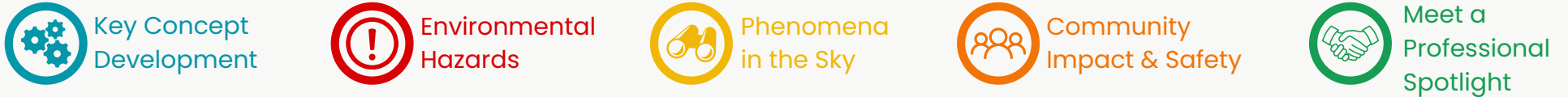


WEATHERING THE STORM

Module 1 Storyline


Content Key



Activity Key



Driving Question: How do we keep people safe in the extreme temperatures of summer and winter?







	Topic	Standards	Key Concepts	Student Artifacts
Lesson 0	Weather & Meteorology  Vocabulary: Weather, Meteorology	Computer Science: 6.IC.CU.01 6.IC.CU.02	<ul style="list-style-type: none"> Weather is the state of the atmosphere at any given time. The components of weather are temperature, atmospheric pressure, wind, humidity, precipitation and cloudiness. Meteorology is the study of the atmosphere and its processes. 	<ul style="list-style-type: none"> Interest Survey of various careers in meteorology
Lesson Navigating Question: What is weather?				







WEATHERING THE STORM

Module 1 Storyline

Lesson 1

Topic	Standards	Key Concepts	Student Artifacts
<p>Temperature</p>  <p>Vocabulary: Temperature, Fahrenheit, Celsius, Kelvin, Absolute zero</p>	<p>Science: 6.PS3.3 6.PS3.4</p> <p>Math: 6.N.1.1 6.D.1.1</p> <p>Computer Science: 6.DA.CVT.01 6.DA.IM.01</p>	<ul style="list-style-type: none"> • Temperatures differ in the sun and shade. • Different substances absorb different amounts of energy from the sun. • Temperature can be measured in Celsius or Fahrenheit. 	<ul style="list-style-type: none"> • Temperature readings of air, water, and soil in varying amounts of sunlight. • Initial models to explain why temperature differs in sun and shade. • Comparison of temperature readings in Celsius and Fahrenheit.
<p>Lesson Navigating Question: How do we measure weather?</p>			    



Lesson 2

Topic	Standards	Key Concepts	Student Artifacts
<p>Heat Transfer</p>   <p>Vocabulary: Radiation, Conduction, Convection, Convection current, Warm front, Cold front, Mirage</p>	<p>Science: 6.PS1.4 6.PS3.3 6.PS3.4 6.PS4.2</p>	<ul style="list-style-type: none"> • Energy from the sun powers all weather - it heats the air, increasing the energy of the molecules which then increases the temperature of the air. • Heat is transferred through radiation, conduction, and convection. • Convection currents are caused by warm air rising and cool air sinking. • Convection currents create air masses that affect weather patterns. • A mirage is evidence of convection. 	<ul style="list-style-type: none"> • Adaptation of initial temperature models to include modes of heat transfer. • Simulation of convection current.
<p>Lesson Navigating Question: What happens after air heats up?</p>			 



WEATHERING THE STORM

Module 1 Storyline

Lesson 3


Topic	Standards	Key Concepts	Student Artifacts
<p>Heat Index</p>  <p>Vocabulary: Humidity, Water vapor, Relative humidity, Saturation, Heat index</p>	<p>Science: 6.PS3.4 6.ESS2.4</p> <p>Math: 6.N.3.1</p> <p>Computer Science: 6.DA.S.01 6.DA.CVT.01 6.DA.IM.01</p>	<ul style="list-style-type: none"> Relative humidity is another component of weather. Humidity affects how the outside temperature may feel, but does not affect the actual temperature. Heat Index is a measure of temperature combined with relative humidity. 	<ul style="list-style-type: none"> A variety of models and simulations that compare temperatures, relative humidity, and heat index in Oklahoma and Arizona.
<p>Lesson Navigating Question: Why does hot weather in Oklahoma feel different than hot weather in Arizona?</p>			

Lesson 4

Topic	Standards	Key Concepts	Student Artifacts
<p>Wind Chill</p>  <p>Vocabulary: Wind chill</p>	<p>Science: 6.PS3.4</p> <p>Computer Science: 6.DA.S.01 6.DA.CVT.01 6.DA.IM.01</p>	<ul style="list-style-type: none"> Wind chill is a measure of how air temperature feels to human skin due to wind. Higher wind speeds increase heat loss from the skin, decreasing body temperature. 	<ul style="list-style-type: none"> Windchill forecasts based on temperature and wind speed data.
<p>Lesson Navigating Question: Does heat index work the same in winter?</p>			

WEATHERING THE STORM

Module 1 Storyline

Lesson 5	Topic	Standards	Key Concepts	Student Artifacts
	<p>Heat Index</p>  <p>Vocabulary: Excessive heat warning, Wind chill warning, Heat exhaustion, Heat stroke, Hypothermia</p>	<p>Computer Science:</p> <ul style="list-style-type: none"> 6.DA.CVT.01 6.DA.IM.01 6.IC.CU.01 6.IC.CU.02 6.AP.PD.01 	<ul style="list-style-type: none"> High temperatures, humidity, and/or heat indexes can create unsafe conditions that put people at risk for heat exhaustion or stroke. High wind speeds and low temperatures or wind chill can create unsafe conditions that put people at risk for hypothermia and frostbite. 	<ul style="list-style-type: none"> Creation of either summer or winter temperature alerts for the public.
<p>Lesson Navigating Question: How do we keep people safe in the extreme temperatures of summer and winter?</p>				



This document was prepared by Tulsa Regional STEM Alliance with funding provided by NOAA/Office of Oceanic and Atmospheric Research under NOAA-University of Oklahoma Cooperative Agreement #NA21OAR4320204, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA or the U.S. Department of Commerce.

