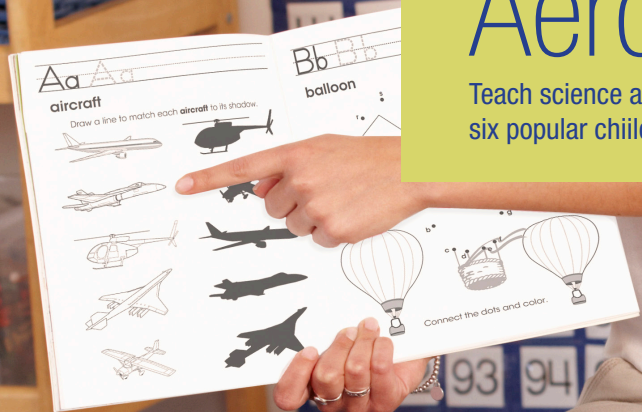


Aeronautics for Pre-K

Teach science and literacy through stories. Six integrated science lessons based on six popular children's books.



Literature List

Lesson 1: Gliders in Nature – Key Concepts: Form and Function

The Dandelion Seed

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Illustrations copyright © 1997 by Cris Arbo
Dawn Publications

Lesson 2: Balloons – Key Concepts: Floating and Sinking, Weight Hot Air: The (Mostly) True Story of the First Hot Air Balloon Ride

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An imprint of Simon & Schuster Children's Publishing Division

Lesson 3: Parachutes – Key Concepts: Fluid Thickness, Drag

Egg Drop

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Knopf Books for Young Readers

Lesson 4: Kites – Key Concepts: Area, Lift

Kite Festival

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Farrar, Straus, and Giroux

Lesson 5: Airplanes and Helicopters – Key Concepts: Force, Propulsion

Clorinda Takes Flight

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Illustrations copyright © 2007 by Steven Kellog
Paula Wiseman Books/Simon & Schuster Books For Young Readers,
An imprint of Simon & Schuster Children's Publishing Division

Lesson 6: Global Flyers – Key Concepts: Geography, Interconnectedness

Planes Fly!

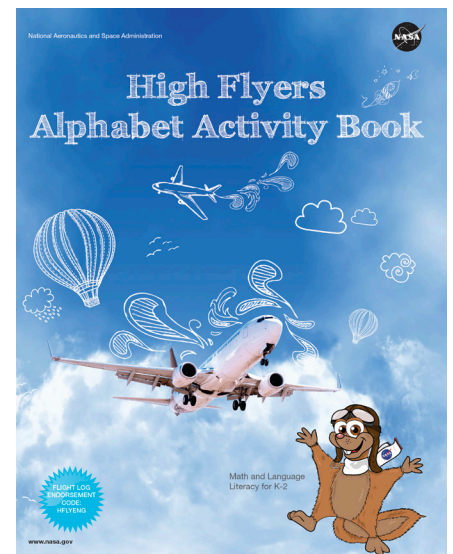
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Atheneum Books for Young Readers,
An imprint of Simon & Schuster Children's Publishing Division

With You When You Fly

NASA's Educator Resource Guide to Living in the Age of Airplanes
<http://www.nasa.gov/sites/default/files/files/Living-in-the-age-of-airplanes-resource-guide.pdf>

Supplement your science of flight lessons with NASA's High Flyer's Alphabet Activity Book: <https://www.nasa.gov/stem-content/high-flyers-alphabet-activity-book/>

- Writing
- Reading
- Math
- Colors/Shapes



Overview

Aeronautics for Pre-K: A Literacy Approach for Science

Although most children (and adults) associate NASA with space flight, NASA's first "A" stands for "Aeronautics."

Before the first airplane, scientists and engineers worked to develop lighter-than-air aircraft using the principle of buoyancy. They also turned to parachutes and gliders to learn to drift across air currents and slow their rate of descent as they fell. It is from these early beginnings that aviation and space flight have become what they are today. In this full unit of study for pre-school and early elementary students, we will investigate gliders in nature; balloons, parachutes and kites; helicopters and airplanes; the impacts of aviation through classic children's literature; and science and engineering activities.

This educators' guide provides an opportunity to teach thematic lessons on aeronautical science principles through children's literature. The guide is the result of an effort to address a growing need for early STEM education, and is founded on the ideas and principles provided by popular children's books.

Because a robust instructional approach is also very important, these activities are aligned with the cross-cutting principles and science and engineering process skills elaborated on in the Next Generation Science Standards. Many can also be easily applied or adapted to teach the Next Generation Science Standards and the Common Core State Standards for early elementary education.



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Early Learning Standards for Scientific Inquiry and Physical Science

This document was created with the National Science Teachers Association (NSTA) Position Statement: Early Childhood Science Education in mind. To access the full document, please visit: <http://www.nsta.org/about/positions/earlychildhood.aspx> The NSTA position statement emphasizes that even very young children are capable of learning fundamental scientific concepts and practices. The primary approach to teaching science should encourage inquiry, hands-on activities, and play.

Many of the scientific investigations in this guide can also support Common Core State Standards English language arts and math literacy that children need to develop throughout their school years: <http://www.corestandards.org/>

Through the activities in this guide, children learn about fundamental physical concepts, as well as become introduced to many of the science and engineering practices listed in the Next Generation Science Standards: <http://www.nextgenscience.org/>

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