

**ecoMentors Lesson Plan Template: Helping kids explore the planet!**

**Title: Weather**

**Grade Level(s): 5**

**Time/Date:**

**School:**

**Teacher:**

**Directions to school, class:**

**Ontario Curriculum Connection: Earth and Space Systems – Weather**

Vocabulary: Words & Concepts your class may be learning, look these up yourself too!

**Meteorology** – the study of the weather

**Weather** - The state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind velocity, and barometric pressure.

**Climate** - The meteorological conditions, including temperature, precipitation, and wind that characteristically prevail in a particular region.

**Global warming** - An increase in the temperature of the Earth, sufficient to cause climatic change.

**Green house effect** - The earth's atmosphere traps solar radiation, by the presence of gases in the atmosphere that allow incoming sunlight to pass through but absorb heat radiated back from the earth's surface.

Materials and Equipment: List these before and while you plan and revise so you're prepared.

Pen and paper for the students

Quiz questions: Weather Quiz (print out in advance)

What is your class accomplishing?: Learning & Activity Goals, Objectives

- **Understand the major climatic factors and patterns associated with weather**
- **Understand how weather forecasts influence decisions concerning human activity**
- **Understand how both humans and animals have adapted to a variety of weather conditions and describe ways in which weather conditions affect the activities of humans and other animals**
- **Understand the difference between climate and weather**
- **Describe ways in which energy from the sun affects weather conditions**
- **Formulate questions about and identify needs and problems related to objects and events in the environment and explore possible answers and solutions**

**Procedure**

**The Spark: Introductions, Demonstrations, Show and Tell, Topic Intro (Break the ice!) ~5-10min**

*Hello class, today we're talking about weather and climate. What have you already learned about weather? What do you know about climate change? Have you recently read or seen anything on TV about climate change?*  
Ask students that offer answers to introduce themselves first.

**Brainstorming, Getting ideas, Connecting ideas (assess their knowledge!) ~10-20min**

*What does climate mean?*

*Why does the North have a different climate than the areas around the equator?* **The equator receives more sunlight than the poles.**

*Can you think of some ways humans have adapted themselves to live in a cold climate (North)? And how have they adapted themselves to live in a tropical climate and an arid (desert) climate?*

*Can you name some animals that live in the North? How have they adapted themselves to live in cold climate? Can you think of animals that have adapted themselves to a hot climate?*

*What is weather? What is the difference between weather and climate? Why does the weather changes all the time? What factors influence the weather?* Draw a picture on the black board with the students' help. First you can draw the earth and the sun. Ask students: *How is the weather created?* See if you can ask questions to have the students come up with the following explanation: **The sun is the driving force behind weather. Equatorial regions heat up more than the poles. As land or ocean water warms, it heats the air next to it and this air begins rising as a result cold air from the poles flows in to replace it. Earth's rotation causes the air to begin turning as it flows along the ground or high in the air. Warm and cold ocean currents also help balance the heat budget.**<sup>1</sup>

*Do you think Canadians are more concerned with weather than people from other countries? Why? Why not?*

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play ~10-30mins**

**Environmental Issues:**

*Can you think of some environmental issues related to the weather and climate?*

Write on the board: **global warming, acid rains, erosion**

Divide the class into 6 groups. 2 groups will work on global warming, 2 on acid rain, 2 on erosion.

Let the groups discuss these problems for about 15 minutes. In this time they should answer the following questions: *What is the problem? How is this problem caused? What would be a possible solution?* Write these questions on the black board so they can focus on it.

Discuss the answers of the groups with the class. Let each group present their answers, and challenge the rest of the class to ask questions or add. Each group should summarize their answers on the black board. Point out the difference between global warming and the green house effect: the green house effect is a natural process, and the global warming which causes the drastic climate change is not!

So together with the class you will answer the above questions for each of the 3 environmental issues. Then discuss these problems a bit further by asking the class:

*Why are people so concerned about global warming/ acid rain/ erosion?*

Make columns on the blackboard with the following headings:

**Businesses, Scientists, Farmers, Rich people, Poor people, Animals, Teachers, Children, Plants.**

Ask the class to come up with reasons why these groups would or would not be concerned with global warming/ acid rains/ erosion.

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play(Pt. II or Cont...) ~10-30mins**

**Weather Quiz:**

Explain to the class that you will do a quiz on the weather. Make groups of 4 students/group or let students work individually. Point out that it is a competition to review what they've learned, so they have to be quiet to make sure other groups don't hear their answers! Every group writes their answers down. Answers will be discussed after the quiz.

Quiz questions & answers can be found in the additional material: Weather Quiz. Or think of your own questions!

**Contingency, Plan B, extra game or activity (Back up plan) ~5-10mins**

**Make your own weather forecast!<sup>2</sup>**

*Clouds can come in different shapes, sizes, and colors. Different clouds can help meteorologists, or anyone, tell what kind of weather is around them. After the explanation about clouds you will be able to predict the weather!*

*Can you name some different types of clouds? 1. **Cirrus cloud:** Cirrus clouds are thin and wispy, and are found very high in the sky. No precipitation falls from cirrus clouds. They are a sign of fair weather for now and the very near future. Write & draw on the board, or let a student draw! 2. **Nimbostratus clouds.** These clouds are dark and low-hanging clouds that cover the whole sky. They bring with them light to moderate precipitation. Write & draw on the board. 3. **Cumulonimbus clouds** are thunderstorm clouds. They are tall and wide clouds that have heavy rain, thunder and lightning. If you see these clouds on the horizon, it is likely it will rain very soon. Write & draw on the board.*

Predicting weather: 1. *Your dad wants to spend the afternoon outside; he wants to know if it will rain. So you look at the sky and you see thin stretches of clouds across the sky. What do you advise your dad? It is going to be a nice and warm afternoon. What was the name of the clouds? cirrus clouds.*

2. *Your dad is going camping. But he's afraid that it could start raining, and he doesn't want camp if it rains. He asks you if it's going to rain this afternoon. So you look at the sky and you see a wide group of clouds that stretch across the sky. The clouds are tall like ice cream stacked on a cone. And they're moving your direction. What do you advice? It is likely to rain this afternoon. What kind of clouds did you see? cumulonimbus clouds*

**Review, Conclusion and steps towards continued action ~5-10mins**

Discuss the answers from the quiz with the class. *What have they learned?*

*How do you think climate change will affect you this year? In 10 years? 50? 100?*

**References**

1. <http://www.usatoday.com/weather/tg/wglobale/wglobale.htm>

2. <http://weathereye.kgan.com/cadet/forecast/camp.html>

<http://www.weather.com/education/wxclass/winterweather/winterweatherlessonplan.html>

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**Great work ecoMentor! After use of Lesson Plan revise, add ideas and repeat!**