

Grade: 1 Subject: Science	Unit of Study: Air and Weather
Big Idea/Rationale	<p>Observing Weather -Monitoring the weather over time and the tools used measure it. (Activity 1)</p> <ul style="list-style-type: none"> • Students will monitor the weather of a period of time using a class and individual weather journals. As the activity advances, different weather instruments are introduced to expand student’s abilities to describe weather. Students monitor temperature with a thermometer, wind with an anemometer, and rainfall with a rain gauge. Weather conditions are compared over time using a bar graph. <p>Air Explorations – exploring properties of the common gas mixture, air. (Activity 2)</p> <ul style="list-style-type: none"> • Students explore properties of the common gas mixture, air. Using a system of syringes and tubes, student experience air as matter, discovering that it occupies space, that it can be compressed, and that compressed air builds up pressure that can be used to push objects around. Students capture air for observations in syringes, bottles and bubbles <p>Using Air introduces students to a variety of devices that use air for support and propulsion. (Activity 3)</p> <ul style="list-style-type: none"> • Students construct and compare devices that use air. They investigate parachutes that float through the air, propellers that turn in the wind or fly upward when they are spun; balloon rockets that are propelled by escaping air; and gliders that float and turn on the air currents. Students then design and create their own air-propelled or air-using devices from a variety of materials. <p>Wind Catchers - Construct and try out a variety of devices that operate in moving air, or wind. (Activity 4)</p> <ul style="list-style-type: none"> • Students make and compare a variety of systems that move with the wind – streamers that flutter in the slightest breeze, pinwheels that rotate when air moves past them, wind socks that show the direction of rushing air, kites that fly in a strong breeze, and whirligigs that will when pulled through the air or when rising air moves past them.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • Students will understand that weather changes over time. • Different instruments are used to help monitor the weather. • Air is real and takes up space. • Air can move, propel or slow down objects • Wind is moving air
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • Observing Weather • Weather and Calendars <ul style="list-style-type: none"> ○ How would you describe today’s weather? (Activity 1) ○ What would you draw to show today’s weather? (Activity 1) ○ What are some weather words? (Activity 1)

	<ul style="list-style-type: none"> ○ What is a symbol and why are they used (Activity 2) ○ What types of symbols can we use to depict different types of weather? (Activity 2)
<p>Content (Subject Matter)</p>	<ul style="list-style-type: none"> ● Observe daily weather and record observations in a journal. ● Use a calendar to monitor and then graph daily weather. ● Monitor and record daily outdoor temperature. ● Use different weather instrument, including and anemometer, thermometer, and rain gauge. ● Describe wind speed using a modified Beaufort scale ● Identify several types of clouds.
<p>Skills/ Benchmarks (CCSS Standards)</p>	<ul style="list-style-type: none"> ● 5.1.P.B.1 : Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. ● 5.1.P.B.2: Use basic science terms and topic-related science vocabulary. ● 5.1.P.B.3: Identify and use basic tools and technology to extend exploration in conjunction with science investigations. ● 5.1.P.C.1: Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. ● 5.1.P.D.1: Represent observations and work through drawing, recording data, and “writing.” ● 5.2.2.A.1: Sort and describe objects based on the materials of which they are made and their physical properties. ● 5.2.2E.1: Investigate and model the various ways that inanimate objects can move. ● 5.2.2.E.2: Predict an object’s relative speed, path, or how far it will travel using various forces and surfaces. ● 5.2.2.E.3: Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). ● 5.2.4.E.1: Demonstrate through modeling that motion is a change in position over a period of time. ● 5.2.4.E.2: Identify the force that starts something moving or changes its speed or direction of motion. ● 5.4.2.A.1: Determine a set of general rules describing when the Sun and Moon are visible based on actual sky observations. ● 5.4.P.F.1: Observe and record weather. ● 5.4.2.F.1: Observe and document daily weather conditions and discuss how the weather influences your activities for the day. ● 5.4.4.F.1: Identify patterns in data collected from basic weather instruments.

	<ul style="list-style-type: none"> • 5.4.4.G.2: Identify and use water conservation practices.
<p>Materials and Resources</p>	<p>Activity 1: Observing Weather</p> <ul style="list-style-type: none"> • Part 1: Discussing weather <ul style="list-style-type: none"> ○ Pencils, crayons, Parent letter, Weather Journal • Part 2: Weather/Calendars <ul style="list-style-type: none"> ○ Class calendar, weather symbol sheet, Student calendar • Part 3: Temperature <ul style="list-style-type: none"> ○ Red crayons, class demonstration thermometer, Master of blank thermometers. • Part 4: Measuring Wind <ul style="list-style-type: none"> ○ Master of wind scale, Anemometer, fan • Part 5: Rain Gages & clouds <ul style="list-style-type: none"> ○ Student sheet called Cloud types, Poster: A Guide to the Sky, Rain gauge, Cloud window (construction paper and tape), Rain gage. • Part 6 – Weather Graphs <ul style="list-style-type: none"> ○ Calendar, Masters of: weather record & weather graph. <p>Activity 2 - Air Explorations</p> <ul style="list-style-type: none"> • Part 1: Air Bags <ul style="list-style-type: none"> ○ For each student: 1-liter zip bag, feather, Styrofoam ball, half a straw, cotton ball, round balloon, piece of scrap paper. • Part 2 - Syringes & Tubes <ul style="list-style-type: none"> ○ For Students: Syringe, 1 piece of flexible tubing. • Part 3 - Syringes Air & Water <ul style="list-style-type: none"> ○ Food coloring, water, paper towels. Students: 2 syringes and two flexible tubes, colored water, plastic bottle, rubber stopper with two holes, vial • Part 4: Bubbles <ul style="list-style-type: none"> ○ Students: Teacher: Bubbles, plastic cups, jumbo straw, bubble wand, paper towel. <p>Activity 3: Using Air</p> <ul style="list-style-type: none"> • Part 1: Constructing Parachutes <ul style="list-style-type: none"> ○ Students: 4 (18 inch) pieces of string, 5 adhesive tabs or tape, paper clips, napkins. • Part 2: Propellers <ul style="list-style-type: none"> ○ Students: Propeller, 1 straw, ½ super jumbo straw tape, fan. • Part 3 Balloon rockets <ul style="list-style-type: none"> ○ Students: Long balloons. For the class: 4 zip bags, 4 jumbo straws, tape, balloon pumps, fishing line, duct tape, markers. • Part 4 – Gliders <ul style="list-style-type: none"> ○ Students: white paper, How to make glider directions.

Activity 4: Wind Catchers

- **Part 1: Streamers**
 - **Students:** 1 straw, 2 different colors of crepe paper ½ inch by 10 inches, tape.
- **Part 2: Pinwheels**
 - **Students:** Jumbo straw, crayons, pinwheel pattern, hole puncher, tape.
- **Part 3: Wind Socks**
 - **Students:** 8 strips of crepe paper (1 inch X 10 inches), 3 pieces of 16 inch string, 3 pieces of tape, 1 4 inch by 9 inch piece of construction paper, crayons, glue.
- **Part 4: Wind Vanes & Kites**
 - **Students:** Directions to make wind vane at home if they choose to. String, tape, 1 jumbo straw, 2 strips of crepe paper, scissors, Master of kite,
- **Part 5: Whirligigs**
 - **Students:** 1 (18 inch) piece of string, tape, scissors, crayons, Whirligig pattern.

Notes