



Unit 1: Weather and Climate

Unit #:	APSDO-00034887	Duration:	9.0 Day(s)	Date(s):	
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Team:

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Grades:

3

Subjects:

Science

Unit Focus

In this unit, students will compare and contrast weather patterns in different parts of the world during different times of the year, and will understand how these climate patterns can be used to predict weather. Students will understand that natural hazards result from natural processes and will consider ways that impacts of weather-related hazards can be reduced. Summative assessments will include data analysis that compares and contrasts average temperatures, precipitation, and wind direction in different parts of the world at different times of the year and this data will be used to predict possible weather patterns. Students will also implement an engineering process to design and develop a solution to reducing the impact(s) of weather-related natural hazards. Supporting instructional materials may include related mentor text(s), online and print resources, and teacher generated inquiry tasks.

Stage 1: Desired Results - Key Understandings

Established Goals	Transfer
Next Generation Science Standards (DCI) <i>Science: 3</i> <ul style="list-style-type: none">A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. <i>ESS3.3.B1</i>At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved	T1 (T2) Design an investigation or model using appropriate scientific tools, resources, and methods. T2 (T5) Communicate scientific information clearly, thoroughly, and accurately.
Next Generation Science Standards (DCI) Science: 3	Meaning
U1 (U169) Humans cannot eliminate natural hazards but can take steps to reduce their impacts.	Q1 How do weather patterns vary from time of

<p>designs. <i>ETS1.3.B2</i></p> <ul style="list-style-type: none"> Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. <i>ESS2.3.D2</i> Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. <i>ETS1.3.C1</i> Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. <i>ETS1.3.A1</i> Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. <i>ETS1.3.B1</i> 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. <i>ESS2.3.D1</i> Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. <i>ETS1.3.B3</i> 	<p>U2 (U208) There is often more than one possible solution to a problem, but some are more effective than others given the criteria and constraints.</p> <p>U3 (U911) Scientists examine evidence to look for relationships (e.g., patterns, trends) to formulate insightful questions and solve problems.</p> <p>U4 (U205) Engineers learn from failure. Failure helps engineers learn more about how things work and how they can improve upon their design.</p> <p>U5 (U207) Engineers respond to a need by understanding the problem and developing solution(s) within given constraints and criteria.</p> <p>U6 (U131) Climate describes the range of an area's typical weather conditions and the extent to which those conditions vary over years.</p>	<p>year over different parts of the world?</p> <p>Q2 How are different types of natural hazards predicted based on regional climate patterns?</p> <p>Q3 How can humans prevent or reduce impacts caused by natural hazards?</p> <p>Q4 (Q921) How do I use tools and materials to carry out my testing or build my model?</p> <p>Q5 (Q913) How can I use science to figure out the answer, solve a problem, or design a solution?</p> <p>Q6 (Q201) What problem do I want to solve? How do I design a model/drawing to create a solution? How do I test it out and continue to make it better?</p> <p>Q7 (Q202) What can I learn from my experience?</p>								
Acquisition of Knowledge and Skill										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="741 910 1368 980" style="text-align: center; background-color: #cccccc;">Knowledge</th><th data-bbox="1368 910 2033 980" style="text-align: center; background-color: #cccccc;">Skills</th></tr> </thead> <tbody> <tr> <td data-bbox="741 980 1368 1160">K1 Scientists record patterns of weather across different times and areas in order to make predictions about the weather</td><td data-bbox="1368 980 2033 1160">S1 Record and compare weather patterns across different times and areas</td></tr> <tr> <td data-bbox="741 1160 1368 1339">K2 Climate is the range of an area's typical weather conditions and how those conditions vary over time</td><td data-bbox="1368 1160 2033 1339">S2 Make predictions about weather based on prior observations of weather patterns</td></tr> <tr> <td data-bbox="741 1339 1368 1512">K3 A variety of natural hazards result from</td><td data-bbox="1368 1339 2033 1512">S3 Design a solution to a problem using the engineering design process S4</td></tr> </tbody> </table>	Knowledge	Skills	K1 Scientists record patterns of weather across different times and areas in order to make predictions about the weather	S1 Record and compare weather patterns across different times and areas	K2 Climate is the range of an area's typical weather conditions and how those conditions vary over time	S2 Make predictions about weather based on prior observations of weather patterns	K3 A variety of natural hazards result from	S3 Design a solution to a problem using the engineering design process S4		
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	natural processes K4 Humans cannot eliminate natural hazards but can take steps to reduce their impacts	Test a design solution to see how well the design solves the problem
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