LSF
Learning for a
Sustainable Future

WEATHER, CLIMATE & YOU

Learning with the WeatherCAN App

A grade 6-9 lesson plan for Canadian educators

This project was undertaken in partnership with the Government of Canada.

Ce projet a été réalisé en partenariat avec le gouvernement du Canada.

Canada

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Weather, Climate & You

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Contents

Lesson 1: Exploring Canadian Weather Patterns and Impacts

Title - Exploring Canadian Weather Patterns and Impacts

This lesson will investigate how weather patterns across Canada impact agriculture, transportation, tourism, and culture, using real-time weather data and Indigenous perspectives on environmental monitoring.

Grade Level: 6-9

Total Time: 60 minutes

Learning Goals

Students will:

- Identify weather conditions in different provinces and territories using the WeatherCAN app.
- Explain how the weather affects agriculture, transportation, or tourism in a region of Canada.
- Describe how people adapt to challenging weather conditions.
  Recognize how Traditional Ecological Knowledge uses observations of land, animals, and sky to understand and predict weather patterns.
- Formulate questions to guide investigations about physical processes and their impact on human activity.
- Gather and organize geographic data from a variety of sources (maps, apps, weather tools).
- Describe how climate and weather affect human activities in Canada.

Materials

Groupings/Classroom Setup:

- Pairs or small groups (2–3 students)

- Map visible at front of room
- Devices available for WeatherCAN exploration

Materials:

- **WeatherCAN Investigation Worksheet**
- Student devices or tablets
- WeatherCAN app installed
- Map of Canada (digital or wall map)
- Sticky notes
- Chart paper
- Projector

Activities

- Activate/Minds on: **(10-15 min)**
- Working on it: **(30 min)**
    - Activity 1: Canada Weather Investigation **(20 min)**
    - Activity 2: Experiential Observation Walk **(5-10 min)**
- Consolidation: **(10-15 min)**

Assessment Ideas

Assessment **FOR** Learning

- Observation during exploration with WeatherCAN App

Assessment **AS** Learning

- Student responses during discussion
- Exit reflection

Differentiation Strategies *(Content, Process, Product, Environment):*

- Open and Parallel Tasks
- Graphic Organizers
- Auditory Cues
- Visual Cues
- Incorporate Movement
- Vary Groupings
- Vary Materials
- Provide Choice
- Extra Time
    - Provide a simplified weather recording chart
    - Offer pre-selected provinces for some students
    - Allow oral instead of written responses

Minds On

Time: 10-15 minutes

Ask students:

- "How might weather affect someone's job or daily life in different parts of Canada?"

Show a few examples:

- Snowstorm in Nunavut
- Heavy rain in British Columbia
- Heat wave in Saskatchewan

Students turn and talk.

Introduce the WeatherCAN app as Canada's official weather information source with forecasts by meteorologists for the public. Walk them through the app from the teacher's device (projected).

Working on it

Time: 30 minutes

Activity 1: Canadian Weather Investigation

Students get into groups of 2 or 3 people. Then hand out the **WeatherCAN Investigation Worksheet**. Students open the WeatherCAN app.

Each group selects a city in a province or territory and focuses on one sector:

Group Focus Options:

- Agriculture
- Transportation
- Tourism
- An Indigenous cultural activity

Students will record:

1. City, Province/Territory and Traditional Land
2. Current weather conditions
3. Alerts or warnings (if any)
4. Forecast for the next 3 days

Then answer:

- How could this weather affect your sector?

Examples students may notice:

- Agriculture
    - Frost warnings are damaging crops
    - Drought conditions are affecting farming

- Transportation
    - Snowstorms closing highways
    - Fog affecting flights

- Tourism
    - Ski resorts relying on snow
    - Wildfire smoke is affecting parks

- Indigenous cultural activity:
    - Thinning sea ice threatens ice roads that act as a lifeline for some remote communities in winter
    - Shifting animal migrations impact hunting

Students place a sticky note on the class map showing: Province/Territory + Weather Impact.

Activity 2: Experiential Observation Walk

Students compare WeatherCAN forecasts with observations outside the classroom:

Before sending students outside, briefly introduce **Traditional Ecological Knowledge (TEK):**
Explain that many Indigenous communities observe the following to understand weather and environmental shifts:

- Cloud patterns
- Wind direction
- Animal behavior
- Seasonal changes
- Moon cycles
- Constellations

Example teachings:

- Knowledge keeper Caley Patrick Nadjiwon Doran, Chippewas of Nawash Unceded First Nation, states that insect activity can signal seasonal weather changes; when he sees spiders he knows it's nearly time for the maple sap to run in spring.

- Many Indigenous groups have a moon calendar that indicates the natural changes in animal behaviours and weather to know what time of year they are in. For example, in Anishnaabe and Cree culture the Goose Moon is when the geese return and indicates a transition to spring. A **turtle shell** was used as a moon calendar because it matches with 13 lunar months and 28 days.

- Careful observations of constellations can cue certain stories, and indicate seasonal changes. Teachings from Wilfred Buck included **here**.

Ask students:

"Why might careful observation of the land be important to cultural and seasonal activities?"

Take a quick 5-minute outdoor observation walk if possible.

Students record:

- Wind (direction and speed)

- Clouds
- Temperature (degrees)
- Sky conditions

Teacher asks:
"How might someone living on the land for generations learn to read these signs without our current technology tools like satellites and radar?"

Consolidation

Time: 10-15 minutes

Activity

Whole class discussion.

Exit Ticket:

Write one answer: "People in _____ adapt to weather by _____."

Guiding questions:

- Which regions had the most challenging weather?
- Which jobs or industries were most affected?
- How might communities adapt to changing weather patterns?
- How are cultural activities shaped by weather patterns?

Teacher Self-Reflection:	Future Step:

Lesson 2: Adaptation and Resilience to Weather and Climate Change in Canada

Title - Adaptation and Resilience to Weather and Climate Change in Canada

Students will analyze how **communities adapt to extreme weather and climate conditions**, using real weather data from **WeatherCAN** and considering both modern technology and Traditional Ecological Knowledge.

Grade Level: 6-9

Time: 75 minutes

Learning Goals

Students will:

- Explain how weather and climate change affect agriculture, tourism, or transportation in Canada.
- Identify strategies people use to adapt to climate challenges.
- Describe how Traditional Ecological Knowledge contributes to environmental understanding.

Materials

- **Adaptation Plan Worksheet**
- **Scenario Cards**
- Devices with WeatherCAN
- Chart paper
- Markers
- Map of Canada
- Scenario cards

Groupings/Classroom Setup:

- Small collaborative groups
- Presentation space at front of classroom

Activities

- Activate/Minds On: ***(20 min)***
- Working on it: ***(40 min)***
- Consolidation: **(10-15 min)**

Assessment Ideas

Assessment **FOR** Learning
- Teacher Observation

Assessment **AS** Learning
- Student reflection

Assessment **OF** Learning

- Group presentations

Differentiation Strategies *(Content, Process, Product, Environment):*

- Open and Parallel Tasks
- Graphic Organizers
- Auditory Cues
- Visual Cues
- Incorporate Movement
- Vary Groupings
- Vary Materials
- Provide Choice
- Extra Time

Activate/Minds On

Time: 20 minutes

Before the lesson: Tell students they will explore the idea of **adaptation to climate change**.

Watch a short video explaining climate adaptation.

Play this video from **Environment and Climate Change Canada (ECCC): "What is Climate Change Adaptation?"**

Ask students to listen for **examples** of how people **change their actions or environments to respond to weather and climate challenges.**

Teacher Tip: Make the connection to an **Indigenous approach** to this; when it comes to planning for the future, Indigenous peoples (specifically referring to First Nations and Métis teachings) look seven generations ahead (Seventh Generation Principal: Indigenous Corporate Training). It is important to make sure our actions today are not negatively impacting those who will inherit this land after us.

Activity

Discussion Questions:

- What does adaptation mean to you?
- What examples of adaptation did you notice?
- Are our actions (agriculture, transportation, resource extraction) today made with the consideration of 7 generations in the future?
- Why might communities need to change how they build or plan for the future?

Record student ideas on the board.

Post Video Class Discussion (Think–Pair–Share)

Teacher Summary: What is Adaptation?

According to **Environment and Climate Change Canada**, **adaptation** is adjusting our decisions, behaviours, and activities to account for existing or expected changes in climate. Communities may adapt **before or after** they experience climate impacts.

Examples of Adaptation from Environment and Climate Change Canada:

Adaptation can include:

- Designing communities so they are **protected from flooding**
- Taking care of **water supplies** so farmers can handle drought or heavy rain
- Planting **rooftop gardens** to help keep cities cooler and reduce energy use
- Creating **stronger building standards** in areas where heavier snow is expected
- Limiting development in **coastal areas where sea levels may rise**
- Restoring **wetlands to reduce flooding**
- Protecting people's **health during extreme heat events**

Note: Adaption for Indigenous peoples could be preserving forests and water, using certain harvesting protocols (not over harvesting or over hunting), using all natural materials, etc. This is all preventative; they built their culture around this idea of making changes now to benefit future generations.

Reference: Map of Adaptation Actions (Canada's Changing Climate)

Ask students:

"Why might different regions of Canada need **different adaptation strategies**?"

Prompt ideas:

- Northern communities
- Prairie farming regions
- Coastal communities
- Mountain tourism areas
- Cities

Teacher Tip: **Remind students** that **weather** is what is happening *now* (hours/days), whereas **climate** is the *average* over decades.

Explain: In today's activity, students will design **adaptation plans** for real climate challenges in Canada.

Working on it

Time: 40 minutes

Activity

1) Guide students to **access historical climate data** on the **WeatherCAN app.**

    - In the WeatherCAN app, go to:
        - Settings
        - Information
        - Weather Information
        - Climate Information
        - Historical Data
        - Search city/region.
        - Students can use this information to inform their adaptation plans.

2) Students will now receive a **Canadian climate change scenario card** and create a **community adaptation plan** using:

    - Information from **WeatherCAN**
    - Ideas from **Traditional Ecological Knowledge**
    - Strategies used by real communities in Canada

Go over the **Adaptation Plan Worksheet** with them and introduce adaptation actions that communities can take.

Examples of Climate Adaptions:

- Flood Protection
    - Restore **wetlands and natural floodplains** so they can absorb excess rainwater and reduce flooding.
    - Install **rain gardens, permeable pavement, and rain barrels** to help water soak into the ground instead of overwhelming storm drains.

- Wildfire Resilience
    - Create **defensible space** by clearing dry brush and dead trees around homes and communities.
    - Use **controlled or cultural burns** to safely reduce fuel in forests and lower wildfire risk.

- Preparing for Sea Level Rise
    - Protect and restore **coastal wetlands and dunes**, which act as natural barriers against storms and rising water.
    - Limit or relocate **development in low-lying coastal areas** that are at risk of flooding.

- Climate-Resilient Buildings
    - Update **building codes** so roofs and structures can handle heavier snow, stronger winds, or other extreme weather.
    - Install **green roofs or rooftop gardens** to help cool buildings and reduce heat in cities.

- Local Food
    - Support **community gardens and urban agriculture** so cities can produce more local food.

    - Grow **climate-resilient crops** that can survive drought, heat, or changing weather patterns. Avoiding monocultures, planting the three sisters for example (corn, beans, and squash grown together).

- Emergency Management
    - Encourage families to prepare **72-hour emergency kits** with water, food, and supplies.
    - Develop **community alert systems and evacuation plans** for floods, wildfires, or extreme storms.

Consolidation

Time: 10-15 minutes

Activity

Each group gives a 2-minute presentation of their adaptation plan.

Teacher records strategies on the board under headings:

- Flood protection
- Wildfire resilience
- Preparing for sea level rise
- Climate resilient buildings
- Local food
- Emergency management

Possible Extension: Poster project of Adaptation Plan.

Discussion Question:

"Why might combining scientific tools like the WeatherCAN app and Traditional Ecological Knowledge make communities more resilient?"

My Self-Reflection:	Future Step:

About Learning for a Sustainable Future (LSF)

LSF is a Canadian charity founded in 1991 to integrate sustainability education into Canada's school system.

LSF's mission is to promote, through education, the knowledge, skills, values, perspectives, and practices essential to a sustainable future.

We work together with educators, students, parents, government, community members and business leaders to integrate the concepts and principles of sustainable development into education policy, school curricula, teacher education, and lifelong learning across Canada.

Check out our programs and resources at [LSF-LST.ca](LSF-LST.ca)

LSF Learning for a Sustainable Future LST L'éducation au service de la Terre

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