



Grade 3 Science - Unit 1 - Weather & Climate

Unit Focus

In this unit, students build on their previous learning by exploring how scientists study and record weather patterns over time and across different locations. By analyzing weather data, students will learn how patterns can help predict future weather events. They will organize this data into tables and graphs to describe typical weather in Connecticut and compare it to the weather in another region of the world. Select lessons from Mystery Science are incorporated to support student understanding of how weather works and how scientists observe and interpret weather-related phenomena.

The unit also introduces the connection between weather patterns and natural hazards. Students will learn that certain natural hazards, such as hurricanes and flash floods, are directly related to weather processes.

The guiding question for the unit is: "How can people use weather patterns to predict weather events, and how can steps be taken to reduce the impacts of natural hazards?" To answer this, students will complete a performance-based assessment (PBA) where they design a structure to mitigate the effects of a specific weather-related hazard. This hands-on project emphasizes problem-solving and real-world application of scientific principles.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer	
Next Generation Science Standards Cross Cutting Concepts: 3 - Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2) (3.WC.CC. 1.1) - Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS2-3),(3-ESS3-1) (3.WC.CC.2.1) - Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1) (3.WC.CC.3.1) - Science affects everyday life. (3-ESS3-1) (3.WC.CC.4.1) Disciplinary Core Ideas: 3 - Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) (3.ESS2.D.1) - A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) (Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.) (3.ESS3.B.1)	<i>Students will be able to independently use their learning to...</i> T1 Create models to explore complex systems, show mastery of key science concepts, and/or develop solutions through creation of a product open to testing and redesign.	
	Meaning	
	Understanding(s)	Essential Question(s)
	<i>Students will understand that...</i> U1 Scientists study and record weather patterns to understand typical conditions in different seasons and regions. U2 Data collected over time can be organized into tables and graphs to reveal weather patterns. U3 Some natural hazards, such as hurricanes, floods, and lightning, are directly related to weather processes. U4 People can design solutions to minimize the impact of weather-related hazards and improve safety.	<i>Students will keep considering...</i> Q1 How do scientists use weather patterns to predict future weather events? Q2 How can data be used to describe typical weather conditions in a region? Q3 What are some common weather-related hazards, and how do they impact people and communities? Q4 How can people design solutions to reduce the effects of weather-related hazards?

Stage 1: Desired Results - Key Understandings

	Acquisition of Knowledge and Skill	
	Knowledge	Skill(s)
Performance Expectations: 3 - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1) - Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. (3-ESS3-1) Science and Engineering Practices: 3 - Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) (3.WC.SEP. 1.2) - Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-ESS3-1) (3.WC.SEP.2.1) Madison Public Schools Profile of a Graduate - Design: Engaging in a process to refine a product for an intended audience and purpose. (POG.2.2)	<i>Students will know...</i> K1 How to collect and organize weather data, including temperature, precipitation, and wind direction. K2 How to create and interpret bar graphs and pictographs to represent weather patterns. K3 The typical weather conditions expected during different seasons. K4 How weather patterns relate to natural hazards such as floods, strong winds, and lightning. K5 Strategies people use to reduce the impact of weather-related hazards (e.g., flood barriers, wind-resistant roofs, lightning rods). K6 Vocabulary: Weather, Climate, Season, Temperature, Precipitation, Patterns, Average, Prediction, Earthquake, Tsunami, Tornado, Flooding, Severe Weather, Dams, Levees, Lightning rod, Forecast.	<i>Students will be skilled at...</i> S1 Collect and analyze weather data over time. S2 Create tables and graphical representations (bar graphs, pictographs) of weather patterns. S3 Use data to describe and compare seasonal weather conditions in different regions. S4 Identify common weather-related hazards and explain their effects on people and the environment. S5 Design a solution to mitigate the impact of a weather-related hazard. S6 Use evidence to support a claim about the effectiveness of a design solution.