

**Grades:** 4 - 5

**Lesson Plan Title:** Measuring the Weather

**General Goal(s):**

This lesson will introduce weather and the ways which weather can be measured.

**Specific Objectives:**

Introduce weather measuring tools/instruments that are used at weather stations around Canada.

- Types of instruments include: Stevenson Screen, thermometer, barometer, thermo-hydrograph, anemometer, wind sock, snow gauge, rain gauge, and ice auger/stick/measuring tape.

Show that weather can be measured using methods other than ground instruments.

- Other methods of measuring weather include weather balloons and satellites.

Build a weather instrument or a model satellite/satellite launching rocket.

**Required Materials:**

- computer and projector, craft materials depending on chosen activity

**Lead-In:**

Warm the class up with some weather-related jokes.

**Step-By-Step Procedures:**

1. Option #1 Introduction: Weather jokes (<http://weather-jokes.allthejokes.com/>) (5 min)

- Why did your friend cut a hole in her new umbrella?  
Because she wanted to be able to tell when it stopped raining.
- What did Santa Claus say to his wife during a thunderstorm?  
'Come and look at the rain, dear.'
- Why do mother kangaroos hate rainy days?  
Because then the children have to play inside.

Option #2 Introduction: Weather proverbs (Courtesy of: <http://www.almanac.com/topics/weather/weather-forecasts/predicting-weather>) (5min). Use selected weather proverbs below or allow students to offer their own familiar sayings to initiate a discussion about how weather prediction has changed throughout history.

- “Unusual clearness in the atmosphere, with distant objects seen distinctly, indicates rain.”
  - “Red sky at night, sailor's delight. Red sky at morning, sailors take warning.”
  - “If it rains before seven, it will clear before eleven.”
  - “Rain from the south prevents the drought, but rain from the west is always best.”
  - “Anvil-shaped clouds bring on a gale.”
  - “A cloud with a round top and flat base carries rainfall on its face.”
  - “Black clouds in the north in winter indicate approaching snow.”
  - “Mackerel sky, mackerel sky, never long wet, never long dry.”
  - “With dew before midnight, the next day sure will be bright.”
  - “If you wet your feet with dew in the morning, you may keep them dry for the rest of the day.”
  - “Expect rain when dogs eat grass, cats purr and wash, sheep turn into the wind, oxen sniff the air, and swine are restless.”
  - “If the groundhog sees its shadow on Candlemas Day (February 2), six more weeks of winter remains.”
  - “If the mole digs its hole 2½ feet deep, expect severe weather; if two feet deep, not so severe; if one foot deep, a mild winter.”
  - “When rabbits are fat in October and November, expect a long, cold winter.”
  - “Birds singing in the rain indicates fair weather approaching.”
  - “Hawks flying high means a clear sky. When they fly low, prepare for a blow.”
  - “When the swallow's nest is high, the summer is very dry. When the swallow buildeth low, you can safely reap and sow.”
  - “When hornets build their nests near the ground, expect a cold and early winter.”
2. Deliver computer presentation. (25 min)
  3. Build an instrument/rocket/satellite. (30 min)
    - Weather measuring instruments (hydrometer and barometer)
      - See useful links below for instructions.
    - Satellites
      - See useful links below for instructions.
    - Rockets
      - See PowerPoint presentation for instructions

### **Plan for Independent Practice:**

Have the students use their weather instruments to make measurements for several days or longer. Ask them to compile the data and present it in the method of your choice.

Have students (either in groups or individually) research and prepare a presentation on a recent extreme weather event. Allow ample time for discussion about extreme weather events and their impacts on human societies.

### **Assessment Based On Objectives:**

Did the students follow instructions to build the instrument properly?

Are the students making accurate readings and interpretations with their instruments?

Is the record of these readings presented in a clear and correct manner?

### **Useful Links:**

Build a Weather Satellite - <http://scijinks.jpl.nasa.gov/build-satellite>

- Refer to the “author’s notes on presenting this topic in the classroom” link in the bottom right corner.

Weather Instruments (hydrometer and barometer) -

[http://www.science.gc.ca/Lesson\\_Plans/Lesson\\_Plans: Monitoring\\_the\\_Atmosphere-WS8E2607CB-1\\_En.htm](http://www.science.gc.ca/Lesson_Plans/Lesson_Plans: Monitoring_the_Atmosphere-WS8E2607CB-1_En.htm)

Canadian Space Agency - <http://www.asc->

[csa.gc.ca/eng/educators/resources/cloudsat/default.asp](http://www.asc-csa.gc.ca/eng/educators/resources/cloudsat/default.asp)

- This learning resource demonstrates that science and technology use specific processes to investigate the natural and constructed world in order to seek solutions to practical problems.

**Keywords:** Weather, temperature, precipitation, cloud, wind, light, rainbow, moisture, pressure, measurements, Stevenson Screen, thermometer, barometer, thermo-hydrograph, anemometer, wind sock, snow gauge, rain gauge, ice auger/stick/measuring tape, satellite, weather balloons