

Grade 4	Lesson: 1-4 Weather Tools of the Trade	Reference to English
Standard(s): 1.OA.1 Domain:		
Content Objective(s):		Language Objective(s):
Observe, measure, and record data on the basic elements of weather over a period of time		Identify and use the tools of a meteorologist
Essential Understanding:		Academic Vocabulary for Word Wall: Listen: Read: Write: Speak:
Materials: <ul style="list-style-type: none"> • "My Weather Book" (1 per student) • Weather Instruments (Pictures or Actual) <ul style="list-style-type: none"> Barometer Weather Vane Thermometer Anemometer Rain Gauge Ruler • Weather Instrument Name Cards and Descriptions • Thermometers (1 per group) • 4x6 Index Cards (1 per group) • Drinking Straw (3 per group) • Tape, Stapler, Cement Glue • Straight Pin (2 per group) • Pencil with Eraser (2 per group) • Clay or Sticky Tack • 3 oz Paper Cups (5 per group) • 1 Liter Plastic Soft Drink Bottle (1 per group) • Small Plastic Water Bottle (1 per group) • Permanent Marker or Pen • Scissors • Measuring Cup • Stones (or other weights) • 9 inch balloon (1 per group) • Wide Mouth Jar (1 per group) • Toothpick (1 per group) 		Additional Lesson Vocabulary: Sentence Frames:
Lesson: Weather Tools of the Trade		Instructional Time:

Opening: (10 minutes)

T: What is the weather like today? How do you know? (go outside, watch TV, etc.)

T: If we go outside, we can tell if it is warm or cold. We can feel if it is windy or not. We can look to see if it is sunny or cloudy.

T: All of our senses can help us know more about today's weather, but what if we want to be specific? What if I want to know exactly how warm or cold it is? What if I want to know how fast the wind is blowing?

T: How do meteorologists report the weather? Do they just go outside and look around? No, meteorologists have many tools that help them be very specific in reporting the weather.

Introduction to New Material (Direct Instruction): (7 minutes)

Components of Weather:

T: There are four components of weather:

1. Air Temperature
2. Wind Speed
3. Precipitation
4. Air Pressure

- Record these four components in their "My Weather Book."

T: Let's learn more about these components and the tools meteorologists use to report weather conditions.

Guided Practice: (10 minutes)

Tools of the Trade:

- Divide the students into small groups.
- Give each group a picture of or an actual example of the following weather instruments:
Barometer Weather Vane
Thermometer Anemometer
Rain Gauge Ruler
- Next, give them a copy of the Weather Instrument Name Cards.
- Give them time to work in small groups and match the instrument to its name card.
- Now give them the Weather Instrument Descriptions. Have them use this information to check their previous work and make any necessary changes.
- Discuss each weather instrument as a class and list it in their "My Weather Book" under the weather component it is used for.

T: Let's learn more about these instruments and even make some of our own!

Note #1: You may decide how many of each weather instrument you need to assemble for your future weather observations. You may want to divide students into groups and have them assemble just one of the weather instruments for the entire class to use later.

Note #2: You don't have to make your own versions of these weather instruments. Using the real instruments will give you more accurate results, but making your own versions is a great way to collect weather data when real instruments are not available.

Thermometer:

T: How can you tell if something is hot or cold? (touch it)

T: What if I want to know exactly how hot or cold something is? (take the temperature)

T: Temperature is the measurement of how hot or cold something is.

- Show the students a thermometer.
- A thermometer contains a glass tube filled with a special liquid (either Mercury or alcohol died red).

T: When things get hot, they expand or get bigger. When things get cold, the contract or get smaller.

T: The liquid in the thermometer will do the same thing – get bigger when it's hot and get colder when it's small. However, the liquid has been trapped in a glass tube, so it can only move up when it gets bigger and down when it gets smaller.

T: Scientists know exactly how much the liquid will move up and down inside the glass tube, so they make marks on the sides to show what temperature it is.

T: Demonstrate how to hold and handle a thermometer. We hold it by the sides and top, so the heat from our hands doesn't get too near the glass tube and change the temperature.

- Show students how to read a thermometer by reading and recording the current temperature of the room.

T: We can use a thermometer to help us know how hot or cold it is outside. We also know that when it gets cold enough to freeze water, rain turns to snow. Water freezes at 32°F and 0°C. Record this information.

T: Place a class thermometer outside a window (but not in direct sunlight) where you will be able to read and record the temperature daily.

Assessment:

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