

# Weather, Climate, and Space Standards and Benchmarks

<b>Standard 1: Understands and applies principles of scientific inquiry</b>				
<i>Power Benchmarks: Identifies questions and concepts that guide science investigations Uses technology and mathematics to improve investigations and communications Formulates and revises scientific explanations and models using logic and evidence Recognizes and analyzes alternative explanations and models</i>				
<b>Course Level Benchmarks</b>	<b>Vocabulary</b>	<b>Knowledge</b>	<b>Skills</b>	<b>Classroom Resources</b>
A. Formulates and revises scientific explanations and models	<ul style="list-style-type: none"> <li>• scientific explanation</li> <li>• scientific model</li> <li>• data</li> <li>• scientific method</li> </ul>	<ul style="list-style-type: none"> <li>• Knows scientific explanations and models are based on data</li> <li>• Know new data may lead to the modification of scientific explanations and models</li> </ul>	<ul style="list-style-type: none"> <li>• Analyzes data with respect to scientific explanations and models (ACT, SAT, ITED)</li> <li>• Adjusts scientific explanations and models based on data (ACT, SAT, ITED)</li> </ul>	Earth and Space Curriculum Guide  Emphasized throughout the entire curriculum  <u>Technology:</u> use of science to solve everyday problems
B. Understands how scientific knowledge changes with new evidence	<ul style="list-style-type: none"> <li>• scientific knowledge</li> <li>• evidence</li> <li>• influence</li> </ul>	<ul style="list-style-type: none"> <li>• Knows examples of scientific knowledge that changed when new evidence was presented</li> <li>• Knows that science is an ongoing process and is always open to new ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Describes how science concepts have evolved with the discovery of new evidence</li> <li>• Hypothesizes how current science concepts and practices will influence future societies</li> </ul>	
C. Uses technology and mathematics to perform accurate scientific investigations and communications	<ul style="list-style-type: none"> <li>• technology</li> <li>• mathematics</li> <li>• scientific investigations</li> <li>• scientific communication</li> <li>• spreadsheet and graphs</li> </ul>	<ul style="list-style-type: none"> <li>• Knows how technology can help scientific investigations and communications</li> <li>• Knows mathematical computations and formulas are essential to scientific investigations</li> </ul>	<ul style="list-style-type: none"> <li>• Determines tools most appropriate to use given a particular situation</li> <li>• Uses the necessary mathematics for a particular situation (ACT, SAT, ITED)</li> <li>• Formulates graphic representation of data (ACT, SAT, ITED)</li> </ul>	
D. Demonstrates safe handling procedures	<ul style="list-style-type: none"> <li>• OSHA</li> <li>• EPA</li> <li>• MSDS</li> <li>• Right to Know</li> <li>• hazardous</li> <li>• safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Knows appropriate safety procedures for a given situation</li> <li>• Knows where safety devices are located in the classroom</li> <li>• Understands the process of waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Follows required safety procedures</li> <li>• Recognizes, reports, and corrects safety problems</li> <li>• Follows waste disposal procedures</li> </ul>	



## Weather, Climate, and Space Standards and Benchmarks

Standard 2: Understands and applies principles of earth science (con't)				
<i>Power Benchmark: Understands and applies knowledge of energy in the earth system</i> <i>Understands and applies knowledge of Geochemical cycles</i> <i>Understands and applies knowledge of the origin and evolution of the earth system</i>				
Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
A. Explores the components and dynamics of the universe (con't)  <u>Suggested Extensions</u> <b>3. Stars and Galaxies</b>	<b>Stars and Galaxies</b> <ul style="list-style-type: none"> <li>• galaxy</li> <li>• quasars</li> <li>• pulsars</li> <li>• neutron stars</li> <li>• black holes</li> <li>• pulsating stars</li> </ul>	<b>Stars and Galaxies</b> <ul style="list-style-type: none"> <li>• Understands the universe will likely expand forever</li> <li>• Knows stars are classified by their characteristics – color, temperature, size, composition, and brightness</li> </ul>	<b>Stars and Galaxies</b> <ul style="list-style-type: none"> <li>• Describes the nature and dimensions of our galaxy</li> <li>• Explains the theories of the origin of the universe</li> <li>• Describes the life cycle of a star</li> </ul>	Weather, Climate & Space Curriculum Guide

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*Understands and applies knowledge of the origin and evolution of the earth system*

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
B. Recognizes the earth's atmosphere role in weather patterns	<ul style="list-style-type: none"> <li>• atmosphere</li> <li>• water cycle</li> <li>• high and low pressure</li> <li>• air masses</li> <li>• weather fronts</li> <li>• climate</li> </ul>	<ul style="list-style-type: none"> <li>• Knows the water cycle</li> <li>• Understands how weather patterns are mapped</li> <li>• Understands the factors that influence weather</li> </ul>	<ul style="list-style-type: none"> <li>• Describes how the temperature of the atmosphere changes with height</li> <li>• Sequences what must happen before rain can fall</li> <li>• Explains how Earth's rotation affects winds</li> <li>• Compares and contrasts warm fronts and cold fronts</li> <li>• Explains the association between climate and latitude</li> <li>• Explains way humans may affect climate</li> <li>• Explains why it is difficult to identify any single cause of an observed climate change</li> </ul>	Weather, Climate & Space Curriculum Guide