



FOGGY FUN

AT A GLANCE

GRADE LEVEL

- Grade K-2, 3-5, 6-8, 9-12

TIME REQUIRED

- 10-20 minutes prep time
- 30-40 minutes classtime

FORMAT

- Large group demonstration
- Small group exploration

MATERIALS

- 1 bucket
- Bottle with large mouth/opening
- Cold water
- Hot water
- Ice cubes in plastic zip-top bag
- Paper towels
- Pencils and science journal (or related materials to record observations)

THE SCIENCE EXPLAINED

Fog is a cloud that forms just above the ground. There are two types of fog: advection and radiation. Advection fog occurs on the Pacific coast when warm, moist air blows over cold water, forming a low-hanging cloud that gets blown inland. Radiation or ground fog is common everywhere, especially in autumn. A thin layer of warm, moist air forms near the ground, and cooler, dry air lays atop it. As the temperature drops, condensation occurs.

LESSON SUMMARY

Explore how fog forms in this hands-on activity that demonstrates radiation or ground fog.

OBJECTIVES

The learner will:

- Model the process of radiation fog formation by creating fog inside a bottle using temperature changes.
- Explain how cooling at the surface (radiative cooling) leads to fog formation, connecting the bottle demonstration to real-world weather phenomena.

PROCEDURE

Step One

Add cold water to a bottle and swirl around until the bottle feels cold to the touch

Step Two

Pour the cold water into a bucket

Step Three

Add one inch of hot water to cold bottle (ask an adult for help)

Step Four

Immediately place a bag of ice on top of the bottle

Step Five

Have students observe what happens, and record observations in their science journals

FOGGY FUN AND NOAA GEOSTATIONARY SATELLITES



CONNECTIONS

Thanks to GOES-19 and its sister satellites, detection of low clouds and fog has greatly improved.

The Advanced Baseline Imager (ABI) is the primary instrument on the GOES-R Series for imaging Earth's weather, oceans and environment.

ABI views the Earth with 16 different spectral bands. These different channels are used by models and tools to indicate elements on the Earth's surface or in the atmosphere, such as water, clouds, moisture, or smoke.

Did you know ...

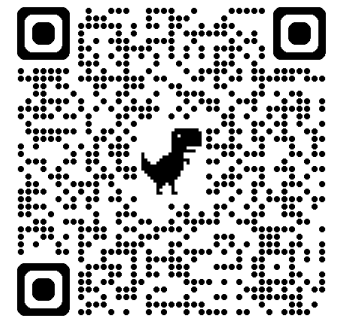
The second and third generations of GOES satellites included the GOES Imager. Using 5 spectral bands, the instrument could detect cloud formations and water vapor. The next generation Advanced Baseline Imager expanded the capability to detect fog and low clouds with greater detail thanks to its 16 spectral bands.

KEY RESOURCES

Learn more about fog with SciJinks!

Select the link or scan the QR code to visit the page:

[SciJinks - What's the Difference Between Fog and Clouds?](#)





THINKING OUTSIDE THE BOX

Discussion Prompts and Extension Activities

DISCUSSION AND JOURNAL PROMPTS

- What is fog? Describe its main characteristics.
- What is the difference between advection and radiation fog?
- How can fog impact industries such as travel and shipping? Provide 3 examples and explain the impacts.

SUGGESTED EXTENSION ACTIVITIES

- Track daily weather observations for your local area over the course of one month, and identify any weather patterns. A sustained period of fog could be part of a larger dataset showing seasonal weather patterns.