



9th GRADE - LAUNCHING INTO AVIATION - SEMESTER TWO

Materials needed throughout the semester

(included in 3 lessons)

- Poster board or rolled paper
- Markers
- Scissors
- Paperclips
- Clear tape
- Graph paper

Unit 7 – Exploring Careers in Aviation and Aerospace

- *Unit 7.B Lesson 1 – Becoming an Aerospace Engineer*

Parachute Challenge Activity

Per Team

- 2 plastic bags
- Fabric or other materials to construct the parachute
- 5 feet of string
- 2 raw eggs
- Tape
- Cardboard or foam board
- Scissors
- Other materials determined by the teacher (paper plate, manila folder, etc.)

Per Class

- Hot glue gun and glue sticks
- Other materials determined by the teacher

Engineering Research Activity (per team)

- Access to PowerPoint (or other presentation software) to create a slide presentation

- *Unit 7.C Lesson 1 – Becoming an Air Traffic Controller*

ATC Simulation Activity (per class)

- Large flat area (parking lot, football field, gymnasium, wide hallway)
- Sidewalk chalk, masking tape, or spray paint
- Measuring tape



Unit 8 – Aviation Innovation and Problem Solving

- *Unit 8.A Lesson 1 – Improving Aviation’s Environmental Impact*
Chevron Activity
 - Thunder drum (small or large ones will work for this activity). One needed, or, if possible, one per small group
 - Paper, cardstock, various building materials (i.e. aluminum foil)
 - Measuring devices – Decibel meter (real or smart phone app) ° There are many free decibel meter apps that are constantly changing. Simple app searches for “decibel meter” will show popular apps that include “Sound Meter,” “Decibel Meter” and “SPL Meter.”

Safety

 - Actively supervise students during the lab or activity. Be ready to offer guidance in situations where safety could be compromised.
- *Unit 8.B Lesson 2 – Integrating Drones*
Friday Night Drones Activity
 - Access to “Google Earth”
 - Graph Paper
 - Colored Pencils
- *Unit 8.C Lesson 1 – Supersonic Aircraft*
Measuring the Speed of Sound Activity (per class) (GOING FURTHER)
 - Two blocks of wood (recommend using two 20-inch pieces of 2x4 boards)
 - Long tape measure
 - Colored Pencils
 - Multiple stopwatches (can use the stopwatch function on smartphones)
 - Clipboards
 - Calculators
 - Thermometer (to take outside temperature)
 - An open space several hundred feet from a building from which to bounce the sound
- *Unit 8.C Lesson 3 – Electric Aircraft*
Build-your-own-battery Activity (per team)
 - 7-10 test leads with alligator clips
 - 4-6 lemons
 - Small electric motor with propeller
 - One AA battery
 - Small LED light
 - 4-6 galvanized nails/screws

MATERIALS LIST



- 4-6 pieces of bare copper wire (about 2 inches long)
 - Ruler
 - 2-3 rubber bands
 - 4-6 drinking straws or small dowels
 - Safety glasses
 - Multimeter (shared among the class)
 - Wire cutters/strippers (shared among the class)
 - Digital scale (shared among the class)
 - *Unit 8.B Lesson 2 – Colonizing Space*
 - Welcome to Columbia Hills, Mars! Activity
 - Graph paper (per student)
 - Poster board or rolled paper (per team)
 - Markers (per team)
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Unit 9 – Innovation Challenge

- *Unit 9.A Lesson 1 – “Peep Odyssey” Innovation Challenge*
 - Innovation Challenge
 - Three-ring binder (per team)
 - Several pieces of graph paper (per team)
 - 2-3 Peeps (per team)
 - One vacuum cylinder and pump (per class)
 - Safety glasses
 - Suggested materials that a teacher may provide to assist in building prototypes:
 - Pieces of plastic or plexiglass
 - Pieces of metal
 - Caulk
 - Duct tape
 - Rubber plugs
 - Hot glue gun and glue
 - Foam board pieces
 - Aluminum foil
 - Plastic wrap
 - Wax paper
 - Cardboard or cardstock
 - Any tools required to build the prototypes
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MATERIALS LIST



- *Unit 10.C Lesson 1 – Building a Career Portfolio*
Portfolio Materials (Going Further activity - optional)
 - Three-ring binder
 - Tabs (as needed per student based on table of contents)
 - Plastic or vinyl sheet protectors