

**GRADE TWO WINTER NATURE WALK  
(NO SNOW ALTERNATE)**

- **Logistics:**
  - **Time:** Indoor discussion: 10-15 minutes  
Outdoor walk: 20 minutes
  - **When:** ANYTIME in January, February or March.
  - **Groups:** Up to 4 per class
  - **Sites:** On black top and around playground.

**Objectives**

- Use thermometers to measure temperature in degrees Celsius.
- Compare temperature of air inside and outside the school
- Discover locations of highest and lowest temperature outside
- Relate temperature to winter survival of plants and animals
- (if possible) Discover how frozen water turns into liquid water and vice-versa.

**Activities**

- Indoors, whole class: Use a thermometer to measure classroom temperature and the temperature in a cup of ice water.
- Measure outdoor air temperature just outside the school.
- Find water outdoors, note whether it is solid or liquid, and measure its temperature. (if possible) Locate places where water is frozen and places where it has melted and try to explain why this has happened.
- Brainstorm places in the schoolyard that might have the highest temperature, and measure a few of these.
- Relate air or ground temperature to animal and plant adaptations for survival in winter.

**Wrap-up**

- List all children's observations and questions
- Ask: Where was the highest temperature outside? Where was the lowest? What made the difference?
- Summarize animal and plant adaptations for low temperatures.
- (if possible) What makes ice turn to water (heat gained)? What makes water turn to ice (heat lost)?

*Remember we are sharing with children the wonder and joy of exploring and discovering in the world around them*

**Materials (kept in the Big Backyard supply area)**

Thermometers (2 or more per group) --use Celsius scale  
 Clear plastic glass, one per two students  
 Ice cubes, two per two students (One volunteer per class should bring from home)  
 Tissues or paper towel to dry thermometers  
 Parent Clipboard, paper, pencil to record discoveries.  
 Trowel  
 (for ice if needed)  
 Hand lenses, one per student  
 Squares of black construction paper approximately 4 x 4 inches, one per student

## 1. Before going out:

### Whole Class Activity IN THE CLASSROOM (one volunteer leads this discussion)

- a. Brainstorm with children how they would describe water. Ask questions such as:

What can you tell me about water?  
What does it feel like? Is it soft or hard?  
What does water look like? What color is water?  
Can you hold water in your hand?  
Is water runny or can you pick up a piece?  
Can you walk on water?  
Is water hot or cold?

Summarize by saying:

Sometimes water is clear and you can see through it, like a rain drop. Sometimes water is cloudy, or different colors when things like dirt or food coloring dissolve in it.

Sometimes water is runny and goes through our fingers when we try to pick it up. That's when it is a liquid. But sometimes water becomes solid and hard and then we can pick up a piece of solid frozen water.

- b. Ask: What can you do to change water from a solid to a liquid? What would you do to melt an ice cube? (Make it warmer) (check to see if students have done this in class already) How could you make the water change back into an ice cube? (Make it colder)
- c. Distribute the student work sheets. Ask: What scientific instrument can help you tell if water is cool or warm? (thermometer). Invite children to practice using a thermometer to tell the temperature of the air in the room. Have them shade in the picture of the thermometer on the student sheet and write the temperature of the air. . CAUTION: REMIND CHILDREN THAT THE THERMOMETER BULBS ARE GLASS AND CAN BREAK. THEY MUST BE HANDLED CAREFULLY. Then have them find the temperature of the ice water in the cup. Have them work in teams of 4 or so Each child should have a chance to read the thermometer. Walk leaders can circulate to help groups. It usually takes 2-3 minutes for the liquid in the thermometer to fully register a new temperature, so ask students to notice if the temperature is still changing as one after the other reports a reading.

Summarize findings of air and water temperature in the classroom. Ask the children to check the picture of the thermometer to find the freezing point of water. It should be about the same as the temperature of the ice water.

\* Be sure to dry the thermometer bulbs with the tissue before using it to read air temperature. If there is water remaining on the bulb, until it completely evaporates, the temperature reading will be lower than air temperature.

- d. Tell children that they will go outside to look for water and measure the temperature of air and water and other things. Ask: Do you think the water we find outside will be a solid or liquid today? Why?

## 2. School Yard Temperatures

- a. Just outside the school have your group measure the air temperature. Record this on your clipboard.
- b. **WINTER WATER** : Have children look all around them, back at the building, into the grassy spaces and the woods, at blacktop areas, at play ground equipment. Challenge them to find some water.

Depending on conditions they may see:

- Snow drifts on the ground
- Snow or ice on playground equipment
- Snow piled up by a snow plow
- Snow on roof of the school
- Ice on blacktop area
- Ice at the bottom of snow banks
- Icicles from the school's roof
- Bare ground around the base of trees or wild flower stalks
- Bare blacktop
- Puddles of liquid water if the sun is warm
- Muddy areas on the playground
- Moisture in soil
- Shade vs. sunshine

c. As a group decide on several areas to investigate. Use the thermometers to measure the temperature of the water if possible. Measure the air temperature at these locations as well. Have students briefly feel these with their fingers.

If you find ice or snow, distribute hand lenses and black paper squares. Put snow or ice crystals on black paper and observe with magnifiers.

- What does a snow crystal look like?
- Which is the largest one they can find? The smallest.
- Can they find an ice crystal?
- How is it different from a snow crystal?

Write descriptive words on the clipboard. Collect hand lenses and black paper.

d. **ANIMALS IN WINTER:** Ask the children how they stay warm when the outside air temperature is low. (coats, mittens, etc.) Invite them to give examples of how animals stay warm in the winter (some migrate when temperatures get lower, fur, finding a shelter that is warmer). Tell children that some animals survive over the winter by finding a slightly warmer place that protects them from the cold and allows them to find liquid water.

Ask them to suggest some places like this near the playground (near the school building, under leaves or grass, on the black top, under the soil, under a snow bank) Ask the children to find the place where they think the temperature is highest and where it is lowest on or near the playground. Go to these places with your group and measure the temperature. Also have students feel these locations with their fingers to sense differences. If they want to try to measure temperatures in the soil use the trowel.

e. Ask children to think about why snow or ice is where it is, and why it is not in other places. Plowing and shoveling is obvious, but also talk about dark objects (black top, tree trunks, or dead leaves on the snow) absorbing the sun's heat. Ask why are some locations warmer than others? (insulation of soil, snow, or grass, heat from school building, black top.

### 5. **Wrap-up**

Ask children what they learned about outdoor temperatures that surprised them, and write comments on the clipboard. What do you think makes snow and ice turn to water on your playground (higher air temperatures, warm soil or blacktop)? Why do we get rain in summer and snow in winter? Ask: If you were an animal, where would you go to find the warmest spot?

Alternate Winter Grade 2 REPORT FORM

GROUP LEADER:

Classroom temperatures:

Air:

Ice Water in Cup:

Outside:

Air near school:

Water (location)

Temperature:

State (solid or liquid):

Other location(s):

Location

Temperature

Where would an animal go to find the warmest temperature today?

Most surprising discoveries:

