Guide to Starting an Aeronautics Program in K-12 Education

So, you have decided to start an Aeronautics program in your school district. Or, perhaps you are in the contemplative phase and wanting to see what's possible. Either way; Congratulations! You are exploring adding an educational opportunity to your school that can change students' lives for the best . . . Forever!

The benefits of an aeronautical education are many. In fact, if I may be so bold, they rival those of almost every other course you may offer. Think that is a wild boast? Just hear me out. Imagine what happens to a student as they go through the academic elements of what it takes to become a pilot. Their coursework will include segments of every other class they have ever taken or will take. Mathematics, earth science, algebra, trigonometry, geography, topography, biology, physiology, communications, history, and the list goes on. They actually get to apply everything that they have learned in every other class they may have taken. We let them use that math and science that we say is so important for their future. And as you know, when a student is able to use or apply what they've learned, then the relevance of what they are learning kicks in. From there, they are logarithmically more likely to *use* that information again in other subject areas. So the corollaries are profound.

In addition, as we lay the groundwork for these future generations, we realize that we must also prepare them for the real world and the J.O.B. Another unique element of the modern Aeronautics classroom is the development of transferable skills. As students participate in the integrated simulations of ground school, they will learn and practice skills that employers across this nation say are invaluable. Take a look at the following list:

- Decision-making

- Multitasking
- Creative problem-solving
- Collaboration
- Communication
- Professionalism
- Integrity
- Management
- Initiative
- Empathy
- Leadership
- Teamwork

Do these skills look familiar? These are 12 of the top skills employers look for in job candidates. And these are the skills that your students will learn and develop every day in their Aeronautics classroom. Every. Single. Day. And if you are doubting whether or not these skills are taught in Aeronautics classes, sign up for one of my professional development courses and find out for yourself! 😉

So, whether your students decide to earn a living at the pointy end of airplanes, or decide to follow their heart into art history, these students will have valuable transferable skills, a higher technical literacy, a better understanding of the world around them, and a huge advantage in the job market.

OK, Greg, this all sounds great. Where do I start?

Excellent question! I thought you'd never ask. There are 10 questions I start with when I work with school districts beginning an aeronautics program. With that, let's consider the following:

- What is your purpose for wanting an Aeronautics program at your school?
- What is your vision?
- What does success look like to you for your students as they complete this program?
- What grade levels are appropriate?
- Do we need to develop our own curriculum?
- What does a modern Aeronautics classroom look like?
- Who will be teaching these classes?
- What type of marketing will you need to do?
- What type of community support will you have?
- What are some of the challenges and pitfalls that you need to consider?

When I consult with school districts considering Aeronautics programming, these are the first series of questions that I ask. Think of this as a conversational checklist of sorts. But don't think of these topics as just individual and on a stand-alone basis. They all interconnect. Let's break these topics down even further.

PURPOSE

Think about your motivation. Why do you want an aeronautics program in your school in the first place? Why is it important to you? What benefits do you see for your students, your school and your community? This is not just skull work; write your answers down. Your answers here will begin building the foundation of a successful program, so take your time with this. An honest self-assessment here is critical. And a solid understanding of your purpose will also be a useful reference for you during times of tough sledding with this new program.

VISION

In your mind, what does this program *look* like to you? What do you see as your pathway to success? Think about how you would explain this program to someone who may be unfamiliar with Aeronautics. At this point, I encourage school districts to create a program mission statement. This is more than just a busy work exercise. It helps you define the essence of your vision in a succinct and meaningful way. Plus, it will come in handy when considering other elements of this program down the road. Another way to think about this would be an "elevator pitch": a description that can be delivered with effect in under 30 seconds.

As you are considering this vision, don't overlook some of your existing programming. How do you see this program blending with or complementing other CTE programs you may offer?

SUCCESS

As you contemplated your purpose of this program, you had thoughts about what you want your students to accomplish before they leave your hallowed halls. So what does success look like to you for your students? To answer this question, perhaps you need to find out what's possible. For example, do you want your students to be able to complete their private pilot certification before they graduate? Is that too much? Not enough? Some programs just want an introductory experiential element. Some create opportunities for their students to graduate as multi-engine commercial pilots. Then

there is everything in between. You must define your own goals. The correct answer here is “what is right for you, your students, and your community”. For example, some people think starting slow is a good idea, and it may be. But my experience says differently. The appetite for programming of this type ALWAYS exceeds expectations. Failure to capture that early has led to student disenchantment and slow program pipeline growth.

Think also about how your program will be evaluated. Will it be judged on the number of pilots produced per year? The number of industry certification boxes that can be checked? Or maybe there is a larger benefit to this program that you haven’t considered? Regardless of the yardstick you use here, define it now. This will minimize heartburn down the road.

GRADE LEVELS

Assuming you launch this aeronautics program, where should you start? High school? Middle school? Elementary? Maybe all three? As you think about this, know that the path of least resistance may not be the best one long-term. There is a lot to consider here. Historically, schools think about beginning a program like this at the high school level. And that makes a lot of sense. As long as you don’t ignore the lower grade levels in your master plan. Pushing Aeronautics programming into the middle and elementary schools will create a pipeline of students you are looking for and cement your program's pathway to success. For example, I typically start students on flight simulators in the fourth grade. Starting that young, these students build the skills early that make the more complex units in high school doable.

CURRICULUM

Five years ago, this would have been a bit more of a challenging topic. However, there are now several different vendors you can choose from to pick the right curriculum for you and your program. What is right for us? The answer is “it depends”. The curriculum you choose must be able to get you and your students to the finish line, whatever that finish line happens to be. That said, programs grow and goals change. You may start with one curriculum, and then, after a couple years, add different layers of yet another curriculum. It truly depends on your vision and what success looks like to you. One thing I have learned is that one size never fits all. There will be constant tweaks, additions, or deletions from your curriculum as your program matures. At some point, you may look into developing your own. Personalizing your program will also help ensure sustainability.

YOUR AERONAUTICS CLASSROOM

Today's modern Aeronautics classroom is a technological marvel. Just a few years ago, the idea of a full-motion flight simulator in a high school was far-fetched. Now, a thoughtful collection of various types of flight simulators is almost commonplace. What can this look like? The answer to that depends on you and your program goals.

Remember first of all that a flight simulator is a means to an end. Its job is to reinforce the academics of the coursework your students will perform. We do not recommend any flight simulators to school districts until we have a thorough understanding of your goals and needs. From there, we make recommendations to help you achieve the success you have envisioned.

Sometimes, the number of these devices necessary to accommodate your student class load can be a challenge for your Aeronautics instructor to handle. There are Aeronautics lab management tools available to not just simplify this classroom management, but to elevate the experience itself with your students.

STAFFING

Who is the right person to spearhead your efforts in the classroom? Do you hire from within? Do you hire from without? My recommendation here may surprise you! A few years ago, the conventional wisdom was hiring a retired industry professional to run your aeronautics program. Over the last few years, however, we have noticed a very distinct trend. There seems to be a much higher attrition rate with bringing in someone from the outside. It wasn't that they lacked the skills of aviation. What they weren't prepared for was working with and teaching today's students. Let's be honest; they did not go into education initially for a reason.

What we are seeing now is far more success hiring from within. These education professionals are used to the system, and they are used to working with today's students. What most of them lack, however, is the aeronautics or aviation side of the coursework. With that in mind, we have revamped our training programs specifically for non-aviation professionals. With the combination of hardware and software available, Aeronautics educators do not have to be trained pilots or certified flight instructors. Now, we certainly encourage those educators to explore those opportunities. But to be successful in those roles, they do not have to be Chuck Yeager or an Amelia Ehrhardt. That said, there are certain things we look for in an Aeronautics educator candidate.

MARKETING

If I could go back 15 years to when I started in Aeronautics education and do one thing differently, it would be to start with a better appreciation for the power of marketing my program. "Build it and they will come", I thought. And some did. But not the way they should have. How important is the marketing of a program like this to your stakeholders and the community? Consider it *mission critical*. You will have a

compelling story to tell about this new program. How you tell it, and to whom, is everything. You want to be very clear about what this program is, and, perhaps more importantly, what it isn't. You don't want people at your school or in your community getting the wrong idea about this program or its benefits.

So, what types of marketing might be appropriate? What types of marketing might be more effective than others? When do you start shouting from the rooftops about this program? Websites, social media, club presentations, informational program meetings, and classroom presentations are all good ways to get the word out. So is word of mouth. Provided that the right words are coming out of that mouth.

COMMUNITY SUPPORT

It is amazing how quickly local companies and businesses will reach out to you when they hear about your program. Why? THEY NEED WORKERS! So how do you take that community enthusiasm and turn that into an opportunity for your students? Honestly, that is pretty easy. But be careful. Sometimes well-intentioned people can derail your program plans. Or people may see an opportunity that benefits them more and it benefits your students. I've seen it happen and it takes a lot of time and effort to fix it.

Be prepared to get offers from community members to help in your aeronautics classroom. While this may initially seem like a good thing, just go into it with your eyes open. There should be one voice in that classroom. And that should be your teacher's.

CHALLENGES/PITFALLS

As with every worthwhile endeavor, there are trials and tribulations. We have all heard the adage "The Devil is in the Details". That applies here as well. What challenges will you face as you begin and grow this program? First of all, make no mistake; somewhere along the line, your commitment to this endeavor will be tested. It's always like that. If you have done anything like this before, you knew that already. But if you haven't, you should be prepared. That said, don't be afraid of it either.

Some of the potential pitfalls people face are the direct result of poor or incomplete planning. Getting a big grant and rushing into this is where I have seen the most heartache. It is natural to be excited about this, and you should be. But take a breath and look at the big picture before leaping.

Finding funding can be a challenge, but it shouldn't be an impenetrable barrier. Most CTE directors know pathways to funding.

“What other questions should I be asking?” The fact that you are asking that question is a good thing. Legal considerations come up in our conversations with schools as does corporate structure for giving. While I cannot give legal advice, I can share my experience for your consideration.

Hopefully, these questions can help you get the ball rolling at your school. But, then again, you may be thinking “there’s a lot more to this than I thought”. And you would be correct. The good news is you don’t have to tackle this alone.

At Redbird Flight, we offer consultation services that can help you navigate these complex questions and point you in a positive direction. As Director of K-12 Education, I have more than 16 years of hands-on experience in and out of the aeronautics classroom. In addition to the programs I have built myself, I have had the benefit of seeing Aeronautics programs all across this country and can bring valuable experience, observations and best practices to your planning sessions.

Whether you get your program started alone, or with some assistance, just know that a program like the aeronautics program you are considering can impact a young person’s life in ways they cannot yet possibly appreciate. But *you* can. You and most adults know the opportunities a well-prepared student like the ones you will build will have as they step out into their brave, new world. Building the skills outlined above at a young age puts these young people at a huge competitive advantage. Regardless of what post-secondary passions they may pursue, they will be well equipped to face their future. And I think we can all agree that this is what we are ultimately after. A better education for them; a better nation for us!

Let us know if we can help.

Greg Roark & The K-12 CTE Team

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