



# Water and Weather

- OBJECTIVES:**
1. Identify and describe the differences between water's three forms: solid (ice), liquid (water), and gas (water vapor).
  2. Describe weather events that include water in its three forms.

## OVERVIEW:

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Students will observe water in its three forms, and describe their observations. They will use that knowledge to describe weather and what forms they observe during those weather events.

## STANDARDS ADDRESSED:

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**NGSS K-ESS3-2:** Ask questions based on observations to find more information about the designed world.

**NGSS K-PS3-1:** Make observations (firsthand or from media) to collect data that can be used to make comparisons.

**NGSS K-PS3-2:** Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.

**NGSS K-ESS2-1:** Scientists look for patterns and order when making observations about the world.

## MATERIALS:

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- Ice Cubes
- Water in clear cups
- Humidifier, hot plate, very hot water from faucet, or another means of demonstrating water vapor
- Paper and pencil to take notes
- Photographs of water in its three forms (can be located online and projected or printed)

## ACTIVITY STEPS:

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1. Ask students what they know about water. Have them describe water that they've seen.
2. State the terms solid, liquid, and gas. Define if needed. Which one is water? (liquid)
3. Then ask if they've ever seen solid water. Guide students to realize ice is solid water. Ask how water becomes ice (it has to get very cold and freeze).
4. Then ask if they've ever seen water as a gas. Guide students to the fact that water vapor creates clouds and steam. Ask students how water becomes water vapor (it is heated).

5. As a whole group, demonstrate some means of water vapor, using a humidifier, hot plate heating a pot of water to boiling, or having very hot water run from a classroom faucet. The steam they see is not smoke; it is water in a gas form called water vapor. Have students describe water vapor using their five senses (you can carefully have the students “taste” the water vapor and describe what they taste).
6. Then in pairs or small groups, provide students with an ice cube separate from a small clear cup of water. Have them describe their observations. If individual cups and ice cubes can be provided to each student, encourage students to taste their samples too. Students may write or draw their observations.
7. As an extension, ask students to describe where they have seen water in its three forms in the real world. Guide them beyond water as a liquid to include clouds, fog, snow, icebergs, etc. This may be done orally as a whole group or through writing or drawing.

**Connection to weather:**

1. As a part of a morning calendar or circle routine, track the daily weather. Is it cloudy? Snowing? Raining?
2. After days have passed including each of those types of weather, introduce the idea that water creates those forms of weather. When water is liquid, it is rain. When it’s solid, it is ice or snow. And when it’s water vapor, it is visible as clouds or fog.
3. Have students describe or draw their favorite things to do during each type of weather related to water.

**ASSESSMENT:**

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Locate photographs of water in its three forms. Be sure to include examples of the weather events discussed during the lesson. Number each of the pictures, and project the pictures onto a screen, or print them and show them to the class. As you show the pictures, ask the students to write the picture’s number and if it’s water as a solid, liquid, or gas. Kindergarten students may need the words written for them and would circle the correct answer. These sheets should be collected and analyzed to determine if students can tell the difference between water in its three forms.

**EXTENSION:**

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Students may search for additional pictures that show water in its different forms and sort those pictures into solids, liquids, and gases.