

# Lesson: Temperature

**Science Standard(s):** Students will gain an understanding of Earth and Space Science through the study of earth materials, celestial movement, and weather.

**Objective(s):** Observe, describe and measure seasonal weather patterns and local variation.

**Indicator(s):** Analyze and interpret data such as temperatures in different locations and different times.

## Content Objective(s):

kid friendly objective. Will be posted on the board.

## Language Objective(s):

Kid friendly. Posted on the board. May include listening, speaking, reading, writing. See list of possible verbs.

**Essential Questions:** How does the natural world change?

R

## Academic Vocabulary:

温度, 热, 冷, 凉, 暖和

## Materials:

- 3 glasses
- ice
- room temperature water
- hot water
- large paper thermometer
- classroom thermometers (1 for every 2 students)

## Language References and Word Wall:

Required: 温度, 热, 冷, 凉, 暖和

Additional: 温度计, 水, 冰, 水蒸汽,

## Sentence Frames:

\_\_\_\_\_ 的气温很\_\_\_\_\_.

在 \_\_\_\_\_ 气温比较 \_\_\_\_\_.

冬天的气温很冷

在树荫下气温比较凉。

## Lesson: Temperature Experiment

**Instructional time:**  
**33 minutes**

### Opening (Warm Up/Review): (3 minutes)

Have three glasses of water in the front of the class.

Glass #1: water with ice

Glass #2: water at room temperature

Glass #3: water that is steaming hot

**Question:** How are these glasses different?

### Language Building: (7 minutes)

1. One important part of our daily weather observations is reading a thermometer and recording the temperature. Let's learn a little bit more about what temperature means and how thermometers work.

**Questions:** What is temperature? (brainstorm with students)

*Temperature is the relative hotness or coldness of an object. It describes how hot or cold things feel to us. We can describe the temperature of the air, water, our bodies, or other objects around us.*

2. We can describe temperature by feelings items. Have students place their hands on their cheeks. WHAT DO YOU FEEL? (a little warmer). Now rub your hands together for 10 seconds. What do you feel? (much warmer, maybe hot). Touch a few other items in the classroom and observe their temperature as cold, cool, warm, or hot.

3. Show the students your class thermometer. Have the students describe the parts of the thermometer with you.

- glass tube that is filled with a special liquid (alcohol dyed red)

- the liquid goes up (expands) with it is hot and goes down (contraction) when it gets cold

- lines and numbers on the side of the thermometer (show a large thermometer (either paper or one that can be projected)

tell us the exact temperature

4. Demonstrate the process of expansion and contractions. Do this with a document cam or in a small group.

a. Place the thermometer in a glass of ice water (students can watch the line drop) – record the place where it stops.

b. Place the thermometer in a glass of hot water (students can watch the line rise) – record the place where it stops.

**Experiment and Record: (15 minutes) PARTNERS** (make sure all students can read a thermometer – practice with them)

*Is it Hot or Cold?* Do you think the temperature is always the same? Let's find out. As a class, brainstorm five locations you would like to test. Encourage the students to be creative and think of places where the temperatures might vary such as locations inside, outside, in the dark, etc. List the locations discussed on the board so students can have as reference.

**Examples:** Outside in the sun.

Outside in the shade of a tree.

Inside under a desk.

Inside next to the window.

Inside on top of a high cabinet.

Inside wrapped up in a coat.

Take your thermometer and visit each location.

Place the thermometer and allow it enough time for the temperature to settle.

Record the temperature on their "Temperature Experiments #2 worksheet.

**Use the modeling cycle:**

**Teacher Does:**

Teacher and students will brainstorm. The teacher will explain the activity and then demonstrate expectations.

Example: Teacher will measure the temperature under a desk and record it.

**Teacher Does with Student:**

Teacher will chose one student to be the partner. The student will measure the temperature and the teacher will record it.

**Two Students Do:**

The teacher will choose two students to measure the temperature (one student will measure the temp. the other will record it – they will switch responsibilities each time).

**All Students Practice:**

Students will divide into groups of two. One student will measure one student will record the temperature of the different location on their list.

**Discussion and Report: (5 minutes)**

When you return to class discuss what was observed.

Which areas were hottest? Why?

Which were coldest? Why?

Do you think if we repeated the experiment again at a different time of day, the results would be the same or different?

Why?

**(Optional Extension):**

Weather and Temperature calendar done every day!

**Closing: (3 minutes)**

Review hot, cold, warm, cool. Have students act out behaviors of those words. (Example: Show me cold. Show me hot.)

**Assessment:**

Temperature Record Sheet

**Resource:**

Color a thermometer with a sharpie. 0-20 is purple, 20-40 is blue, 40-60 is green, 60-80 is yellow, 80-100 is orange, 100+ is red.

When creating your thermometer put a little body at 98 degrees and an ice cube at 32 degrees.

Location	Temperature	Sentence Frame
Draw a picture of the location.	between _____ and _____	In the _____ the temperature is _____