



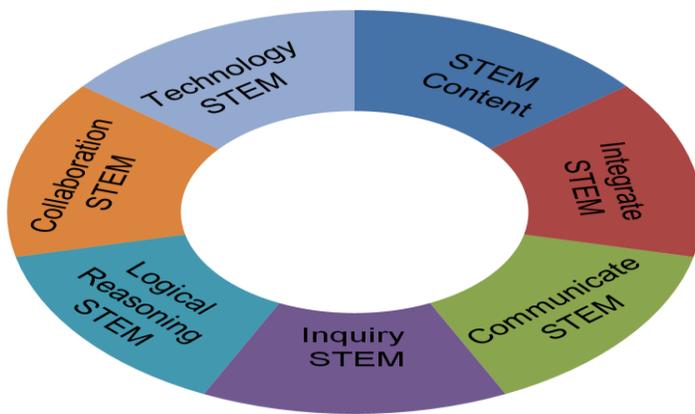
Elementary STEM Unit Planning Guide



Title: <i>How can we use the weather to help plants and animals?</i>	Teacher:
Overview: Students will learn about weather, basic needs of living things, and how the weather supports life. They will explore how they can integrate mathematics, technology, and engineering to “capture” rain and use it to support life.	Grade: Kindergarten

STEM Standards of Practices: Engage in meaningful, purposeful and relevant STEM activities using the Stem Standards of Practice Frameworks; student skills and knowledge indicators, instructional examples, resources and glossary.

STEM proficient students will be able to apply all seven Standards of Practice when demonstrating how to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.



Product / Prototype:
Rain Gauge
Rain Barrel
Rain Catcher
Students may develop their own ideas about use of sunshine or wind, as well. Rain is only our example.

Content Standards

Science	Technology	Engineering	CCSS Mathematics/Practices	CCSS ELA	Social Studies	Fine Arts
2.E.2.a 2.E.2.b 2.E.2.c <i>Weather</i>	Using material properties effectively	Engineering Design Use of tools	Non-standard Measurement Addition	Writing: W 2, 7, 8 Speaking & Listening: SL 3,5 Reading: RI 3,9,10	3.D.1.a 3.D.1.b <i>People adapting to their environment</i>	
3.E.1.a <i>Basic needs of Living Things</i>						

Transdisciplinary Connections: Questions, issues, problems or challenges to real world connections between Science, Technology, Engineering, Mathematics, and other disciplines. <i>Students will learn about weather, basic needs of living things, and how the weather supports life. They will explore different ways in which weather helps living things. They will develop a product to maximize use of the weather (e.g., rain) and use non-standard methods of measurement to help develop their product.</i>	Enduring Understanding: Identify a Real World Problem. Students will learn how the weather helps living things and can use this knowledge to support their understanding of basic needs of living things. This will help them to begin to develop ideas about water in the water cycle, human impact on the environment, and needs of living
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STEM Unit Draft, 2012

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Howard County Public School System



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	things, which will be a focus in later years.
<p>Connection to STEM Careers: This section describes careers in the STEM fields that correlate with content covered in the unit.</p> <ul style="list-style-type: none"> • Meteorologist • Biologist • Conservationist • Botanist • Master Gardener • Mechanical Engineer 	<p>Essential Questions: Begin to ask questions that would explore the problem and eventually solve the problem.</p> <p>How can we use the weather to help plants and animals?</p> <ul style="list-style-type: none"> • How is water trapped? • How is water used? • What kind of water is rain? • Can we collect rain year round? <i>Connection to seasons and weather changes</i> • How do I tell people about what I learned? • How can my invention be created again?

STEM Standards of Practice	Science/Engineering Practices	Mathematics Practices
<ol style="list-style-type: none"> 1. Learn and Apply Rigorous Science, Technology, Engineering, and Mathematics Content 2. Integrate Science, Technology, Engineering and Mathematics Content 3. Interpret and Communicate information from Science, Technology, Engineering, and Mathematics 4. Engage in Inquiry 5. Engage in Logical Reasoning 6. Collaborate as a STEM team 7. Apply Technology Strategically 	<ol style="list-style-type: none"> 1. Asking questions (for science) and defining problems (for engineering) 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics, information and computer technology, and computational thinking 6. Constructing explanations (for science) and designing solutions (for engineering) 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.

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