

Air and Weather Unit Design - Grade 1

The **Air and Weather Module** consists of four sequential investigations, each designed to introduce concepts in earth science. The investigations provide opportunities for young students to explore the natural world by using simple tools to observe and monitor change.

RI Statements of Enduring Knowledge - (Established Goals):

LS 2 Matter cycles and energy flows through an ecosystem

ESS 1 The Earth and earth materials as we know them today have developed over long periods of time, through continual change processes

PS 1 All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (*independent of size or amount of substance*)

Related Rhode Island GSE's (Understandings)	RI Assessment Targets Assessment Evidence
<p>ESS 1(K-2)–3 Students demonstrate an understanding of how the use of scientific tools helps to extend senses and gather data by...</p> <p>3a using scientific tools to extend senses and gather data about weather (e.g., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).</p> <p>ESS 1(K-2)–4 Students demonstrate an understanding of processes and change over time within earth systems ...</p> <p>4a observing and recording seasonal and weather changes throughout the school year.</p>	<p>***ESS 1 (K-4) NOS –3 <i>Explain how the use of scientific tools helps to extend senses and gather data about weather. (i.e., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).</i></p> <p>Investigation 2, Parts 2, 4, pp. 14-19, 24-27 Investigation 3, Parts 2, 4, pp. 12-16, 22-27</p> <p>***ESS1 (K-4) INQ+SAE –4 <i>Explain how wind, water, or ice shape and reshape the earth.</i></p> <p>Investigation 2, Part 1, pp. 8-13 Investigation 4, Parts 1-2, pp. 8-11</p>

<p align="center">Related Rhode Island GSE's (Understandings)</p>	<p align="center">RI Assessment Targets Assessment Evidence</p>
<p>ESS 1 (K-2)-5 Students demonstrate an understanding of processes and change over time within earth systems by ...</p> <p>5a observing, recording, and summarizing local weather data.</p> <p>5b observe how clouds are related to forms of precipitation (e.g., rain, sleet, snow).</p> <p>ESS 2 (K-2)-7 Students demonstrate an understanding of temporal or positional relationships between or among the Earth, sun, and moon by ...</p> <p>7a observing that the sun can only be seen in the daytime, but the moon can be seen sometimes at night and sometimes during the day.</p> <p>7b observing that the sun and moon appear to move slowly across the sky.</p> <p>7c observing that the moon looks slightly different from day to day.</p> <p>9a observing that there are more stars in the sky than can easily be counted, but they are not scattered evenly and not all the same in brightness.</p> <p>PS2 (K-2)-4 Students demonstrate an understanding of energy by...</p> <p>4c identifying the sun as a source of heat energy.</p>	<p>**ESS1 (K-4) POC –5 Based on data collected from daily weather observations, describe weather changes or weather patterns.</p> <p>Investigation 2, Part 1, pp. 8-13 Investigation 4, Parts 1-2, pp. 8-11 Investigation 2, Part 3, pp. 20-23</p> <p>No further targets for EK ESS2 at the K-4 Grade Span</p> <p>PS2 (K-4) – SAE–4 <i>Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together), predict the observable effects of energy (i.e., light bulb lights, a bell rings, hands warm up (i.e. a test item might ask, “what will happen when....?”)</i></p> <p>Investigation 2, Part 2, pp. 14-19 Science Stories, p. 21</p>

<p style="text-align: center;">Related Rhode Island GSE's (Understandings)</p>	<p style="text-align: center;">RI Assessment Targets Assessment Evidence</p>
<p>PS2 (K-2)-6 Students demonstrate an understanding of energy by...</p> <p>6a describing that the sun warms land and water.</p> <p>6b describing that objects change in temperature by adding or subtracting heat.</p> <p>PS3 (K-2)-7 Students demonstrate an understanding of motion by...</p> <p>7a showing how pushing and pulling moves or does not move an object.</p>	<p>PS2 (K-4) – SAE + INQ–6 <i>Experiment, observe, or predict how heat might move from object to another.</i></p> <p>Investigation 2, Part 2, pp. 14-19 Science Stories, p. 21 Investigation 2, Part 2, pp. 14-19</p> <p>***PS3 (K-4) – INQ + SAE–7 <i>Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls).</i></p> <p>Investigation 1, Parts 4-5, pp. 21-33 Investigation 3, Part 3, pp. 17-21</p>

Words in **bold** are important for science vocabulary development, and should be used for word walls.

Investigation- Time (45 min. periods)	Investigation	Focus Questions (Essential Questions)	Big Ideas (Understandings)
1.1-(1)	Air is there.	How does air interact with objects?	<ul style="list-style-type: none"> • Air is something real and is called matter. • Air takes up space.
1.2-(1)	Air under water.	How can I keep paper towel dry under water?	<ul style="list-style-type: none"> • Air interacts with objects • Air is matter • Air can be captured.
1.3-(1)	Parachutes	How does air effect how a parachute floats to the ground?	<ul style="list-style-type: none"> • Air is all around objects • Air resistance affects how things move.
1.4-(1)	Pushing on Air.	What happens when I push air into a smaller space?	<ul style="list-style-type: none"> • Air is matter and takes up space • Air can be compressed • The pressure from compressed air can move things
1.5-(1)	Air and Water Fountain	How can I use air to push water around a system?	<ul style="list-style-type: none"> • Air is matter and takes up space • Air pressure can move water.
1.6-(1)	Balloon rockets	How can I use compressed air to propel a balloon rocket?	<ul style="list-style-type: none"> • Air can be compressed • The pressure from compressed air can move things
2.1-(ongoing)	Weather Calendars	How can we keep a record of daily weather conditions?	<ul style="list-style-type: none"> • Weather describes conditions in the air outside. • Meteorologists are scientists who study weather. • Scientific journals record what is observable
2.2-(1)	Measuring Temperature	How does a thermometer measure temperature?	<ul style="list-style-type: none"> • Temperature describes how hot or cold the air is. • Temperature is measured with a thermometer. • The unit used to measure temperature is degrees Celsius (°C) or degrees Fahrenheit (°F)

Investigation- Time (45 min. periods)	Investigation	Focus Questions (Essential Questions)	Big Ideas (Understandings)
2.3-(ongoing)	Watching clouds	<p>Are all clouds the same?</p> <p>What kind of weather do different clouds bring?</p>	<ul style="list-style-type: none"> • There are three main clouds. • Clouds are made of water drops • Wind moves clouds in the sky
2.4-(1)	Measuring Rain	How can we measure the amount of rain that falls?	<ul style="list-style-type: none"> • Meteorologists use rain gauges to measure how much rain or snow has fallen. • Natural sources of water include streams, rivers, lakes (fresh water), and the oceans (salt water)
3.1-(1)	Bubbles in the wind	How can bubbles be used to find out about wind speed and direction?	<ul style="list-style-type: none"> • Bubbles are filled with air • Wind is moving air. • Bubbles can show the changing direction and speed of the wind.
3.2-(1)	Wind Speed	How do people describe the strength of wind?	<ul style="list-style-type: none"> • Meteorologists use a wind scale to describe the strength of the wind • Meteorologists use anemometers to measure the speed of wind
3.3-(1)	Pinwheels	How can we use a pinwheel to observe the wind speed?	<ul style="list-style-type: none"> • A pinwheel provides evidence about how fast the wind is blowing
3.4-(1)	Wind Vanes	How can we use a wind vane to observe the direction of the wind?	<ul style="list-style-type: none"> • Meteorologists use wind vanes to observe wind direction • A wind vane points in the direction the wind is coming from
3.5-(1)	Kites	How can we use weather instruments to improve kite flying?	<ul style="list-style-type: none"> • Wind pushes a kite into the sky
4.1-(ongoing)	Weather graphs	How can we organize weather data collected for a month to look for change?	<ul style="list-style-type: none"> • Weather conditions change over time • Weather observations can be organized and used to make comparisons

Investigation- Time (45 min. periods)	Investigation	Focus Questions (Essential Questions)	Big Ideas (Understandings)
4.2-(ongoing)	Comparing seasons	How can we organize weather data taken over different seasons to look for change?	<ul style="list-style-type: none"> • Daily changes in temperature, precipitation, and weather type can be observed, compared and predicted • Each season has a typical weather pattern that can be observed, compared, and predicted • The sun can be seen only in the day. • The sun heats the earth during the day
4.3-(ongoing)	The night sky	What is the night sky and how can we monitor and record our observations to look for change?	<ul style="list-style-type: none"> • Weather occurs at night as well as during the day • The moon can be seen at night and sometimes during the day. It looks different every day but looks the same every four weeks • There are more stars in the sky than anyone can easily count • The sun and the moon move across the sky during the day and night and appear in different locations in the sky