Fredericksburg High School
Suborbital Aeroscience Studies

Raising The Bar of Technology
Education –
A Proven Program
America’s Burning Need

- Our engineering workforce is retiring
- Engineering graduates are declining
- 40% Of engineering students are non-residents
- Secondary school budget cuts reduce creative programs that work
- There Are Not Enough Engineers To Take Us To Mars!
What We Do

- Two Year Program For HS Juniors and Seniors
- Physics Based Approach
  - Mechanics
  - Electrical
  - Fluids
  - Thermal
- Total Immersion in Problem-Based-Learning Approach
  - Instructor Does NO Work – Students Do Everything
  - Students Teach Themselves, Driven By Desire To Launch … To Achieve!
  - Failure is Absolutely An Option
What We Do

• In One Year, Students – BY THEMSELVES – Design, Build, Test, and Launch a 25 ft. Aluminum/Titanium Hybrid-Fueled Sounding Rocket to a Height of 100,00+ft.
How Well We Do It

- First High School *Ever* To Build a Rocket That Broke The Sound Barrier
- First and Only High School To Successfully Launch at a Federal Missile Range
- Only High School To Sign a Space Act Agreement with NASA
- Developing 500-Lb Research Vehicles To Lift 35-lb. Packages to 100,000 ft
And We Are Launching Again in 2004:

- Rocket:
  - Testing Fuel Grain Developed at **Stanford University - At Their Request**

- Lifting Payload From **Purdue University - At Their Request**
- With Funding From **NASA and WSMR**

**FHS SAS Is Already Doing What America Needs**
How Well We Do It

- **Government Partnerships**
  - NASA (Marshall, Johnson, Stennis, Wallops)
  - Office of Naval Research
  - White Sands Missile Range
  - Air Force Research Lab

- **Industry Partnerships**
  - ATK Thiokol
  - Lockheed Martin
  - Boeing/Rocketdyne
  - United Space Alliance
  - Over Thirty More

**Significant Opportunities for Scholarships and Internships**
How Well We Do It

Fredericksburg High School Average SAT Scores

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SAS Inception

89-90 90-91 91-92 92-93 93-94 94-95 95-96 96-97 97-98 98-99 99-00 00-01

800 850 900 950 1000 1050

8  Fredericksburg Education Initiative
SAS’s National Destiny

- **Aligned In Vertical Partnership**
  - Midland Community College
  - Texas Tech University
  - 2+2+2 Program
  - Courses Being Remotely Delivered *NOW*
  - Too Many Universities Interested To Detail/Can’t Keep Up With Requests

- **Raising $3+ Million To Build, Equip and Staff Technical Training Center**
  - Joint Education and Business Consortium; 501(c)3 Status
SAS’s National Destiny

- Goal is To Deliver Curriculum to Other HS Teachers Through Train The Trainer Model
  - Maximizes Program’s Reach
  - Guarantees Quality Replication and Dissemination
  - Already Besieged With Summer Requests

*We Are Already Incapable of Meeting Demand From Teachers in Texas Alone*