

## FIELD TRIP PROGRAM CATALOG

[Below are summaries of each field trip program.]

<b>STANDARD EXPERIENCES</b>			
<b>Location</b>	<b>Program</b>	<b>Grade Band</b>	<b>Standards</b>
<b>NOAA Science On a Sphere</b>	<p><b>Observing the Sky</b> Patterns are found everywhere in nature. Investigate patterns that can be found in the sky and on Earth including day/night and moon phases. Students will program <i>Sphero indi</i> robots to make their own patterns.</p>	<b>K-2</b>	SC.K.E.5.2 SC.K.E.5.3 SC.K.E.5.4 SC.1.E.5.1 SC.2.E.7.1
	<p><b>Exploring Celestial Bodies</b> The motion of the stars, planets, and moon have long engaged human interest. Explore Earth's rotation and revolution in relation to the Sun and Moon. Discover how these movements impact Moon Phases. Students recreate the journey of Curiosity on Mars using <i>Sphero Bolts</i> as rovers. They will learn how NASA scientists collected and analyzed data from other celestial bodies.</p>	<b>3-5</b>	SC.3.E.5.2 SC.4.E.5.3 SC.4.E.5.4 SC.4.N.1.1 SC.4.N.1.3 SC.5.E.5.3 SC.5.N.1.1 SC.5.N.1.2 SC.35.CS-CS.2.2 SC.35.CS-CS.2.4
	<p><b>Hunting Hurricanes &amp; Disaster Relief</b> Florida is hurricane central. After exploring how hurricanes are formed, the work of the NOAA Hurricane Hunters, and how climate change is impacting severe weather formation, students will program <i>Sphero Bolts</i> to lead survivors away from a hurricane disaster area to a safe location.</p>	<b>6-8</b>	SC.6.E.7.2 SC.6.E.7.3 SC.6.N.1.3 SC.7.N.1.3 SC.7.N.1.5 SC.8.E.5.10 SC.8.N.2.2 SC.68.CS-CS.2.6
	<p><b>Climate Change</b> NOAA utilizes their network of satellites to collect data for scientists to analyze in order to further their mission of understanding and predicting changes in climate. Satellites must be programmed to adjust unpredictable events in orbit. Students will program <i>Sphero Bolts</i> to respond to anomalous events.</p>	<b>9-12</b>	SC.912.L.17.4 SC.912.L.17.13 SC.912.E.7.5 SC.912.E.7.7

## STANDARD EXPERIENCES

Location	Program	Grade Band	Standards
<b>Florida Air Museum &amp; Aviation Playground</b>	<p>Discover the thrilling world of aviation at the Florida Air Museum, a captivating destination that celebrates the rich history and exciting future of flight. Enjoy the vast collection of aircraft, exhibits, and interactive displays, offering an immersive experience for aviation enthusiasts of all ages.</p> <p>Featuring 24 interactive learning opportunities for aspiring aviators regarding the science and practice of flight, this aviation themed playground has the layout of an airport, complete with taxiways and runways. Also included is a sitting area for adults and large sun shades.</p>	<b>K-4</b>	SC.K.N.1.5 SC.1-4.N.1.1 PE.K-5.M.1.1 PE.K.M.1.13 PE.K.R.5.2 PE.1.R.5.2-3 PE.2-4.C.2.2
<b>Redbird Flight Simulation Lab</b>	<p>Nearly 300,000 new pilots are needed worldwide over the next ten years. Through flight simulation, understand how the physics (aerodynamics) of flight works to get an airplane off the ground and help it maintain control as it flies.</p>	<b>5-12</b>	SC.5.P.13.1 SC.5.P.13.2 SC.6.P.13.1 SC.6.P.13.2 SC.7.N.1.5 SC.8.N.1.2 SC.912.P.12.3 SC.912.N.1.1 912.CTE Aerospace Tech

## SELECTED EXPERIENCES

Topic	Program	Grade Band	Standards
<b>Engineering</b>	<b>Center of Gravity</b> Weight and balance are fundamental to flight, but not something we consider day to day. Learn how gravity holds objects down and how the movement of the object shifts its center of gravity.	<b>K-2</b>	SC.K.E.5.1 SC.1.E.5.2 SC.2.P.13.3 SC.K.N.1.1 SC.1.N.1.1 SC.2.N.1.1 SC.2.N.1.3
	<b>Rocketing to Space</b> Sending satellites and other vehicles into space using rockets is becoming a competitive business. Investigate the relationship between mass, force and distance as applied to space travel by manipulating straw rockets.	<b>3-5</b>	SC.4.P.10.2 SC.4.P.12.1 SC.5.P.10.2 SC.5.P.13.2 SC.5.P.13.3 SC.3.N.1.1 SC.4.N.1.1 SC.5.N.1.1 SC.5.N.1.3
	<b>It's in the Wiring</b> Aerospace electrical engineers are in high demand. Explore avionics by constructing circuits that transform electrical energy into kinetic energy that spins a propeller and alters lift, while investigating other systems critical to flight.	<b>6-8</b>	SC.6.P.11.1 SC.7.P.11.2 SC.7.P.11.3 SC.7.N.1.3 SC.8.N.1.2
	<b>Energy Efficient Engineering</b> With fuel costs on the rise, it is important for propellers to be efficient. Learn how prop pitch placement affects efficiency during flight. Students will engineer different propellers to understand how the blade design and pitch impacts the speed of rotation and thus efficiency.	<b>9-12</b>	SC.912.P.10.1-2 SC.912.P.10.5 SC.912.N.1.1
<b>Drones</b>	<b>Drone Flight School</b> Drones are used in aspects of aviation that require something smaller than a manned airplane. Students will learn the four forces of flight and apply those principles in flying a drone.	<b>3-5</b>	SC.3.P.10.2 SC.4.P.10.2 SC.5.P.10.2 SC.5.P.13.1 SC.5.P.13.2
	<b>Drone Search</b> Students will learn how drones can help people in disaster situations by assessing a model of a disaster zone. Students will build their drones to be able to deliver a specific payload.	<b>6-8</b>	SC.6.P.13.1 SC.6.P.13.3 SC.6.E.7.7 68.CTE Exploring Technology
	<b>Drone Mission</b> Student teams must find hidden intel in our drone arena. Their task is to plan, fly, collect data, and land safely. They must use the intel to land at a specified landing pad.	<b>9-12</b>	SC.912.P.12.3 SC.912.P.12.6

