

Cornwall-Lebanon School District Curriculum Overview

Meteorology 10th – 12th Grade

20 length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards (PA Core if applicable)
Unit 1 2	<p style="text-align: center;"><u>The Atmosphere</u></p> <p>Students will describe the layered structure, composition, and abundance of gases in the atmosphere. Students will discuss the importance of the tropospheric layer with respect to weather formation. Students will explain the various protective functions Earth's atmosphere performs.</p>	<ul style="list-style-type: none"> ➤ Unit 1 Quiz 1: Layers of the Atmosphere ➤ Unit 1 Test 1: Air & Atmosphere Unit Test 	<p>3.3.10.A6 3.3.6.A5</p>
Unit 2 3	<p style="text-align: center;"><u>Seasons</u></p> <p>Students will analyze annual temperature and hours of daylight data across different latitudes. Students will describe axial tilt as the cause of Earth's seasons. Students will determine how solar angle affects energy per unit area.</p>	<ul style="list-style-type: none"> ➤ Unit 2 Activity 1: Seasons Lab Data ➤ Unit 2 Test 1: Seasons Unit Test 	<p>3.3.10.A4 3.3.12.A4 3.3.12.A6 3.3.8.A5</p>
Unit 3 5	<p style="text-align: center;"><u>Climate & Current Climate Change</u></p> <p>Students will describe the difference between weather and climate. Students will analyze heat budgets to determine if a location's climate is warming or cooling. Students will explain the difference between the greenhouse effect and the enhanced greenhouse effect. Students will link anthropogenic carbon emissions as the main driver of current climate change. Students will explore methods by which they can reduce their carbon footprint.</p>	<ul style="list-style-type: none"> ➤ Unit 3 Quiz 1: Heating the Atmosphere ➤ Unit 3 Quiz 2: The Greenhouse Effect ➤ Unit 3 Quiz 3: The Keeling Curve & Atmospheric CO₂ ➤ Unit 3 Project 1: Current Climate Change Synthesis ➤ Marking Period Exam 	<p>3.3.10.A4 3.3.12.A4 3.3.12.A6 3.3.10.A7 3.3.12.A7 3.3.5.A5</p>
Unit 4 4	<p style="text-align: center;"><u>Weather Observations</u></p> <p>Students will convert weather observations given in UTC time to their corresponding standard times. Students will match important atmospheric variables with the weather tools used to measure them. Students will convert between different temperature scales and wind speed scales. Students will decode and encode weather station models. Students will use weather station data to contour weather maps. Students will analyze weather maps to pull out key information.</p>	<ul style="list-style-type: none"> ➤ Unit 4 Quiz 1: Time Conversions ➤ Unit 4 Test 1: Weather Factors ➤ Unit 4 Quiz 2: Isoplething ➤ Unit 4 Test 2: Weather Observations Unit Test 	<p>3.3.10.A6 3.3.12.A6 3.3.12.A7 3.3.7.A5 3.3.7.A6</p>

Unit 5	<div style="border: 1px solid red; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">3</div> <p style="text-align: center;"><u>Controllers of Wind</u></p> <p>Students will explain how differential heating leads to the formation of convection cells and surface wind. Students will analyze the effects of pressure gradient force, Coriolis Effect, and friction on wind flow. Students will determine the direction of wind flow using isobar plots.</p>	<ul style="list-style-type: none"> ➤ Unit 5 Quiz 1: Convection Cells ➤ Unit 5 Quiz 2: Wind Direction ➤ Unit 5 Test 1: Controllers of Wind Unit Test 	<p>3.3.12.A4 3.3.10.A6 3.3.12.A6 3.3.12.A7 3.3.6.A5</p>
Unit 6	<div style="border: 1px solid red; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">3</div> <p style="text-align: center;"><u>Clouds & Precipitation</u></p> <p>Students will describe the various methods by which clouds may form. Students will interpret sounding data to determine a location's likely cloud cover and type of expected precipitation.</p>	<ul style="list-style-type: none"> ➤ Unit 6 Quiz 1: Cloud Formation ➤ Unit 6 Quiz 2: Lapse Rates & Precipitation ➤ Marking Period Exam #2 	<p>3.3.10.A6 3.3.12.A6 3.3.12.A7 3.3.6.A4 3.3.8.A5</p>