

# INSPIRE - ENGAGE - EDUCATE - EMPLOY

## The Next Generation of Explorers



## NASA Resources

# Engineer Design Process



<https://www.txstate-epdc.net/models-of-the-engineering-design-process/>

# Computer Science Standards

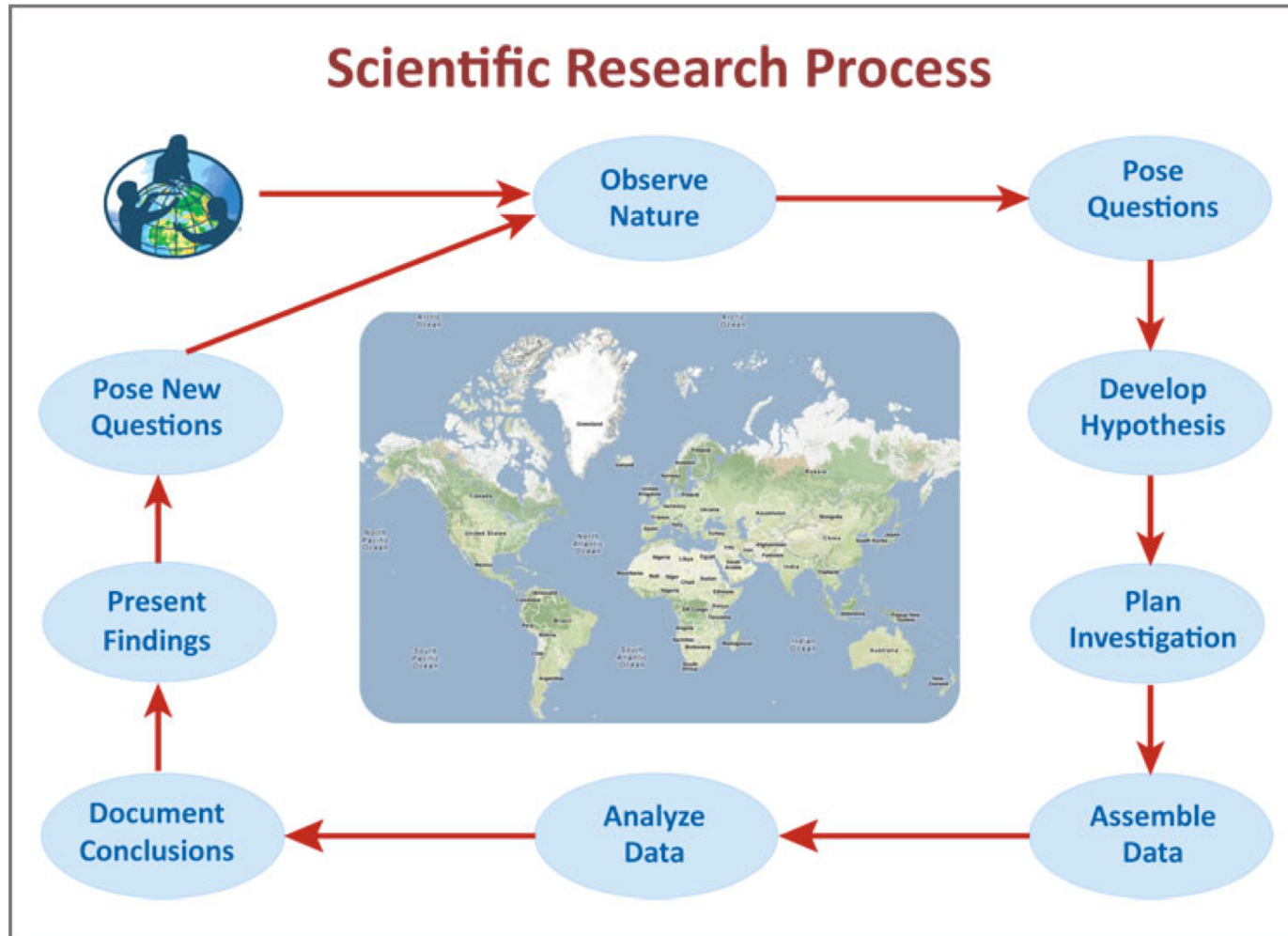


## CORE PRACTICES INCLUDING COMPUTATIONAL THINKING



<https://k12cs.org/navigating-the-practices/>

# Scientific Research Process



<https://www.globe.gov/do-globe/research-resources/student-resources/be-a-scientist/steps-in-the-scientific-process>





# Moon to Mars



[https://www.nasa.gov/stem/nextgenstem/moon\\_to\\_mars/index.html](https://www.nasa.gov/stem/nextgenstem/moon_to_mars/index.html)

Crew Transportation with Orion

Grade levels: 5-8

Subjects: Engineering, Geometry, Space Vehicles

Propulsion with Space Launch System

Grade levels: 5-8

Subjects: Engineering, Geometry, Rocketry

Habitation with Gateway

Grade Levels: 5-8

Subjects: Engineering, Space Vehicles

# Educator's Notes



## Activity Two: Design and Build a Space Habitat

### Challenge

Students will work as a team to design and build a model of a space habitat using the engineering

### Suggested Time

90 to 120 minutes design process. (Two full activity periods)

### Learning Objectives

Students will

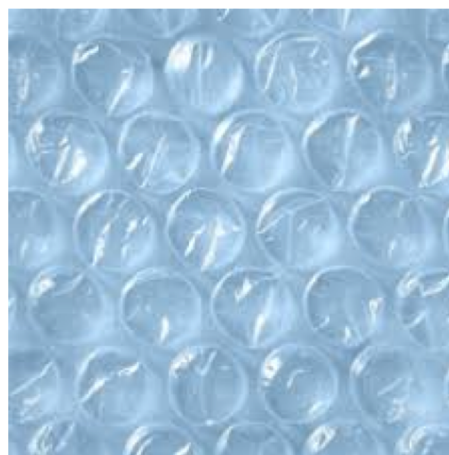
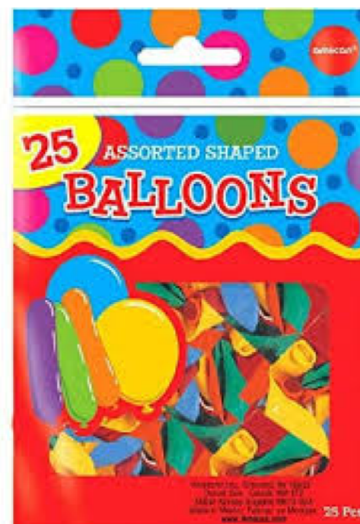
- Apply the steps of the engineering design process to successfully complete a team challenge.
- Design and build their own space habitat.
- Test their design, make observations, and collect data for analysis.
- Improve their model based upon the results of the experiment.

Aligned to Science and Engineering (NGSS), Technology (ISTE), and Mathematics (Common Core)

# Common Household Materials



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# Commercial Crew Program

[https://www.nasa.gov/stem/nextgenstem/commercial\\_crew/index.html](https://www.nasa.gov/stem/nextgenstem/commercial_crew/index.html)

Crew Orbital Docking Simulation

Grade levels: 5-8, 9-12

Subjects: Computer Science, Space Vehicles

Scratch or Snap

Eggstronaut Parachute Challenger  
Educator Guide

Grade levels: K-4, 5-8, 9-12

Subjects: Engineering Design, Force, Physics



# Small Steps to Giant Leaps

Videos that accompany the  
activities

<https://www.nasa.gov/stem/nextgenstem/ssgl/index.html>

NASA's Lower the Boom Citizen Science  
Activity

Grades: 5-8

Subjects: Aeronautics, Flight, Sound

Senses of Sound

Grade levels: K-4, 5-8

Subjects: Sound

Sound Effect

Grade levels: 5-8

Subjects: Sound

Fan-tastic Forces

Grades: K-4, 5-8

Subjects: Flight





# NASA @ Home

<https://www.nasa.gov/specials/nasaathome/index.html>

## NASA @ Home Contains

- E-Books
- <https://www.nasa.gov/stem>:  
Contains activities broken up into K-4, 5-8, 9-12
- Virtual tours and apps
- Podcasts
- Videos



# NASA STEM STARS

<https://www.nasa.gov/specials/nasaathome/index.html>



## NASA STEM STARS

- Webchat Series that give students an opportunity to connect with Subject Matter Experts and Ask Questions.

X-59: <https://youtu.be/X7n3pbzChiQ>

Veggie: <https://youtu.be/7ukuCm7xrVY>

Wildlife

Ecologist: <https://www.youtube.com/watch?v=Js5LW1BS0w4>

# Launch Date: May 27, 2020

Student activities will be coming for students and educators to participate.

NASA will be giving information how to host a launch party.

