrate what their municipality could look like in 25 years. Maybe they want to educate other students through the school website or in an assembly or display in the school.
- c. Individually – create a mind map, poem/song, poster, infographic, PSA (public service announcement), or some other form of work (in consultation with the educator) that addresses your hypothesis, as formed, of your inquiry.

Step 6: Conclusion

- a. Refer to the marking rubrics on the various ways learners could communicate their findings.