Discover the NEW NASA Curriculum!!

Welcome to the Next Generation STEM products!

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Next Gen STEM Pilot Themes

- Provide a platform for students to contribute to NASA’s endeavors in exploration and discovery
- Develop mission-driven authentic STEM experiences
- Align with national STEM education standards
- Use evidence-based practices
- Scale through partnerships and networks
Join the COMMERCIAL CREW?
Grades K-4 Activities

Activity book

Storybook & Inquiry Lesson

The Astro-not-yets: Explore Sound
Grades 5-12 Activities

Engineering design challenges
Digital and Experiential Learning Opportunities
Rocket Science: Ride to Station App

Mission Planning:
- Introduction
- Partner Selection
- Mission Selection
- Crew Selection
- Rocket Assembly
- Launch
- Rendezvous and Docking

Educator Guide:
- App Tutorial
- Script
- Classroom Connections
- Additional Resources

Ride to Station
NASA NextGenSTEM

What is Next Gen STEM?

NASA's Office of STEM Engagement executed a series of efforts to develop STEM products and opportunities that provide a platform for students to contribute to NASA's endeavors in exploration and discovery. These mission-driven activities include over 20 evidence-based products and opportunities to engage students in authentic STEM experiences. NASA is working to provide mission-driven opportunities that enhance STEM literacy and help build a vibrant and diverse next generation STEM workforce.

Follow

Commercial Crew Program
Small Steps to Giant Leaps
Explore Moon to Mars
STEM on Station
NASA STEM Engagement

https://www.nasa.gov/stem/nextgenstem/index.html
Commercial Crew Spacecraft

**Boeing CST-100 Starliner**
- Orbital Flight Test (uncrewed): Dec. 20, 2019 at 6:36 a.m. EST
- Crew Flight Test: TBD

**Space X Crew Dragon**
- Demo-1 (uncrewed): March 2, 2019 -- SUCCESS!
- Demo-2 (crewed): TBD
Parachute Systems
Parts of a Parachute

Canopy

Suspension Lines

Harness
Eggstronaut Parachute Challenge Educator Guide

Product Type: Educator Guides, Lesson Plans/Activities
Audience: Educators
Grade Levels: K-4, 5-8, 9-12
Subjects: Engineering Design, Force and Motion, Physics

Students use the engineering design process to construct, test, and analyze a prototype parachute designed to slow the descent of an egg and minimize the force of impact when landing, allowing the "eggstronaut" to land safely.

The educator guide has student sheets, background information, steps of the engineering design process, tips for capturing digital video and using a video analysis app, a scoring rubric, physics formulas and additional resources.

Eggstronaut Parachute Challenge Educator Guide (Grades 5-12)
Eggstronaut Parachute Challenge for Grades 3-4 — activity only
Eggstronaut Parachute Challenge Over Easy for Grades 5-12 — activity only

This guide is part of the Next Gen STEM Commercial Crew Program series of educator guides. NASA’s Commercial Crew Program was formed to facilitate the development of a U.S. commercial crew space transportation capable of achieving safe, reliable and cost-effective access to and from the space station and low-Earth orbit.
Eggstronaut Materials and Challenge

The Challenge:
Teams of 2 to 3 students will design and build parachutes to successfully land an egg or “eggstronaut”.

Crew Dragon Parachute test

Materials:
- Parachute material (examples include plastic bags, plastic tablecloths, tissue paper, etc.)
- Hard boiled eggs (1 per team, 1 for the class)
  Optional: plastic eggs (approx. 4 g) weighted to the mass of a real egg (57 g) using coins, washers, or sand with cotton balls to fill empty space inside the egg
- Meter stick
- String
- Scissors
- Stopwatch
- Paper cups
- Tape/glue for parachute assembly
- Student Activity Sheet
- Drop Zone: At least 2m high (examples include playground, second story balcony, stairwell, etc.)

For safety:
- Safety cones for drop zone
Engineering Constraints

Constraints:

- Nothing can be attached to the egg except the harness.
- The egg must impact the ground first.
- Eggs must fall with the major or longer axis perpendicular to the ground.
- Use only materials provided unless given explicit permission for an exemption.
- Describe your role as Commercial Crew Teacher (CCT). Teams must meet key milestones to receive certification from CCT and proceed to the next step.
Discussion
Tracker App

Tracker Analysis of Egg in Freefall

Students can move the cursor to see how the video, numerical and graphical data correspond. Discuss key points on the graph and what they mean in the context of the physical world.