Investigating Education Options After High School

Session Time: Two, 50-minute sessions

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

Develop interest in one or more aviation/aerospace career pathways and learn what is required to pursue future employment in the industry. (EU3)

Understand the importance of professionalism, ethics, and dedication as they relate to all aviation/aerospace operations. (EU4)

Gain essential thought processes and life skills, such as good citizenship, critical thinking, informed decision making, which are useful to all learners, whether or not they eventually pursue a career in aviation. (EU8)

ESSENTIAL QUESTIONS

1. What educational requirements exist for the careers you are interested in?
2. How do various educational options, like colleges and trade schools, differ from each other?
3. How can you find information and further explore schools you might like to attend?

LEARNING GOALS

Students Will Know

- Options for post-secondary education and training in aviation or aerospace other than a four-year college/university
- How a trade school differs from a college/university
- Various options for training and education through the military

Students Will Be Able To

- *Conduct* important steps needed to pursue a career in aviation after high school. (DOK-L1)
- *Analyze* various educational options in pursuit of a career in aviation and aerospace. (DOK - L4)
- *Determine* the positives and negatives of a particular job based on skills needed and education or training required. (DOK - L3)

ASSESSMENT EVIDENCE

Warm-up
Students will list as many aviation careers as they can and the education or training required for each job.

Formative Assessment
Students will research educational and training pathways for the aviation or aerospace careers of their choice.

Summative Assessment

Students will work in pairs to create a poster highlighting the education or training needed for a specific career in aviation or aerospace.

LESSON PREPARATION

MATERIALS/RESOURCES

- Investigating Education Options After High School Presentation
- Investigating Education Options After High School Student Activity

Poster Activity

- Rolled paper or poster board
- Markers, colored pencils

LESSON SUMMARY

Lesson 1: Developing a Mission Statement

Lesson 2: Investigating Education Options After High School

During this lesson, students will explore educational options following high school. Students will begin by quickly listing as many aviation careers as they can and the education or training they think is required for each job.

The class will then complete a more in-depth exploration of the training and educational options for various aviation and aerospace careers. Students will choose two careers and conduct their own research to determine specific educational requirements, how long it takes to complete the training or education, educational costs, and more.

During the second session, students will choose one career they want to explore further. Students who chose the same or similar careers will work in pairs to create posters illustrating the educational and training path for the career they chose.

BACKGROUND

There are many more careers in aviation and aerospace than the ones that are most familiar to students, such as pilot and astronaut. Based on United Airlines data as an example, 706 people work on an airliner before the pilot sets foot in the airplane. This suggests that there are many career options for students in aviation and aerospace.

Some states are seeing more aviation and aerospace jobs. In Oklahoma, for example, an estimated $44 billion is generated by aviation and aerospace industries, supporting 206,000 jobs with an average salary of $73,000.

Students will discover that there are many educational pathways to prepare them for careers in aviation and aerospace.

MISCONCEPTIONS

Students may believe that a four-year college degree is required to pursue a career in aviation or aerospace.

DIFFERENTIATION

To encourage goal setting in the **EXTEND** section of the lesson, you may break the workload into smaller components or reduce the number of careers required for research to one.

To support verbal reasoning in the **EXTEND** section of the lesson, organize the class into pairs or small groups for Think-Pair-Share instead of having students work as individuals. This allows learners to think about the questions, discuss their research and thoughts with a partner before sharing with their partner in the **EVALUATE** section of the lesson. It encourages all students to practice skills, including metacognition.

LEARNING PLAN

ENGAGE

Teacher Material: Investigating Education Options after High School Presentation

Slides 1-3: Introduce the topic and learning objectives. Explain that although we might think of pilots and astronauts when we think about jobs in aviation and aerospace, those are just two jobs in a large, complex field that has many occupational opportunities for many different types of people.

Slides 4: Conduct the **Warm-Up.**

Ask volunteers to share their careers and requirements with the class. Students can compare what perceptions they had about the education/ training requirements for careers during the poster session at the end of this lesson. Collect student work and grade up to 5 points based on completeness and participation. [DOK 1; list, DOK 2; infer]

Warm-Up

Give students one to two minutes to write as many careers in aviation or aerospace as they can. Next to each career, they should write the kind of education or training they think is required for each job. Allow for a brief discussion.

Teaching Tips

Instead of using the list generated by the class, put together a short list of careers to use for the second part of the Warm-Up. Pick careers with a variety of training and educational requirements.

EXPLORE

Teacher Material: Investigating Education Options after High School Presentation

Slide 5: Introduce students to the four main pathways to careers in aviation and aerospace.

- **Military**: Every branch of the U.S. military has aircraft, and once a person has completed his or her tour of duty, the training received in the military can be easily transitioned to civilian life.
- **Trade School**: Trade schools focus on the skills necessary to perform a job and often award certificates instead of degrees.
- **College/University**: Colleges across the country offer two- or four-year degrees.

- **Work-based Learning/Training:** Apprenticeships and entry-level aviation and aerospace jobs right out of high school do exist, some of which offer full payment for college tuition. However, internships are an important part of transitioning from trade school or college into the workforce.

EXPLAIN

Teacher Material: Investigating Education Options after High School Presentation

Slide 6: Explain to students the requirements for enlisting in the military.

- Be a US citizen or have a green card. Non citizens must currently live in the United States.
- In good health. While this means applicants should be mostly disease free, it's also referring to hearing and eyesight.
- Between 17 to 40 years old (each branch has specific age requirements)
- Have a high school diploma. Some branches will accept people who earn a passing score on a GED test.
- Have a passing score on the ASVAB, an aptitude test. Scores on this test determine both eligibility to join and what assignment one will be given once enlisted.

Slides 7-9: Inform students that there are two major paths inside the military: becoming a commissioned officer and enlisting.

Explain that pilots, engineers, and maintenance crews are all officers. While you can join the military as an officer after graduating from college, you can also work towards becoming an officer while attending college through the Reserve Officers' Training Corps (ROTC) program or one of the military academies.

ROTC college programs help students pay for tuition in exchange for their immediately joining the military as an officer upon graduation. The Navy, Marine Corps, and Air Force have ROTC programs at many colleges across the country.

Additionally, each branch of the service has an academy which is a special college just for officers. If you want to join one of these academies, you need to start preparing! These expect academic excellence, a history of leadership, and a nomination from your state senator or representative.

Enlisted personnel attend military training and then go to a technical school for certification. Enlisted personnel can be air traffic controllers, drone pilots, mechanics, and loadmasters (responsible for planning and supervising cargo). The Army is the only branch of the military with enlisted pilots: some helicopters are flown by enlisted soldiers.

Slides 10-11: Help students understand the difference between trade school and college.

Trade schools are focused around teaching skill specific to a job or industry. Colleges and universities provide a more general education that emphasize certain classes and skills depending on what major students select.

There are many jobs that only require a trade school certification and not a college degree, such as aircraft mechanics and dispatchers. Trade schools tend to be cheaper, but workers with a two- or four-year degrees tend to have higher starting salaries.

Slide 12: Explain to students the sorts of programs available at colleges and universities.

Colleges and universities offer a variety of degree programs. Two-year programs are similar to those found at trade schools, though sometimes a bit longer. Graduates receive a certificate or an associate's degree.

Most four-year programs culminate with the student receiving a bachelor's degree. While trade school certificates and associate's degrees tend to focus on a specific career or industry, bachelor's degrees are broader in what they require and can be used for a greater variety of jobs.

Aviation programs to prepare pilots can be found at community colleges and four-year universities.

Teaching Tips

Selecting the right college can be difficult, and students often don't know where to start. Consider sharing the video with them. PossibilityU's School Selection Strategy (Length 12:14 - stop video at 7:58 if time is limited.) http://video.link/w/XQMd

Slide 13: Describe work-based learning.

Many aviation and aerospace careers require students to spend a certain amount of time working in the field in a limited role. In an apprenticeship, you work under a fully certified mentor who trains you. At the end of your apprenticeship, you are trained to do the same job as your mentor. Internships are temporary jobs in the industry.

Apprentices and interns are sometimes unpaid; the training and experience is considered the payment.

There are over 900 registered apprenticeship programs in the United States, and most companies in aviation and aerospace have internships available to college students. Internships look very good on resumes because they show that you know what the job entails and have some experience in the field.

EXTEND

Teacher Material: Investigating Education Options after High School Presentation
Student Material: Investigating Education Options after High School Student Activity

Slide 14: Complete the **Formative Assessment.** Provide students with **Investigating Education Options after High School Student Activity** to guide their work.

Each student will choose two careers in aviation and aerospace. They will determine what educational and/or training options exist in order to get jobs in their selected careers. In addition to using internet for research, students may conduct interviews. Expect this research activity to fill the remainder of the class period and continue into the next session. It may be continued at home if necessary.

Collect the student activity and grade up to 10 points based on completeness and evidence of thorough Internet research. [DOK 3; investigate, DOK 2; compare]

Formative Assessment

Have students choose two careers in aviation and aerospace and conduct their own research to determine what post-high school educational and training options are available for those careers.

Teaching Tips

If students work on this activity between sessions, tell students that instead of using the Internet, if they know someone who works in aviation or aerospace, they can interview that person. Likewise, consider having someone who works in aviation or aerospace come to the class and answer questions or, if you have the technology, teleconference in (the whole class would use this person for one of their careers and research the other).

EVALUATE

Slide 15: Conduct the Summative Assessment.

Students will choose one of the two careers they researched that they want to explore further. Each student should pair up with another student who chose the same or similar career and compare results. Student pairs will create a large poster to highlight educational and training options for their career choices. Students should be sure to include highlights from the research they did during the activity.

Collect **Investigating Education Options After High School Student Activity** (Formative Assessment) and group posters at the end of class. Grade group posters using the scoring rubric. [DOK 4; create, DOK 2; show, summarize]

Summative Assessment Scoring Rubric

Follows assignment instructions

Group poster shows evidence of one or more of the following:

- Knowledge of education and training requirements for an aviation career
- Knowledge of aviation careers

Group poster shows an understanding of the concepts covered in the lesson

Shares and describes group poster with the class

Scoring Rubric

Points	Performance Levels
9-10	Consistently demonstrates criteria
7-8	Usually demonstrates criteria
5-6	Sometimes demonstrates criteria
0-4	Rarely to never demonstrates criteria

Summative Assessment

Students will choose the one career they want to explore further. Each student should pair up with another student who chose the same or similar career and compare results and create an informative poster for their career detailing the educational and training requirements and other career information that they researched in the Formative Assessment.

Encourage students to make their posters informative and creative. Towards the end of class, have each group briefly show and describe their poster.

STANDARDS ALIGNMENT

NGSS STANDARDS

Three-dimensional Learning

- **HS-ETS1-3** - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.
    - Science and Engineering Practices
        - Constructing Explanations and Designing Solutions
    - Disciplinary Core Ideas
        - ETS1.B: Developing Possible Solutions
    - Crosscutting Concepts
        - Influence of Science, Engineering, and Technology on Society and the Natural World

COMMON CORE STATE STANDARDS

- **WHST.9-10.2** - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
- **WHST.9-10.4** - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **WHST.9-10.6** - Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- **WHST.9-10.8** - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- **WHST.9-10.9** - Draw evidence from informational texts to support analysis, reflection, and research.

REFERENCES

http://ae.capmembers.com/

http://todaysmilitary.com/training/rotc

https://www.doleta.gov/OA/occupations.cfm

https://www.usa.gov/join-military