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Curriculum Units by Fellows of the National Initiative
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The Chemistry of Weather

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The purpose of this unit is to provide information to elementary, middle, and high school teachers on the phenomena of weather and how it can be explained through the science of chemistry. It will also engage students in the elementary and middle school grades to be introduced to chemistry at an earlier age through observations of the weather and hands-on laboratory experiments on weather phenomena.

The hands-on approach to inquiry will increase students' understanding, interest, retention, and introduce them to a practical approach to chemistry concepts at a young age. Teachers will realize that what they have been teaching, as it relates to weather, can be enriched by understanding the science behind the concepts taught, that weather is caused by chemical changes through air and water, which is the water cycle. Pressure and temperature changes occur due to chemical processes. It has been proven that students at a very young age can be introduced to complex terms, even if the terms may be too abstract to understand completely. Empowering students to know that they are learning "chemistry" will possibly have students choose to major in the sciences that could lead to choosing a career in the sciences because students will not have a fear of the sciences.

Activities will include students building devices to record weather observations and activities that will relate weather phenomena to chemistry, such as learning about air pressure, changes in volume, temperature, and density. Students will learn about properties of water and changes of state that can be explained by molecular movement. They will learn about energy transfer to understand what precipitates changes in weather patterns. This unit will give students the opportunity to learn about weather at a higher level of science.

(Developed for Weather Unit, grade 6; recommended for Weather Unit, grade 6)

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