



MOUNT WASHINGTON®

OBSERVATORY

EDUCATIONAL PROGRAMS MENU | 2026-2027

WEATHER PROGRAMS

The Weather Around Us..... (K-1) (K-ESS2-1.)
Learn about the weather around us by exploring how MWOBS Weather Observers collect weather data. Then, learn how to take your own weather observations at your school to investigate weather trends!

Nimbus’s Mount Washington Adventure.....(K-3)(K-ESS3-2.)
Nimbus needs your help! Learn to identify weather patterns and explore forecasting basics to help prepare Nimbus for his hike to the summit of Mount Washington.

The Science of Snowflake Bentley.....(K-4) (K-ESS2-1; 2-ESS2-3)
Learn about the snowflake science behind New England’s iconic photographer “Snowflake Bentley”. Students will explore snowflake formation and create their very own “snow-board”.

Exploring Temperature Trends.....(K-5) (K-ESS2-1; 3-ESS2-1)
For younger learners, revisit temperature and learn why we take temperature measurements not just on Mount Washington, but around the world. Examine how Mount Washington’s temperature has changed over time and ask yourself, have you seen temperature trends where you live? Visualize how Mount Washington’s temperature changes over a month and during the year of 2025 through a data visualization craft.



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WEATHER PROGRAMS (cont.)

Let's Read a Weather Map!.....(K-5) (K-ESS2-1; 3-ESS2-1)

Explore the varying components of a weather map, including troughs and ridges, fronts, and wind barbs. Design your own weather map and explain what weather you have going on! Compare our weather map to real-life surface analysis maps.

Rain to Rainbows.....(K-5) (4-PS4-2)

Investigate the connection between moisture and optical phenomena in the sky. Depending on the grade level, students will either engage in a coloring activity or use glass bottles with water to make and explore refraction and reflection.

Snow Crystallization.....(K-8) (MS-ESS2-5)

Test the claim that "no two snowflakes are alike" through an engaging snowflake crystal-building scavenger hunt! Older grade levels will dive deeper into the snow formation and crystallization processes.

Weather Tools & Instrumentation.....(2-6) (3-ESS3-1; 3-5-ETS1-1)

Discover the exciting tools & instrumentation that MWOBS Weather Observers use to collect weather data. Learn about how Mount Washington's extreme conditions affect these tools & instrumentation, then participate in an Extreme Mount Washington Design Challenge. Will your instrument stand the test of Mount Washington?



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WEATHER PROGRAMS (cont.)

Under Pressure.....(2-8) (3-ESS2-1; MS-ESS2-5)

Through a series of demos and hands-on activities, explore the role air pressure plays in weather and how it can vary over time and place. Learn what drives air pressure changes and how organisms adapt or acclimate to those changes.

Eye of the Storm: Design Challenge.....(2-8) (3-ESS3-1; 5-ESS2-1; MS-ESS3-2)

Mount Washington is home to wind speeds that consistently exceed hurricane force. This program teaches students about hurricane formation and how powerful a storm needs to be to get classified as one. Working in groups, students use household items to create a stable structure that withstands storm surge and high wind speeds from an industrial fan.

Global Precipitation Patterns.....(2-8) (2-ESS2-3; 3-ESS2-1; MS-ESS2-4)

Use NASA data to explore Earth's circulation precipitation patterns through building 3D bar graphs for locations in your region and across the globe.

Extreme Mount Washington.....(3-5) (3-ESS2-1; 5-ESS2-1)

*The weather conditions on Mount Washington can be drastically different than what you experience at your school. Take weather observations and how mountains influence weather by exploring the interactions between Earth's geosphere and atmosphere. **MWOBS' signature program! This program can be scaled to meet other grade level standards.***



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WEATHER PROGRAMS (cont.)

Measuring Precipitation: Exploring Community Science..... (3-6) (3-ESS2-1; MS-ESS2-5)

Explore how the equipment and procedure scientists use to measure precipitation through a water-balloon toss challenge! The techniques learned in this lesson align with the CoCoRAHS community science protocol.

Winter Storms: Snow to Liquid.....(3-8) (5-ESS2-1; MS-ESS2-4; MS-ESS2-5)

Compare the impact of winter storm systems on the dampness of the resulting snowpack. Simulate how snow forms within a cloud layer and follow how it changes as it falls to the ground through an exciting outdoor (or indoor, weather dependent) game!

When it Rains, Does it Always Pour?.....(5-8) (MS-ESS2-5)

What is considered “extreme”? Explore NOAA data from local and national weather stations to investigate notable precipitation events. Students will graph, analyze and explore data trends using the Common Online Data Analysis Platform.

The Atmosphere’s Frozen Precipitation.....(5-8) (MS-ESS2-5; MS-PS1-4)

Use simulations to investigate various forms of frozen precipitation and what they tell scientists about the atmosphere. Practice snowflake identification, and build your own “snow-board”!



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WEATHER PROGRAMS (cont.)

Earth's Circulation & Our Weather.....(6-8) (MS-ESS2-5; MS-ESS2-6)

Learn how Earth's atmospheric and oceanic circulation drive global weather patterns by developing and utilizing models. Then, expand your learning by exploring the complex interactions of air masses and their influences on regional weather through hands-on activities.

Thunderstorms & Hail.....(6-8) (MS-ESS2-5; MS-ESS3-2)

Investigate the formation of thunderstorms and exciting supercells! Then, explore hail, how it forms, what information it can tell scientists about a storm, and the damage it can cause.

Science of Tornadoes.....(5-12) (MS-ESS2-5; MS-ESS3-2)

Discover the forces behind supercells and tornadoes, how they form, and the damage they can cause. Use jars of water to simulate a vortex and visualize how displacement of air masses and moisture can intertwine updrafts and downdrafts inside these powerful storms.

Looking for something different? Our Education Team is able to work with you to design a custom program for your classroom that compliments NGSS, OpenSciEd, or Mystery Science curricula.

Contact us at education@mountwashington.org!



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CLIMATE PROGRAMS

Extreme Climates.....(2-5) (3-ESS2-2.)

From ice-covered continents to volcanic deserts, uncover Earth's extreme climates and what creates them through engaging activities and participate in an Extreme Climates Postcards project.

Earth's Climate System.....(3-5; 8+)(5-ESS2-1; HS-ESS2-2; HS-ESS2-4; HS-ESS3-6)

For elementary & middle school students, explore Earth's "spheres" and investigate the complex interactions between these systems utilizing hands-on models.

For high school students, develop models to discover how energy transfer between Earth's systems affects climate over varying timescales. Then, you'll utilize data to investigate how a change to one of Earth's systems can create climate feedbacks. You'll also determine how these relationships between Earth's systems can be modified by human activity.

Microclimates and the Greenhouse Effect.....(3-6; 8+) (3-ESS2-2; MS-ESS3-5; HS-ESS2-4)

Explore climate forces and feedback loops that drive the greenhouse effect and cause global climate change. Younger students will build a microclimate with household items that either maximizes or minimizes heating. Older students will investigate the greenhouse effect on a molecular level through demos and online simulations.



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CLIMATE PROGRAMS (cont.)

Climate Change & Maple Syrup.....(6-8) (MS-ESS3-5)

Investigate data to determine how climate change is impacting New England's maple syrup industry. Students will use the Common Online Data Analysis Platform (CODAP) to explore climate and maple production data.

Unlocking Earth's Past Climate: Ice Cores.....(6-8; 9-12) (MS-ESS3-5; HS-ESS2-4; HS-ESS3-5)

Discover paleoclimatology and how proxy records help scientists understand Earth's past to predict its future. Students will examine ice core models to explore how ice informs us about historic atmospheric conditions.

Wildfires: Sun to Spark.....(6-8) (MS-ESS3-2; MS-ESS3-5)

Discover the connection between climate, solar radiation, drought, and the forces driving the global increase in wildfire activity. Investigate drought data and engage in an interactive outdoor fire safety activity (weather dependent).

Climate Change Mitigation: Pollution.....(6-8) (MS-ESS3-3)

Understand the different ways modern society and human activity can impact the Earth's climate. Design ways that we as a community and as individuals can reduce pollution.



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CLIMATE PROGRAMS (cont.)

The Beauty of Data: Exploring Data with Art.....(6-8) (MS-ESS3-5)

Understand the different ways modern society and human activity can impact the Earth's climate. Design ways that we as a community and as individuals can reduce pollution.

EARTH SCIENCE PROGRAMS

Layers of the Atmosphere.....(K-5) (5-ESS2-1)

Discover the size and characteristics of the five main layers of Earth's atmosphere, and how they interact by building an interactive hands-on model.

Exploring the Night Sky: Auroras.....(K-5) (5-ESS1-1)

Dive into the world of the Aurora Borealis! Students will be introduced to Earth's magnetosphere and the solar wind. We will then connect these two topics to understand how together, they produce the Aurorae. In addition to practicing being excited photons, we will explore the different colors produced with the help of colorful candy.

Flying High: Kites!.....(K-5) (K-2-ETS1-1; 3-5-ETS1-1; 3-PS2-1)

Discover the interaction between wind and aerodynamics using recycled everyday materials to construct and fly homemade kites. Students can test their kites and experiment with design changes to better visualize how forces like lift and drag interact with physical materials



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EARTH SCIENCE PROGRAMS (Cont.)

Mount Washington Rocks!.....(2-8) (4-ESS1-1, MS-ESS2-1, MS-ESS2-2)

Using rock samples from Mount Washington, learn about different rock types and which kinds are common on Mt. Washington. For older students, learn about the mountain-building events that formed them and when they occurred. Visualize the formation of sedimentary, metamorphic, and igneous rocks with a hands-on activity.

Glacial Awareness.....(2-8) (2-ESS1-1; 4-ESS2-1; MS-ESS2-2)

Mount Washington's surface is scarred with glacial features from its time during multiple ice ages, making it a great resource for studying our region's glacial history and the consequential erosion. Using rock samples, fun demos, and a hands-on activity, learn about the names of glacial features, how they form, and how to identify them.

AVALANCHE!.....(6-8; 9-12) (MS-ESS3-2; HS-ESS3-1)

Whether you're a beginner or a well-experienced outdoorsman, understanding avalanche conditions and emergency protocol can be a matter of life or death. As Mount Washington is known for the World's Worst Weather, learn how this can impact avalanche conditions.

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