



## **Overview:**

The *Problem Solving with Wilbur and Orville Wright* curriculum is an engaging and interactive learning experience designed to introduce students to aerospace, the principles of persistence & perseverance, problem-solving, and design thinking through the inspiring story of the Wright brothers, pioneers of aviation.

*Problem Solving with Wilbur and Orville Wright* provides students with a scaffolded learning journey that guides them from developing persistence and perseverance to mastering problem-solving and design-thinking skills. By gradually introducing the engineering design process and providing age-appropriate challenges, students are empowered to tackle increasingly complex problems with creativity, collaboration, and confidence. This curriculum prepares students for academic success and thriving in a world that demands innovation and resilience.

## **Key Objectives:**

- Provide early exposure to the wonder of aviation and aerospace.
- Foster a growth mindset by emphasizing the importance of persistence and perseverance.
- Introduce students to the engineering design process as a framework for problem-solving.
- Encourage creativity and innovation through hands-on challenges and activities.
- Develop critical thinking and teamwork skills.

## Pre K-1 Curriculum Focus: Persistence and Perseverance

*Bringing the Exploration of Flight into Your Classroom*

- Persistence & Perseverance
  - Working together as a team
  - Building classroom community through group problem-solving
  - Utilize strategies to work toward solving an identified problem
- Data Tracking & Analysis
  - Keeping a flight log
  - Counting & graphing
  - Tallying and charting
- Developing Problem-Solving Skills
  - Learning from mistakes
  - Identifying ways that mistakes can be opportunities to learn and improve
- Design Thinking
  - Introducing the Engineering Design Process: Build, test, and fly a hoop glider

## 2-3 Curriculum Focus: Problem-Solving

*Bringing the Celebration of Flight into Your Classroom*

- Social Studies Focus: Wilbur and Orville Wright and their journey to flight
- Keeping a weather log to make an educated decision and to determine ideal weather conditions for test flights
- Evaluating materials to determine the best choices based on an identified purpose
- Investigating the principles of flight
- Map Skills: Using a map scale
- Simple Machines: Lever and fulcrum
- Engineering Design Process: Design, build, test, and modify paper airplanes

## 4-6 Curriculum Focus: Design Thinking

### *Bringing the Celebration of Flight into Your Classroom*

- Social Studies Focus: The Wright brothers and their legacy
- Aviation World Records: The Historic Flight of Friendship One
  - Tracking a flight across the globe
  - Keeping a flight log
- Discovering the Engineering Design Process
  - Career Connection: Engineers - what they do and how they solve problems
  - Using problem-solving skills to decipher codes
- Design Challenges
  - Soft Landing Challenge: Design and build an airbag system
  - Robo Arm Challenge: Design and build a two-section cardboard arm
  - Down to the Core Challenge: Design and build a tool that can take a core sample
  - Inspector Detector Challenge: Design and build a magnetic field detector
  - Invisible Force Challenge: Design and build a magnetic force device