Taking Flight With NASA Aeronautics and Literature
April Lanotte
NASA Aeronautics STEM Integration Lead

Educator for 25+ years
- Aerospace Science, C&I, and English background

april.a.lanotte@nasa.gov
Kirsten W. Larson
Author of WOOD, WIRE, WINGS
Former NASA Public Affairs Specialist
Author of 25+ books for kids
www.kirsten-w-larson.com
Twitter/Insta: @KirstenwLarson

CALKINS CREEK
Lisa Wininger
Director, MiSTEM Network
Former NASA Einstein Fellow
Solar System Ambassador
lwininger@wsesd.org
@LisaWininger
www.mistemregion9.org
NASA Aeronautics - The first “A” of NASA

- NASA Aeronautics has made contributions to aviation for decades.
  - Every US commercial aircraft and air traffic tower has NASA-developed technology
  - NASA’s aeronautics research is focused on the future of aviation
NASA Centers and a focus on aeronautics

**NASA Aero Research Centers:**
- AMES RESEARCH CENTER - CA
- ARMSTRONG FLIGHT RESEARCH CENTER - CA
- GLENN RESEARCH CENTER - OH
- LANGLEY RESEARCH CENTER - VA
NASA Aeronautics Education Resources

Aero Tech Mini-Posters and Lithographs
Next Gen STEM: Aeronaut-X
Aeronautics@Home
Leveled Readers
Aeronautics for Pre-K
Museum in a Box
NASA Aeronautics eBooks
- STEM Modules
  ...and much more!
NASA Aeronautics: STEM Modules

X-59 Quiet Supersonic Flight: STEM Module
https://www.nasa.gov/aeroresearch/stem/X59/

Seeing Sound Educator Guide
https://www.nasa.gov/sites/default/files/atoms/files/chevro
ns-educator-guide-v6.pdf

X-57 Electric Airplane: STEM Module
https://www.nasa.gov/aeroresearch/stem/X57/

Advanced Air Mobility (AAM): STEM Learning Module
https://www.nasa.gov/aeroresearch/stem/AAM/
NASA Express emails

EXPRESS
The NASA Education EXPRESS message features updates from NASA and STEM associates.

Sign up at www.nasa.gov/education/express
Join our *NASA Aeronautics for Educators* Facebook page and sign up for our monthly newsletter

https://forms.gle/aYkuFpJGoLXZqTda6

- Share teaching techniques, lessons, activities and ideas about aeronautics
- Learn about aeronautics research—NASA programs, careers, X-planes, and more
Anchoring Aeronautics Activities With Picture Books

Interactive readings using the whole book approach
Classroom Connections
Activities and Ideas for Your Classroom
Elementary Level Classroom Activities

- Flying or Gliding?
- What Makes Airplanes Fly?
- Airplane Design and Build
- Testing Your Planes
Flying or Gliding?

A great concept to start with is understanding that defying gravity by flying requires propulsion and control, as opposed to gliding which is riding air currents without independent propulsion like a motor. This NASA resource uses examples from nature as well as engineered.
What Makes Airplanes Fly?

Four forces must act on the aircraft for flight to occur. In this resource from the National Air and Space Museum, students can learn about the four forces and complete several activities.
Airplane Building Activities

- Paper airplanes and lesson plan
- Foam plate gliders
- Ornithopters
- Paper helicopter
- Ring wing glider

Virtual Activities:
- The Wright Brothers
- NASM Flight Lessons
Testing Your Airplanes:
Launchers, wind tunnels, motors, drones
# Community and Career Connections

## Field Visits
- Local airport/airfield, aviation manufacturers, local RC field, military base, flight simulators, air museums, National Weather Service

## Guest Speakers
- Air traffic controllers, pilots, veterans, aeronautical or civil engineers, flight crew, airport planners

## Virtual Links
- National Air and Space Museum,
- FAA, Civil Air Patrol,
- EAA
Thanks!

Any questions?

Contact us at

- april.a.lanotte@nasa.gov
- lwininger@wsesd.org
- www.kirsten-w-larson.com