

# How Do People Use Senses to Understand the Weather?

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## **Summary**

Students use their senses to investigate weather.

## **Grade level**

Kindergarten

## **Time required**

2-3 hours

## **Materials**

*Touch Center* - glass of water, ice cube, paper or electric fan, glass of steamy water

*Sight Center* - several small prisms, black construction paper, sunlight, butcher paper, metal mirrors, glass of water, flashlight, crayons or paint

*Sound Center* - water table, rocks, pie tins, tin foil, tall container of water, shallow container of water, thick washcloth, ice cubes, traditional Colville rattle

NASA's *Winds of Change* CD ROM

Construction paper, cotton, butcher paper for mural

Weather sounds recordings

## **Goals**

By completing this lesson, students will

- 1) explore hearing, sight and touch using a variety of methods,
- 2) learn about traditions of the Okanogan Band of the Colville Confederated Tribes of Washington that pertain to the senses,
- 3) begin to observe the weather using their sense of hearing, sight and touch and
- 4) develop science inquiry process skills.

## **Science standards addressed**

*National Science Standards*

- Abilities necessary to do scientific inquiry
- Changes in Earth and sky
- Science as a human endeavor
- Systems, order and organization
- Organisms and environments
- Changes in environments

*American Indian Science Standards*

- Changes in the earth's surface, weather fluctuations and the movements of celestial objects and how they affected historical American Indian community locations, annual migrations and agricultural and ceremonial cycles
- An awareness that observations and understandings of nature and ecological relationships traditionally formed an essential base of knowledge among American Indian cultures

**Teacher tips**

- The prism activity should be done on a sunny day.
- Use care when placing ice cubes on students' skin. Make sure hot water is steamy, but not hot enough to burn children.
- The students who use the rattle at the sound center should be familiar with how to treat the rattle with respect.
- Use recordings of weather sounds and music, such as Grand Canyon Suite, to help students visualize and imagine the weather.
- The Winds of Change CD can be obtained free from NASA. See the Resources section for ordering information.

**Background information**

The senses are significant to the people of the Colville Band, both in the past and present, for many reasons including:

- 1) Children are taught to distinguish between safe and unsafe plants, animals, and landscapes using visual cues.
- 2) Hunting, fishing, camping and root digging require a keen sense of hearing and sight.
- 3) In times past, people used their senses to predict the weather in order to determine whether to move camp and gather food.

**Procedure**

*Engagement*

- 1) On a large chart, write the following questions. Draw an eye, ear and hand next to each one. Have children brainstorm and record their ideas.
  - What does weather sound like?
  - What does weather look like?
  - What does weather feel like?
- 2) Have children create their own thunderstorm sounds by clapping their hands and stomping their feet, starting with gentle rain, then progressing to loud thunder, back to gentle rain, then stopping. Repeat, and this time have them talk about what they hear, see, and feel. Don't forget the rainbow at the end!

*Exploration*

- 1) Divide the class into groups and have each rotate through the following weather centers. Use the word *observe* in context. Listen to the Grand Canyon Suite or other

weather music while they work

*Touch the Weather* - Have students close their eyes. Sprinkle drops of water on each child's bare arm. Ask students to discuss what they feel and what it made them think of (rain). Repeat the process, using a paper or electric fan (to simulate wind), and an ice cube on the skin (snow). Finally, carefully place the student's hand over a cup of steamy water to feel the drops of water on skin (mist). Have students share times they were in various types of weather and how it felt to them.

*See the Weather* - Lower a prism into direct sunlight. Allow the spectrum rays to flash around the room. Pretend the prism is a tiny raindrop falling from the sky. Allow time for students to explore light using a prism. Now place a large sheet of butcher paper on the wall. Have students put a mirror in a glass of water in a darkened area of the room. Working with a partner, they discover that they can create a light spectrum (rainbow) on the paper by shining a flashlight on the mirror. Brainstorm what is needed to create a rainbow. Are the colors the same when using the mirrors and the prism? Have students record the colors on white paper.

*Hear the Weather* - At the water table, have students pour water over various objects and distinguish the different sounds that water makes as it falls. (e.g., pour water over rocks, pie tins, tin foil, tall container full of water, shallow container of water, thick washcloth, or ice cubes) Have students compare the sounds. Relate to being in a rainstorm in different locations. Have students shake the rattle softly then louder to sound like thunder.

#### *Explanation*

- 1) Facilitate a discussion about the importance of using hearing, seeing and touching to observe the weather. How can we predict the weather by only listening? Seeing? Touching? Explain the word "observe". Incorporate questions asked during the exploration into the discussion. Record student comments on a chart.
- 2) Have students view the *Winds of Change* CD. Access the video demonstration of thunderstorms. Discuss. Revisit the chart and write more student comments.

#### *Elaboration*

- 1) Invite an elder to discuss with students the importance of observing and using their senses while hunting, berry picking, root gathering and playing safely.
- 2) Create a scenario of hunting, berry picking, root gathering and playing at a lake. Have students act out being observant when they hear thunder or strong winds. Have them act out returning to parent, vehicle or other safe place.

#### *Evaluation*

- 1) While playing storm or rain music, have students create a mural by painting a meadow with mountains, flowers, rain drops, etc. Add cotton clouds and lightening. Remind them of the order of the colors in the spectrum when they paint the rainbow.
- 2) Display the mural in a prominent place. While looking at the mural, have each student share with the group one thing they feel, see or hear in a rainstorm.

**Follow up activities**

Have students paint rainbows. Give sample of rainbows with correct spectrum colors to reinforce the order of colors in the spectrum.

**Resources**

Winds of Change CD – Contains a variety of excellent images and activities. Can be obtained free from a NASA Educational Resource Center or by sending an electronic message to [pcfalcon@mail1.jpl.nasa.gov](mailto:pcfalcon@mail1.jpl.nasa.gov)  
<http://winds.jpl.nasa.gov/education/index.html>