Did you know, right here in the state of Oklahoma, there are currently over 108,000 jobs that are available in the Aerospace and Defense Industry? That’s right! And according to the Oklahoma Office of Workforce Development, that number is expected to grow by over 4,000 jobs between now and the year 2020. These are challenging and exciting careers that require varying levels of education ranging from Technical Certifications through Master’s and even Doctorate degrees.

Many of these careers are in sectors of the industry that you may have never thought about before. Let’s explore some careers that are available within the industry. Using the CAREERS WITHIN THE INDUSTRY chart below, do the following:

1. Identify the education requirements for entering into your chosen career.
2. Identify educational institutions within the state of Oklahoma where you could retain the required education for the position you have chosen.
3. Perform a job search online for job postings here in the state of Oklahoma (you can use JobsOK.com, Monster.com, Indeed.com, US.jobs.gov and any other job search engine to locate position postings). Locate three job postings for the position you have chosen and create a list of required skill sets that are common across all three job listings.
4. Create five questions that you have regarding what it would be like to work in the career you have chosen. Choose one of the three job listings you have already located and contact that company’s Human Resource department. Identify yourself as a student and ask if they could help you to find answers to your five questions.
5. Summarize your findings. Write a 1-2 page summary offering an overview of the research you completed in steps one through four. Indicate whether or not you would be interested in pursuing the career path you chose to research.

Careers within the Industry

<table>
<thead>
<tr>
<th>Position</th>
<th>Average Salary</th>
<th>Educational Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition Specialist</td>
<td>$58,630</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Aerospace Engineer</td>
<td>$107,830</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Aerospace Ground Equipment</td>
<td>$65,000</td>
<td>15 College Credits, 3.5 Weeks of Basic Training, 95 days of technical training</td>
</tr>
<tr>
<td>Aerospace Maintenance Specialist</td>
<td>$62,000</td>
<td>7.5 weeks basic training &amp; specialized instruction based on job function</td>
</tr>
<tr>
<td>Aerospace Propulsion Specialist</td>
<td>$75,000</td>
<td>15 College Credits, 7.5 Weeks of Basic Training, 34-61 days of technical training</td>
</tr>
<tr>
<td>Air Traffic Control Equipment Repairer</td>
<td>$62,000</td>
<td>10 weeks Basic Combat Training, 26 weeks on-the-job instruction</td>
</tr>
<tr>
<td>Air Traffic Controllers</td>
<td>$125,950</td>
<td>Associate's degree and Long-term on-the-job training</td>
</tr>
<tr>
<td>Aircraft and Avionics Mechanics</td>
<td>$151,380</td>
<td>FAA Aviation technician School</td>
</tr>
<tr>
<td>Aircraft Avionics Technician</td>
<td>$151,390</td>
<td>FAA Aviation technician school</td>
</tr>
<tr>
<td>Aircraft Dispatcher</td>
<td>$48,095</td>
<td>FAA Aircraft Dispatcher Certification</td>
</tr>
<tr>
<td>Aircraft Electrician</td>
<td>$49,000</td>
<td>10 weeks Basic Combat Training, 18 weeks on-the-job instruction</td>
</tr>
<tr>
<td>Aircraft Powertrain Repairer</td>
<td>$50,000</td>
<td>10 weeks Basic Combat Training, 18 weeks on-the-job instruction</td>
</tr>
<tr>
<td>Airline Consultant</td>
<td>$73,000</td>
<td>Bachelor's Degree</td>
</tr>
<tr>
<td>Aviation Officer</td>
<td>$66,000</td>
<td>Airport School, Basic Combat Training, Specialized training</td>
</tr>
<tr>
<td>Aviation Operations Specialist</td>
<td>$55,000</td>
<td>10 weeks Basic Combat Training, 8 Weeks ATI on-the-job</td>
</tr>
<tr>
<td>Aviation Planner</td>
<td>$50,000</td>
<td>A&amp;P License</td>
</tr>
<tr>
<td>Aviation Resistance Management</td>
<td>$62,000</td>
<td>15 College Credits, 7.5 Weeks of Basic Training, 26 days of technical training</td>
</tr>
<tr>
<td>Aviation Safety Inspector</td>
<td>$85,000</td>
<td>FAA Certification - Aircraft Inspector Authorization</td>
</tr>
<tr>
<td>Commercial Pilot</td>
<td>$102,530</td>
<td>Commercial Pilot’s License/Airline Transport Pilot Certificate</td>
</tr>
<tr>
<td>Community Planners</td>
<td>$68,220</td>
<td>Master’s Degree</td>
</tr>
<tr>
<td>Contract Specialist</td>
<td>$95,630</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Electrical and Avionics Systems Repairs</td>
<td>$34,000</td>
<td>10 Weeks Combat Training, 24 Weeks on-the-job instruction</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>$95,230</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Electronics Technician</td>
<td>$55,160</td>
<td>2nd Bachelor degree in specialized technical, voluntary certification</td>
</tr>
<tr>
<td>Industrial Engineer</td>
<td>$83,470</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Information Technician</td>
<td>$51,470</td>
<td>Bachelor’s Degree/Associate’s Degree or Technical Training</td>
</tr>
<tr>
<td>Logistics &amp; Supply Chain Management</td>
<td>$74,260</td>
<td>Bachelor’s Degree/Associate’s Degree or Technical Training</td>
</tr>
<tr>
<td>Machinist</td>
<td>$42,110</td>
<td>FAA Technical Training/Certificate</td>
</tr>
<tr>
<td>Mechanical Engineer</td>
<td>$83,190</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Military Pilot</td>
<td>$81,000</td>
<td>Bachelor’s Degree, 9-5 weeks officer training school, completion of Pilot Training</td>
</tr>
<tr>
<td>Private Pilot</td>
<td>$87,580</td>
<td>Pilot’s License</td>
</tr>
<tr>
<td>Software Engineer</td>
<td>$100,690</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Structural Engineer</td>
<td>$82,220</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Welding/Shield Metal Technician</td>
<td>$45,790</td>
<td>High School Diploma/Certification/Apprenticeship</td>
</tr>
</tbody>
</table>

To learn more about the importance of the Aerospace and Defense Industry to our state:

1. The old Douglas plant is now known as what major Oklahoma Landmark?
2. How many years old will Tinker Airforce be, in 2017?
3. According to Lt. General Levy II, Oklahoma’s Aerospace Industry has a growing dependence on what? According to Lt. General Lee K. Levy II, what is required of our state to maintain air dominance in the U.S.?
As an aeronautical engineer, it is also important to understand the language that people within the industry speak. To effectively practice being an aeronautical engineer, get to know these terms well enough to match them to their appropriate definitions (draw a line matching each word to its correct definition).

### Definitions

**Aerodynamics**
- lift
- drag
- thrust
- weight

**Airfoil**
- aeronautical engineer
- center of gravity
- stability
- equilibrium

**Aircraft**
- airplane
- jet
- helicopter
- glider

**Engine**
- propulsion
- torque
- efficiency
- fuel consumption

**Flight**
- takeoff
- landing
- taxiing
- cruise

**Navigation**
- compass
- radar
- GPS
- Loran

**Security**
- lock
- key
- password
- biometric

**Technology**
- computer
- software
- hardware
- firmware

## Word Bank
- to send or shoot (something, such as a rocket) into the air or water
- the retarding (blowing down) force exerted on a moving body by a fluid medium such as air or water
- the qualities of an object that affect how easily it’s able to move through the air
- the property of a body that causes it, when disturbed from a condition of equilibrium or steady motion, to develop forces or moments that restore the original condition
- the position of an aircraft or spacecraft determined by the relationship between its axes and a reference datum (as the horizon or a particular star)
- the point at which the entire weight of a body may be considered as concentrated so that if supported at this point the body would remain in equilibrium in any position.
- the maximum distance laterally from tip to tip of an airplane
- the front end or part of an aircraft designed to reduce drag
- the forward-directed force developed in a propeller, jet, or rocket engine as a reaction to the high-velocity rearward ejection of air or exhaust gases.
- one of usually two longitudinal, flat parts of an airplane that extend from the sides and make it possible for the airplane to fly
- contoured to reduce resistance to motion through a fluid (as air)
- an aircraft that is similar to an airplane but without an engine
- a vertically hinged plate of metal, fiberglass, or wood mounted at the tail of an aircraft, used for effecting horizontal changes in course.
- a part of an airplane wing that can be moved up or down to cause the airplane to turn
- a movable auxiliary airfoil usually attached to an airplane wing’s trailing edge to increase lift or drag.
- a measurement that indicates how heavy a person or thing is a force available for overcoming the force of gravity.

## Resources:
- [https://www.teachengineering.org/lessons/view/cub_airplanes_lesson06](https://www.teachengineering.org/lessons/view/cub_airplanes_lesson06)
- [http://bit.ly/2gODLxH](http://bit.ly/2gODLxH)

## The Aerospace and Defense Scavenger Hunt

Understanding that there are over 300,000 jobs currently available in the state of Oklahoma in Aerospace and Defense, it is clear that the industry is growing at a rapid rate! In 2015, a study was conducted that provided an overview of the economic impact that the industry is bringing in through these three channels. To download this activity sheet, visit: [http://teachengineering.org/lessons/view/cub_airplanes_lesson06](http://teachengineering.org/lessons/view/cub_airplanes_lesson06).

### Scavenger Hunt Questions

1. How many military personnel, federal civilian personnel and contractors were employed throughout all of Oklahoma’s military installations in 2010?
2. What was Fort Sill’s total employment impact in 2010?
3. What was Tinker Air Force Base’s total employment impact in 2010?
4. How many how many military personnel, federal civilian personnel and contractors were employed by Altus Air Force Base in 2010?
5. How many was the total payroll (in millions of dollars) for McAlester AAP in 2007?
6. In addition to providing jobs, the US Department of Defense directly impacts the economy in southwest Oklahoma through Altus Air Force Base through military construction projects, service contracts and material & equipment purchases. In fiscal year 2010, what was the economic impact (in millions of dollars) brought in through these three channels?
7. What does GDP stand for and how is it defined?
8. What was the total payment (in millions of dollars) for McAlester AAP in 2007?
9. What was Tinker Air Force Base’s total contribution (in billions) to the state’s economy in 2010?
10. What was the total employment impact generated in Oklahoma’s economy from the employment and operations at Vance Air Force Base?

## Share your answers to this scavenger hunt with Newspapers in Education and you will be entered into a drawing to win a $250.00 VISA Gift Card.

And if you win, we will send your teacher a $500.00 VISA Gift Card too! To submit your answers visit: [http://bit.ly/2g0DLxH](http://bit.ly/2g0DLxH)