

# Using a Thermometer

**by:**  
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## **Problem to be studied:**

Weather is the topic of study for first grade. The first lesson begins by observing weather conditions and measuring temperature. In this lesson, students will examine, explore, make and learn to read a thermometer.

## **Content Standard(s):**

**3.1.4.E – Recognize change in natural and physical systems**

## **Content Objective (s):**

SW read a thermometer

## **Process Standard(s):**

**3.1.4.E.2 –Recognize change in natural and physical systems**

**3.1.4.E.4 – Describe the change to objects caused by heat**

**3.2.4.A – Identify and use the nature of scientific and technological knowledge**

**3.2.4.B – Describe objects in the world using the five senses**

**3.2.4.C– Recognize and use the elements of scientific inquiry to solve problems**

## **Process Objective(s):**

**SW predict temperate change**

**SW experiment with a thermometer using the Four Question Strategy**

SW use the senses for observation, prediction and discussion.

SW record and interpret results.

## **Assessment Strategies: (Evaluation)**

### **Formative Evaluation:**

**SW reflect on prior learning written and orally**

**SW use the Four Question Strategy to measure temperature using a thermometer**

**SW complete KW(L) form**

**SW record predictions**

**SW observe and record data in their science journal**

**SW write in and illustrate journal entries**

**SW construct a vocabulary word web (temperature, heat, shade...)**

## **Suggested Grade Level:**

**First Grade  
Temperature and  
Weather**

## **Materials:**

Science journal

KWL form

Scavenger Hunt form

Zipper thermometer cups

student thermometers

strip thermometer

oral thermometer

standard thermometer

tap water

warm water

ice

cold water

vocabulary cards

“Wonder bag”

data recording sheets

assessment tests

3 bags of chocolates

**Summative Evaluation:**

**SW complete and share (KW)L form**

**SW record and graph daily temperature**

**SW demonstrate understanding using the concept checklist rubric (manual B85 – attached)**

**SW acquire and apply new vocabulary as evidenced in discussions, journal writing, vocabulary drill and a word web**

**SW write a final reflection and conclusion in their science journal to be collected and graded.**

**SW exhibit comprehension on a standard lesson assessment. (test)**

**SW complete self and group assessment checklists (manual B96-B97 –attached)**

**SW make and recognize temperature on a “zipper thermometer”**

**SW will use Four Question Strategy to determine heat absorption of different outside surfaces. (chocolate on different surfaces)**

**Procedures:**

**The purpose of the following activities will be to introduce the weather unit focusing on temperature and use of a thermometer.**

**Engage:**

**SW use senses to formulate questions and make predictions to determine what is in the “Wonder Bag”. (ice)**

**Teacher will give students ice to hold and examine while listing descriptors on a chart.**

**Teacher will ask probing question. (How does it feel? Name cold places? How does the temperature compare with other objects? How do we measure temperature?) (thermometer!)**

**SW take their own temperature using an oral and/or thermometer strips.**

**Explore:**

**Teacher will introduce and guide students through the process of using the Four Question Strategy to determine heat absorption of different outside surfaces. (bags of chocolate on grass, asphalt and concrete)**

**TW list variables and hypothesis on the board.**

**SW go on a “Hot/Cold” walk around the school grounds noting the difference in temperatures in different locations.**

**SW list locations and estimate temperatures.**

**SW make predictions about what will happen to bags of chocolates and which area will be the hottest.**

**Explain:**

**SW will discuss, classify and chart temperature variables in the environment.**

**SW will make and share a “I wonder/I Noticed” booklet**

**Model and use the Four Question Strategy to measure temperature.**

**Title: Measuring water temperature with a thermometer.**

**Hypothesis: The water temperature will get hotter or colder if ice or heat are added.**

**1. What materials are available for temperature measurement using a thermometer?**

(tap water    ice water    warm water)

**2. What does a thermometer do? (measures temperature)**

**3. How can I change the water to affect the temperature?**

(ice            sunshine    shade            amount)

(heat            time            motion...)

**4. How can I measure the response of temperature to the change?**

(conventional thermometer            oral thermometer)

(strip thermometer            sense of touch...)

**5. Conclusion: The liquid in the thermometer rose if the water was warm and dropped if the water was cold showing the temperature variances of the water.**

**Elaborate: Centers**

**Teacher will explain sequence of events for each of the four centers.**

Assistance and instructions will also be provided at each activity.

A completed model of finished products will be available.

1. Zipper Center: SW color temperature ranges and use a “zipper thermometer” in response to temperature flash cards. (sample attached) (refer to WEATHER book pages 13-14)

2. Journal Center: SW illustrate and write reflections and or conclusions in their Science Journal.

3. Sizzling Scavenger Hunt Center: SW locate thermometers hidden throughout the building to record temperature and location. (refer to WEATHER book page 29 and 32.)

4. Inquiry Center: SW use thermometers to measure water temperature when a variable is changed.

(Alternate ideas: explore “mood rings” and individual temperature strips)

**Related Web Sites:**

[www.themailbox.com](http://www.themailbox.com)

[www.eduplace.com](http://www.eduplace.com)

**Sources consulted in developing this lesson:**

Houghton Mifflin Science Discovery Works Teaching Guide /1 (Weather and Seasons)  
Scholastic Early Themes WEATHER by Ann Flagg  
The Mailbox Theme Series WEATHER  
Investigating Science – Weather from Education Center  
Lifesaver Lessons from The Education Center  
Ready-To-Go Science from Frank Schaffer's Schooldays  
Our Environment from Teacher Created Materials  
Teacher's Friend Magazine  
Educational Impression, Inc.  
D.C. Heath and Company

Why this lesson is important:

In the past, students had much difficulty reading a thermometer. Our Science curriculum introduces the first lesson with the assumption that students have this prior knowledge, but they do not.

I developed this lesson to focus on the concepts, introduce the Four Question Strategy process and give students the opportunity to explore and learn to use this important piece of equipment in their study of weather.