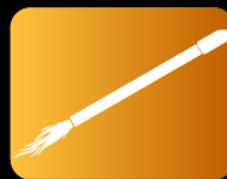
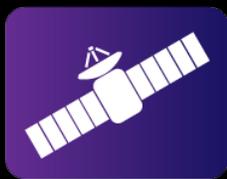




RULES & PROCEDURES



AFA StellarXplorers



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Where Space High Education Begins

INTRODUCTION

About this document

This document serves as the official source of rules and procedures governing StellarXplorers, the National High School Space Design Competition. All registered StellarXplorers participants, to include team directors, mentors, team assistants, and competitors are bound by the rules and procedures published in this document.

If the rules of the school or organization to which a team belongs are more restrictive than the StellarXplorers rules, then the school's or organization's rules take precedence.

Future changes to this document will be posted on the StellarXplorers website, <https://www.stellarxplorers.org/>, and distributed via email to StellarXplorers team directors.

Recommendations and suggested updates to this document may be submitted to the National StellarXplorers staff at info@stellarxplorers.org with the subject "Rules Book Recommendation."

Our Vision

Through StellarXplorers, we are cultivating the leaders in STEM with strong moral character, leading the way to space and beyond.

Our Mission

Working in partnership with leaders in the U.S. space industry, space-focused academia and government entities, the Air Force Association (AFA) developed the StellarXplorers Program to inspire students to pursue science, technology, engineering and mathematics (STEM) education and careers through an exciting space-focused competition.

Our Core Values

- **Integrity.** The foundations of the competition are the honesty and ethics of all those involved in the program, especially in the absence of supervision.

- **Service.** The spirit of the competition is dependent on the ethos of “service before self.” All adults must put competitor well-being and education of ahead of their own in throughout all StellarXplorers-related activities.
 - **Excellence.** The competition pushes competitors to achieve their best, both during and beyond their participation.
-

Our Purpose

StellarXplorers welcomes those who are interested in space, no matter what level of experience, as a place to share thoughts, ideas, and experiences with others who share a similar passion for problem solving, team collaboration, and space system design. StellarXplorers provides students leadership opportunities and mentor other students in science, technology, engineering, math, and organization management. StellarXplorers gives members insight into the industry and cultivates relationships between students and industry professionals through guest speaking events, social media, web interviews, and the opportunity to attend the StellarXplorers National Finals fully funded by our programming office as an ambassador of their school and community.

Eligibility & Equal Opportunities

Team membership in StellarXplorers will not be restricted on the basis of race, color, religion, ethnicity, national origin, physical or mental disability, sexual orientation, veteran status, experience, gender identity, gender expression, or sex. Any student at a participating school willing and eager to participate is qualified for membership.

Transparency

To ensure openness and honesty, staff and team directors shall engage in two-way communication on competition matters that do not infringe upon fairness. The StellarXplorers Program Office is the organization within the AFA responsible for organizing and administering all aspects of the StellarXplorers Program. The Competition team is responsible for the technical conduct and oversight of the competition. It is also responsible for the setup, operation, and coordination of all systems that support the competition.

Operating principles

- **Competitor Safety and Protection.** Since most competitors are minors, this *MUST BE THE TOP PRIORITY* for all involved. It is the team director's responsibility to ensure the safety and protection of their team while involved in all StellarXplorers activities. They must create a safe environment that provides protection from unauthorized individuals, ensure appropriate online activity, and is responsible for suitable facility safety and security. If an incident occurs involving the protection or safety of a competitor, the team director has an obligation to follow correct procedures of reporting the incident to local authorities and stop or mitigate the incident immediately.
 - **Fairness.** No participant may attempt to gain or give an unfair competitive advantage to any individual or team. Any questions or concerns regarding fairness should be reported to the StellarXplorers officials immediately.
 - **Adherence to the Rules.** Everyone involved in the competition must obey the rules and regulations outlined in this document. Team directors are charged with ensuring the teams' compliance. Willful violation of these rules will result in team disqualification.
 - **Privacy.** Participants' personal information must be protected by those who have access to the information. The StellarXplorers Program Office may publish participant names and photographs only when appropriate permission is obtained.
-

Organizations and Participants

COMPETITION TEAM. For the online rounds of competition, the Competition Team is defined as the StellarXplorers Program Office.

StellarXplorers Program Office. The StellarXplorers Program Office is the organization within the Air Force Association responsible for organizing and administering all aspects of the StellarXplorers Program.

The AFA Vice Chairman of the Board for Aerospace Education will maintain primary responsibility for oversight of major program elements, and the StellarXplorers Director of Operations will orchestrate staff support for the program. The StellarXplorers Program Office will lead the program, being responsible for registration, academics and training, competition scenario development, and this rule book.

Background of StellarXplorers

In September 2014, the Secretary of the US Air Force office asked the Air Force Association (AFA) if they could develop a national space competition, similar to AFA's first national cyber education competition, CyberPatriot. Bill Yucuis, an aerospace engineer with 12 years of experience coordinating an Aerospace Magnet Program, was tasked as the chair of a committee tasked with creating the program from scratch. Air Force retired space experts Tim Brock and Stephen Gourley, in addition to Buck Buckwalter, the primary AFA person responsible for developing CyberPatriot, came together to found StellarXplorers. For seven years, the program was entirely volunteer run. As the program has expanded, the volunteers who got it started have left a tremendous legacy and one-of-a-kind space education and competition program to challenge students across the world.

GETTING STARTED

Throughout the StellarXplorers Competition, we are here to help you through the entire process! To help you get started, please use this checklist. Additional information that provides in-depth, step-by-step instructions on how to complete the steps on this checklist are located over the next few pages. The items in bold on the checklist are competition rounds that are scored.

If you have any questions, please email competition@stellarexplorers.org.

Steps to Take	Completed?	Date
Find a team director		
Find team members		
Name your team		
Register the team on our website		
Download newest version of STK		
Obtain the educational license for STK		
Download and read the Rules Book		
Practice and train on STK by yourself and with your team		
Team director obtains <i>Understanding Space</i> textbook		
Begin reading through <i>Understanding Space</i> textbook		
Participate in Practice Round 1 (PR1)		
Continue to prepare on your own and with your team		
Participate in Qualifying Round 1 (QR1)		
Participate in Practice Round 2 (PR2)		
Continue to prepare on your own and with your team		
Participate in Qualifying Round 2 (QR2)		
Participate in Practice Round 3 (PR3)		
Continue to prepare on your own and with your team		
Participate in Qualifying Round 3 (QR3)		
Continue to prepare on your own and with your team		
Participate in Semifinal Round		
Continue to prepare on your own and with your team		
Participate in Final Round		
Register for the next year of competition!		

Competition

All students may compete provided that team is fielded by one of the organizations below. Although intended primarily for high school-aged students, other ages may compete on an equal basis.

1. **Organizations that can field teams.** There is no limit on the number of teams that an organization can field.

Public School	Parochial School	Home School
Private School	Magnet School	Charter School
Boy Scouts	Adventure Scouts	Boys and Girls Club
Girl Scouts	Civil Air Patrol	U.S. Naval Sea Cadet Corps
Army JROTC	Air Force JROTC	Space Force JROTC
Navy JROTC	Marine Corps JROTC	State-Chartered Virtual School

2. **Composite Teams.** The StellarXplorers Program Office may consider the creation of a composite team from more than one fielding organization if:
 - a. The organizations' sizes do not support a full StellarXplorers team.
 - b. The organizations are not fielding other StellarXplorers teams.
 - c. The competitors belong to a common legally recognized entity, such as a school district, non-profit organization, or municipality.
3. **Other Organizations.** At the discretion of the StellarXplorers Program Office, other organizations may field a team. Requirements for participation are:
 - a. Charter and Youth Program. The organization shall have a charter that includes a youth program.
 - b. Mission and Purpose. The organization's mission and purpose shall be consistent with the principles and values of the StellarXplorers Program and AFA.
 - c. Designated Official Leader. The organization shall have a leader who is accountable for the organization and is authorized to designate adults to have unsupervised access to minors in the organization.

- d. Minor Protection Policy. The organization shall have an official policy for the protection and safety of minors.
 - e. Minor Protection Training Requirement. Mandatory and formal training shall be required for adults who have unsupervised access to minors.
-

StellarXplorers Team

A team is defined as the basic grouping of StellarXplorers participants.

1. **Members of a StellarXplorers Team.** A StellarXplorers team consists of a team director (1) and student competitors (2-6 per Team). Teams may employ team assistants (unlimited) and mentors (unlimited), both of which are optional.
2. **Team Identification.** For official purposes, team identification is standardized to recognize teams, assign scores, maintain anonymity, and avoid misunderstandings in communication. Teams are identified as follows:
 - a. **Team Numbers.** Team numbers, e.g. STLX0X-XXXX, are assigned during registration and are the primary means to identify a team for competition purposes, such as assigning scores.
 - b. **Official Names.** The official name of teams belonging to a school is the school's name. The official name of other teams, such as CAP, is the organization name. Official names may be appended or modified by the StellarXplorers Program Office if they have similar names. Composite teams have an official name assigned by the authority that approved their composition.
 - c. **Unofficial Names.** Teams can create unofficial names to identify themselves at any time. The names must be in good taste and are subject to veto by the StellarXplorers Program Office. Team names are optional and will not be used to officially identify teams.

3. **Anonymity.** Except for the following exceptions in which information related to a team's performance (e.g., scores, rankings, advancement) is published, the team will remain anonymous, except for its team number.
- a. Exception 1: Region Winners. Teams that win a region award will have their official name and team director name published by the StellarXplorers Program Office. This information will not be associated with the team's scores nor with its team number.
 - b. Exception 2: The National Finals Competition. Teams that advance to The National Finals Competition will have their official and unofficial names, team director's name, and competitors' names published. This information will not be associated with the team's scores. This information may be published in the following places:
 - (1) The StellarXplorers website and social media
 - (2) The National Finals Competition program
 - (3) Media releases
 - (4) Communications to sponsors and government officials

Teams winning awards at National Finals will have their official names, competitor names, awards, and rankings published nationally.

StellarXplorers Team Composition.

Members of a StellarXplorers Team are defined below.

Team directors

StellarXplorers requires an adult to register as a team director before any students are permitted to compete. Having one, and only one, adult team director of record for each team is a non-negotiable requirement. An adult may serve as team director for up to five teams and is responsible for the proper supervision of all their teams during all StellarXplorers-related activities. The team directors retain the responsibility and authority to control their teams, including access of other people to his/her team. The team director is the ultimate authority concerning who works with his/her team. A team director may assist other teams, but only as a registered mentor or team assistant. To be a team director, an individual must meet the following requirements:

1. **Eligibility Requirements.**

- a. Adult over 18 years of age on or before the team director registration deadline.
- b. Not a competitor or high school-level student.
- c. Not a member of the StellarXplorers Program Office.
- d. Vetted and approved to work with minors by a Verification Official (see below).
- e. Registered as the team director for five teams or fewer.
- f. Agrees to abide by the StellarXplorers Standards of Conduct (Appendix I).

2. **Verification Officials.** All team directors are required to be vetted and approved to work with minors by Verification Officials. Though not members of a team, Verification Officials are usually school principals or individuals higher in a team director's supervisory chain who perform the following critical functions:

- a. Verify that a team director is approved by the organization to work unsupervised with minors.
- b. **Immediately** notify the StellarXplorers staff if facts or circumstances call into question the fitness of a team director to continue to supervise competitors.
- c. Validate a team director's status as a school employee, school district approved volunteer, or person with an approved relationship with a school or member of a fielding organization.
- d. Other Organizations. Verify that team directors of non-school teams meet the following requirements:
 - i) A member in good standing with the organization.
 - ii) Completed appropriate minor or youth protection training.

3. **Additional Requirements.** Adults must meet the following requirements in addition to those mentioned above if they fall into any of the cases below.

- a. Employees of Sponsors and Development Partner. An employee of a StellarXplorers sponsor or development partner shall receive consent from their organization's designated StellarXplorers representative before becoming a team director.
- b. CAP or USNSCC members. CAP team directors shall be verified by their CAP squadron commander or an officer higher in their chain of command. USNSCC team directors shall be verified by their Regional National Headquarters Representative or an officer higher in their chain of command. These team directors also shall meet all the following requirements:
 - (1) Senior Member in good standing with Civil Air Patrol or U.S. Naval Sea Cadet Corps.

- (2) Completion of appropriate cadet protection program training (CPPT).
- (3) Chain-of-command authorization of unsupervised access to cadets who are minors.
- c. Home School team directors. In areas where home schools are subject to local school board or other governmental oversight, team directors of home school teams shall be verified by a school official or a homeschool teacher who can be verified by a legally recognized agency that accredits or otherwise approves home school programs. team directors of home school teams must also meet the following requirements:
 - (1) Authorization by their regulating agency and the students' parents to have unsupervised access to team members who are minors.
 - (2) Procurement and retaining of written and signed parental consent forms for competitors for the entire season. (See Appendix III).
 - (3) Completion of a certified youth protection program such as the free Boy Scouts of America's Youth Protection Training at: www.myscouting.org.

4. Responsibilities.

- a. Competitor Protection. The team directors' responsibility includes controlling access to minors in a way that protects them, respects parental prerogatives, and follows legal requirements during all competition training, events, and rounds. Additionally, team directors are:
 - (1) Accountable for mentors and team assistant interactions with the competitors.
 - (2) Responsible for competitor safety and protection during all competition training, events, and rounds. (See Appendix IV)
- b. Competition Integrity. Fairness and integrity are key components of a successful StellarXplorers competition. Team directors are charged with upholding these principles at the team level during competition by ensuring that their competitors receive no outside assistance in any form, including assistance from another team. Team directors may continue to provide clarification of rules and permissible actions per this document while their teams compete.

- c. **Official Point of Contact.** Official competition related StellarXplorers correspondence is emailed only to team directors, who may disseminate it to their teams. It is therefore essential that team directors monitor their email for up-to-date information and ensure they can receive messages from the StellarXplorers Program Office through their chosen email domains. The role of official point of contact may not be delegated to a mentor unless the mentor is appointed as a team director Alternate (see below).
 4. **No compensation.** Team directors participate on a volunteer basis and do not receive compensation from AFA. AFA has no position with respect to gifts received by volunteers.
 5. **Team director alternate.** If a team director is not available to receive email and supervise during a round of competition, then a team director alternate may be designated. Team director alternates are subject to StellarXplorers Program Office approval on a case-by-case basis. Team director Alternates must also be vetted and approved by the original team director's Verification Official via the same verification process before StellarXplorers Program Office approval. Team director alternates may only act as team director for the approved round of competition and not substitute for the team director during future rounds of competition without going through the approval process again. (See Appendix V).
-

Competitors

A StellarXplorers team consists of two to six competitors. A competitor shall compete on only one team during the StellarXplorers season. To be a competitor, students must meet the following requirements.

1. Eligibility Requirements
 - a. Competitors shall be enrolled in a high school program (or equivalent if home schooled or in an organization that does not make this distinction) as defined by the state in which the students are located on the final day of team registration for the season in which they will compete. competitors who are not in high school, such as middle school or CAP cadets not in High School, may compete but must realize they are competing against high school-level competitors.
 - b. Competitors shall be on only one team, even if they are in another organization fielding a team.

- c. If participating on a JROTC, USNSCC, or CAP Team, competitors shall be currently enrolled in the respective JROTC, USNSCC, or CAP program before participating in any competition round.
 - d. All competitors shall be members of the same unit except in cases when the StellarXplorers Program Office approves the formation of a composite team.
 2. Responsibilities. It is the responsibility of competitors to abide by the StellarXplorers Competitor Code of Conduct (see Appendix VI). competitors will also agree to act ethically each time they participate in a StellarXplorers practice or competition round.
 3. Team Captain. Each team director may designate a competitor as the Team Captain for the online competition. Since the team director and mentor(s) are not directly involved in competition rounds, the Team Captain oversees and directs the team's competition efforts.
-

Mentors

Mentors, also known as technical mentors, are optional (but recommended) team technical advisors/subject matter experts. Once registered, a mentor may be chosen by a team director to assist with a StellarXplorers team. Teams are not required to have a mentor, and team directors may act in the combined role of a team director and mentor.

1. **Eligibility**
 - a. Adult over 18 years of age.
 - b. Not a competitor or high school student
 - c. Vetted
 - d. Agrees to abide by the StellarXplorers Standards of Conduct (Appendix II).
2. **Responsibilities**
 - a. Advising the team's team director on skills status.
 - b. Developing, with the team director's guidance, a plan to teach space-related skills and ethics.
 - c. Teaching and assisting competitors with space-related skills and ethics.
 - d. Meeting with the team only with the team director's approval.
3. **Team directors as mentors.** A team director may be a mentor for other teams only if he or she is also registered as a mentor.

4. **No compensation.** Mentor positions are voluntary and do not receive compensation from AFA. AFA has no position with respect to gifts received by volunteers. mentors will not be funded by AFA to travel to the National Finals. They can act as team chaperones for the National Finals if otherwise eligible and would be funded in this case.
-

Team Assistants

Team assistants are adult team members who provide non-technical support and encouragement to the team. Teams are not required to have team assistants. team assistants must register on the StellarXplorers website and can be linked to their teams by team directors after meeting all their requirements.

1. Eligibility

- a. Adult over 18 years of age.
- b. Not a competitor or high school student
- c. Vetted and approved to work with minors by Verification Officials.
- d. Agrees to abide by the StellarXplorers Standards of Conduct (Appendix II).

2. Responsibilities

- a. Team assistant responsibilities vary by team, but sample responsibilities include helping with competition setup, snacks, and transportation.

3. **No compensation.** Team assistant positions are voluntary and do not receive compensation from AFA. AFA has no position with respect to gifts received by volunteers. team assistants will not be funded by AFA to travel to the National Finals. They can act as team chaperones for the Finals and would be funded in this case.

REGISTRATION

Organization Registration

StellarXplorers Registration opens in April and closes in October. StellarXplorers uses a registration system developed by SportsEngine. Specific procedures for registration are located on the StellarXplorers Website, under the "Registration" tab. A team director (TD) will first register their organization (only one time) using a link found on the "Registration" tab. The team director may register an assistant team director, mentors and any team members, if they are known. The team director, and assistant team director, must be validated as being allowed to work unsupervised with minors by their verification official and approved by the StellarXplorers staff prior to the competition season.

Team and Team Members Registration

Only team directors may register teams and team members.

1. **Creating Teams.** Team directors must register one team during the initial organization registration. Later, the TD can add additional teams (up to five teams total) following the procedures found on the "Edit Team Information" pull down menu under the Registration Tab.
2. **Registering Team Members.** TDs may enter team members when the initially register their organization if they are known. Prior to the close of registration in October, the TD can review/change/edit the organization registration using procedures found on the "Edit Team Information" pull down menu under the Registration Tab. TDs must finalize their team members prior to the start of Qualification Round 1 (QR1) normally held in late October. Adding members to the team are not allowed after that date. However, removal of a team member is allowed at any time.
3. **Team directors with multiple teams.** An adult may register as a team director for up to five teams from the same or different schools, organizations, or divisions under the following conditions:
 - a. **Verification.** Verification officials shall verify a team director for each competition season. Once verified, it is the responsibility of the team director to inform the verification official the number of the teams registered for the organization.

- b. Team Identification** StellarXplorers tracks team using their team number. If a team director has multiple teams, it is the responsibility of the TD to make sure team members know their team numbers and each team only submit solutions using the proper team number. Failure to follow this could result in team members not receiving proper scores.
-

MENTOR AND TEAM ASSISTANT REGISTRATION

Mentors and team assistants affiliated with a team will be registered by the team director as listed above. Individuals not affiliated with a team wishing to be a mentor should contact the StellarXplorers Program Office via Competition@stellarxplorers.org.

Mentors and team assistants may work with teams in their physical location or virtually. There is no deadline for mentor or team assistant registration.

- 1. Background Check.** All mentors and team assistants who wish to assist a team are required to complete a background check conducted by the StellarXplorers Program Office. Background checks completed for other organizations are not sufficient for this requirement. If a mentor or team assistant completed a **StellarXplorers** background check within the past twelve months at the time of registration, this requirement is waived. A team director may arrange and assign mentors and/or team assistants to his/her team(s), and the team director retains the responsibility for ensuring that the individual(s) assigned have the proper qualifications to work unsupervised with minors.
 - 2. Linking with Teams.** Once an unaffiliated mentor is approved by the StellarXplorers Program Office, the program office will provide a list of teams needing a mentor. Mentors are paired with team directors only with mutual consent. Team directors will link them to their teams. Mentors and team assistants can remove themselves from this list by notifying the StellarXplorers Program Office.
-

COMPETITOR REGISTRATION

After their team application has been verified and approved, team directors must add their competitors to their rosters. To do so, a team director completes a separate online team registration form using the StellarXplorers website in SportsEngine. The team director fills out the form that asks for the competitor's

name, email address, grade level, age, and t-shirt size. Each team must have a minimum of two or maximum of six competitors.

After a competitor is added to a roster, he or she is emailed a link to a short questionnaire. After that questionnaire has been submitted by the student, he or she is fully registered and eligible to compete in StellarXplorers.

The team directors may add to or remove competition from their team rosters.

However, the final roster must be complete no later than three days prior to the start of Qualification Round 1.

TEAM REGISTRATION FEE

A team is completely registered when its registration fee has been paid or waived by the StellarXplorers Program Office.

STELLARXPLOREERS VIII REGISTRATION

- **\$200** for 1st high school team, **\$100** for 2nd high school team, **no fee registration for 3rd, 4th and 5th** high school teams.
- After you **Register your Organization and Team/s**, you will be given a balance based on \$200 per registered team. Please **DO NOT pay on the Registration Form**. You will be provided an **Invoice by StellarXplorers requesting payment shortly after you register via email** for the correct amount based on **early registration, Title I &/or Service Team/s Discount, and/or # of Teams Registered**.
- **After receipt of Invoice**, payment must be made by November 15, 2021 (we accept payment by purchase order, check, credit card)
- Teams created in the registration system with TD verification before July 1, 2021 receive a 20% discount (discounted rate is locked-in with final payment still due by Nov. 15)
- Fees waived upon request for Title I School (must provide proof of status - e.g. signed letter from school administrator)
- Fees automatically waived for JROTC, Civil Air Patrol, and Naval Sea Cadet Corps teams

PREPARATION

GENERAL

Because StellarXplorers is a nationwide competition, team preparation is conducted locally. Preparing for competition means recruiting students, ensuring that basic technical materials are in place, and training students on space-related concepts.

COMPETITION TECHNICAL REQUIREMENTS

Teams must meet the following basic requirements to participate in StellarXplorers. These requirements are kept to a minimum so that as many teams as possible may compete.

1. **Hardware.** Teams need a computer to perform training prior to the competition and for the Practice, Qualification, Quarterfinals, and Semifinals Round competitions.
 - a. Processor: Intel® Core™ i5 or better, AMD Ryzen™ 5 or better
 - b. Memory/RAM: 8 GB (minimum); 16+ GB (recommended)
 - c. Disk Space: 3 GB (minimum); 500 GB recommended depending on supplemental modules and data products
 - d. Graphics Card: A graphics card that supports OpenGL 2.0. 1 GB (minimum) 4+ GB (recommended)
 - e. Network Card: Required

2. **Operating System.** Team computers must have an operating system (32-bit or 64-bit) with the following: Windows 10, Windows 8.1, Windows Server 2016, Windows Server 2012 or Windows Server 2012 R2. The system must have Microsoft Internet Explorer 11.

If you are unsure whether your system can run AGI's Systems Tool Kit (STK), contact the AGI website (www.agi.com) for specific technical requirements.

Note: STK cannot be run on Apple or Chromebook computers at this time.

3. **Software** The following software must be installed on all competition computers before a team participates in the competition: AGI's Systems Tool Kit (STK) and an MS Office-type product, such as Google documents, capable of producing text documents and spreadsheets. AGI's STK software can be

downloaded for free at <http://www.agi.com/resources>. Every team member, if desired, can download the software to their own personal computer.

Note: Teams **may not** use any STK tools other than those provided with the STK Standard License and the StellarXplorers-provided Educational License. Use of tools such as STK CAP, STK Expert, STK Analyzer or STK Parallel Computing is strictly prohibited.

4. **Network.** It is the teams' responsibility to provide an Internet connection during the competition for e-mail traffic exchanges with the StellarXplorers Program Office. The most common difficulty encountered by teams during competition is a school proxy server or firewall blocking their web traffic.

The StellarXplorers Program uses e-mail to transmit competition information to the team, such as the Competition Preparation message. Some e-mail program spam scanning programs will send these messages to a junk or spam folder. Teams should initiate actions to eliminate these restrictions on their e-mail systems for messages from "competition@stellarxplorers.org."

EDUCATION & TRAINING

The StellarXplorers National High School Challenge is meant to be a challenging, space system design competition involving all aspects of system development and operation with a spacecraft/payload focus. In addition, one of the goals of StellarXplorers is for students to learn some of the academic information about space operations. The StellarXplorers Program Office has a number of resources available for team directors and mentors that may help them teach their students basic space-related principles. These materials are not an exhaustive list of recommended education and training but will provide sufficient information for teams to be successful. After reviewing these materials, teams should delve deeper into each of the presented topics and look to their team directors/mentors for further training. The knowledge of adult volunteers is integral for teams to achieve success.

1. Space Academics

StellarXplorers teams will be given access to an online space textbook, *Understanding Space*, which is used for the Introduction to Space course at the Air Force Academy. While *Understanding Space* is a college textbook, most is written at the middle school level, and we will only be using the sections which are appropriate for high school students. To encourage students to delve into the *Understanding Space* textbook, StellarXplorers will incorporate scored quizzes

during the Qualifying Rounds. We hope, however, that teams will choose to go beyond just scoring well on a Quiz to explore deeper.

Information about getting access to the *Understanding Space* textbook is found on the StellarXplorers Website (<http://stellarxplorers.org>) under the Competition Tab. Go to the Training Materials pull down menu and select Textbook information.

Quizzes

A portion of the competition scoring for each Qualification and Semifinals Rounds will come from a “team quiz”, i.e. one quiz per team, based on information from the *Understanding Space* textbook. During Practice Round 1, teams will have the opportunity to take a “Practice Quiz”. In addition, during the National Finals, each individual team member will complete an Academic Quiz, based on earlier Quizzes. Study Guides for each Quiz can be found on the StellarXplorers Website (<http://stellarxplorers.org>) under the Competition Tab. Go to the Training Materials pull down menu and select Quiz Materials.

The “team” quizzes will be a 30-minute timed quiz and include 20 multiple choice questions. The quiz is open book, but the correct answers will be based on what is stated in the *Understanding Space* textbook.

StellarXplorers uses ClassMarker, a web-based testing service, to administer our quizzes. Each team will be given a unique User Name and Password to sign into ClassMarker (<https://www.classmarker.com/>). That Username and Password will be valid for all rounds of the StellarXplorers Competition Year.

2. STK Training

The Systems Toolkit (STK) software is provided free to StellarXplorers teams by Analytical Graphics, Inc. (AGI) through their Educational Alliance Program, of which StellarXplorers is a member. In addition to the free software, AGI provides a multiple of free on-line training, including the opportunity for students to earn STK professional certification. The Website for the AGI training can be found at <https://www.agi.com/about/partners/educational-alliance-program>. Scroll down to the bottom of the page to find several Teaching Aids.

In addition, STK training specifically tailored to StellarXplorers can be found on the StellarXplorers Website (<http://stellarxplorers.org>) under the Competition Tab. Go to the Training Materials pull down menu and select STK Training.

Competition Practice

Teams will have three Practice Scenarios, which do not impact team rankings. The first Practice Round will take place in October, the second round will take place in Late November to Early December and the third round will take place in January. Participation in these Practice Rounds is encouraged, but not required. Competition materials and challenges in these rounds will prepare teams for the STK skills needed for the competition.

The National Finals Competition

Training materials for tasks not conducted during the online rounds may be provided to teams advancing to The National Finals Competition before that event.

ONLINE ROUND PROCEDURES

GENERAL

Each team competes in a series of online rounds (phases of the overall competition) by determining mission orbits, designing satellites & their components, developing satellite launch scenarios, and performing other tasks. All teams compete during the same week. Below is an overview of the competition schedule. Teams may compete in any six consecutive-hour period within the specified Competition Windows listed below.

COMPETITION WINDOWS

Teams compete during a six consecutive-hour period on the Thursday-Sunday dates designated for each online round starting at a time chosen by the team. Teams may start the six-hour period anytime between 12:01 AM Eastern Time on Thursday until 6:00 PM Eastern Time on Sunday. Teams will use the online quiz application, ClassMarker, to start the competition period. The StellarXplorers Program Office is available for technical support during some of the competition window. Teams should not compete outside of the competition window.

COMPETITION COMMUNICATION

Email from competition@stellarxplorers.org is the official and primary means of competition communication. Official competition information will be posted at www.StellarXplorers.org, if there are technical issues with official email.

1. **Competition Email** Teams will receive two competition emails before each online round and one email after. Team directors are the only individuals who receive these emails and it is their responsibility to ensure that each of the emails listed below are received. Team directors should contact the StellarXplorers Program Office if emails are not received in the time frames listed below. Failure to receive emails is not grounds for an appeal.
 - a. **Competition Preparation Email** An email with important round information (operating system(s), rule changes, etc.) is sent 10-14 days before a round via the AFA IT System.
 - b. **Download and Instructions Email** On or before the Wednesday prior to the online round, team directors will receive an email via the AFA IT System with updated competition information:

- (1) How to download and unzip competition files (if necessary.)
- (2) Competition-specific information.
- (3) Technical information
- (4) Changes to instructions since the Competition Preparation Email.

c. **Online Round Results Email** Release of this email is contingent on a variety of factors including inquiries and appeals. The goal for release of the email is five working days after the completion of the round. The online round results email will contain the score from the just-completed round.

2. **Information and Notifications** In addition to email, information may be posted on the StellarXplorers Website (www.StellarXplorers.org) during qualification rounds.

COMPETITION EVENTS

The StellarXplorers online rounds contain one or more of the following scored events.

1. **Satellite Mission Orbit Planning** The mission orbit planning is the main event during the first round. It requires teams to select a mission orbit which best meets a specific set of mission requirements.
2. **Mission Satellite Design** The satellite design is the main event during the second round. It requires teams to design a satellite using a list of available subsystem components which will meet a set of mission requirements.
3. **Satellite Launch Scenario** The launch scenario is the main event during the third round. It requires teams to select a launch vehicle, launch window, or optimum liftoff time to meet a specific set of mission requirements.

TECHNICAL SUPPORT

Technical support for online rounds is provided by the StellarXplorers Program Office and temporary staff on every competition week at the times listed below (all times Eastern Time Zone):

1. Thursday: 9:00 a.m. – 9:00 p.m.
2. Friday: 9:00 a.m. – 9:00 p.m.
3. Saturday: 9:00 a.m. – 9:00 p.m.
4. Sunday: 9:00 a.m. – 9:00 p.m.

The primary means of technical support are:

1. StellarXplorers tech support may be contacted via e-mail at competition@stellarxplorers.org
 2. competition@stellarxplorers.org is used to broadcast critical competition information.
-

SCORING

The following rules govern scoring for all online rounds of competition.

1. **Satellite Mission Orbit Planning.** Teams will be scored on the ability to meet the most mission requirements.
2. **Mission Satellite Design.** Teams will be scored on the ability to meet requirements while keeping the satellite design within cost and launch weight limitations.
3. **Satellite Launch Scenario.** Teams will be scored on the ability to meet the most mission requirements.
4. **Academic Quizzes.** Teams will be evaluated on their knowledge of the space science and space operations from selected sections of the *Understanding Space* textbook. The team will answer an online open-book quiz consisting of 20 space-related questions taken from the *Understanding Space* textbook. The quiz is timed (30-minutes) and can be taken by one member of the team or by the entire team. A correct answer is worth 1 point. Therefore, teams can score up to 20 points on the Academic Quiz. The StellarXplorers staff will provide a Study Guide on the Website prior to each Quiz. Results from the testing will count towards the teams' final Online Round score.
5. **Administrative Penalties** Penalties may be applied to teams' scores for conduct violations during the online rounds (See "Online Ground Rules").

COMPETITION STRUCTURE AND ADVANCEMENT

The following is the structure and advancement for the StellarXplorers teams:

- 1. Qualification Rounds.** All teams participate in these rounds. A team's performance in Round 1 does not affect its ability to compete in Rounds 2 and 3. Round 1 will contain the Satellite Mission Orbit Planning. Round 2 will contain the Mission Satellite Design, while the Round 3 will contain the Satellite Launch Scenario.
- 2. Semifinals Round.** At the completion of all three Qualification Rounds, the top 30% of the registered teams, but not less than 30 teams, based on their performances during the Qualifications Rounds, will move on to the Semifinals Round (February). Performance will be weighted in the following manner: Qualification Round 1 - 20% of score, Qualification Round 2 - 35% of score, Qualification Round - 45% of score.
- 3. Round Tiebreakers.** If teams have a tie score that affects advancement to the Semifinals or National Finals, the team with the highest total Qualification Rounds score minus the Academic Quizzes will advance to the next round. If still tied, the team with the highest Qualification Round 3 score advances; if still tied, Qualification Round 2 score; if still tied, Qualification Round 1 score.
- 4. Advancement to the National Finals Competition.** Ten teams will advance to the National Finals Competition based on their Semifinal scores. Performance in the submitted materials for the Semifinal round competition scenario makes up 80% of the final score, and the academic quiz makes up 20% of the final score. Scores from the three Qualification Rounds do not have bearing on moving on to the National Finals Competition.

ALTERNATE COMPETITION TIMES

- 1. Competition Backup Dates** If the StellarXplorers Program Office postpones an online round due to a weather emergency, or any other reason, the competition will take place on a designated date before the next competition round.
- 2. Alternate Team Competition Periods** Through the appeals process, the StellarXplorers Program Office may grant approval for a team to compete on a

mutually agreed upon date before the next online round due to a documented local weather emergency, other act of God, or other reasons.

RESULTS PUBLICATION The results or links to the results of the online rounds will be published in the following media. The goal is to publish the results within five working days after the end of a competition round.

1. The StellarXplorers website: www.StellarXplorers.org
2. Competition round results email from competition@stellarxplorers.org

Team directors will normally receive the courtesy copy of the results email before the results are published on the StellarXplorers website. To allow team directors the opportunity to notify their teams of the round's results, the StellarXplorers Program Office requests that participants do not post the results on social media sites before they are posted on the StellarXplorers website.

ONLINE ROUND RULES

GENERAL

StellarXplorers operates under the premise that all team directors, mentors, team assistants, and competitors conduct themselves with the highest ethical standard. To prevent the perception of misconduct that would jeopardize the integrity of the competition and ensure a fair and equitable competition between all teams, rules have been established to govern participant action during the online rounds. Team directors are encouraged to work with the StellarXplorers Program Office to resolve questions regarding these rules before the competition. The following rules apply throughout the StellarXplorers competition season. Violation of any of the rules may lead to penalties.

TIME RESTRICTIONS

1. **Competition Window** Teams shall not compete outside of the specified competition window of Thursday-Sunday designated for each online round.
2. **Competition Period** The competition period begins at the team's chosen start time and lasts for six consecutive hours. The following rules govern the competition period.
 - a. A team shall have only one competition period to complete ALL scenario tasks for an online competition round. The Academic Quiz can be completed prior to, during, or after the competition period.
 - b. Teams are not allowed to open the e-mail for any reason before they are ready to compete. No "sneak peeks" or tests of the software are allowed.
 - c. The times on the team's computer are for reference purposes only. It is the responsibility of the team to ensure that ALL scenario work is completed at the end of the six consecutive-hour period.
 - d. Technical issues affecting a team's performance will not result in extra time.
 - e. Teams advancing to the Semifinals and National Finals will have all their competition period times reviewed by the StellarXplorers Program Office.

REGISTERED COMPETITORS Only the competitors *REGISTERED* with a team shall compete with that team.

1. Except for the Academic Quiz, no less than two and no more than six competitors may compete for a team in an online round.
2. Teams that do not have all their competitors registered three days prior to Qualification Round 1 **will not** receive competition-related emails for subsequent online rounds.

NO OUTSIDE ASSISTANCE

Competitors are responsible for their team's performance during the competition and may not receive or request assistance outside of each individual team's competitors. Once a competition period begins, team directors, mentors, team assistants, members of other teams, and other non-team members shall not coach, assist, collaborate, or advise competitors until the completion of the competition period. Outside assistance includes direct and indirect advice, suggestions, hands-on assistance, and electronic communication such as email, blogs, forums, Yahoo Answers, and other social media. Team directors, mentors, and team assistants may only assist teams with:

1. Administrative issues before the start of the six-hour competition period.
2. Timekeeping.
3. Local area network outages and other connectivity issues that occur.
4. Dangerous or threatening situations that require adult intervention.
5. Maintain team's scoring data at the end of the competition period.

SHARING OF COMPETITION INFORMATION

Team directors are entrusted with competition round information and should treat them as examination material. Competitors shall share information only within their team space to avoid giving a competitive advantage to other teams. Furthermore, participants shall:

1. Structure a competition space or procedures so that other teams' competitors may not gain useful information or a competitive advantage. In competition areas where competition spaces are in separate rooms, a team's competitors may not enter another team's room, except for extreme circumstances.

2. Strictly limit distribution of StellarXplorers competition and practice materials and software to their teams. Team directors shall ensure that **all** the competition materials are deleted after each round per the competition email. All competition materials distributed by the StellarXplorers Program Office are the property of the Air Force Association, not StellarXplorers participants.
 3. Not share information concerning the competition materials with anyone outside of their team.
 4. Not transfer or cause to be transferred copies of competition materials to persons who are not currently registered StellarXplorers participants. Transfer of the competition materials to non-StellarXplorers participants is a violation.
 5. Team directors shall ensure that competition materials are not transferred outside of their team.
 6. Examples of information sharing violations are:
 - a. Giving information to a team that has not yet competed in each round.
 - b. Posting specific information on the competition or answers on a social networking site, blog, or other website or through text or email even after a round of competition.
 - c. Using competition materials from any prior competition round for training.
 - d. Requesting answers, solutions, or other competition assistance on a blog or social media.
 - e. Sharing information between two teams sponsored by the same organization.
-

Control of the Competition Area

The competition area is where one or more than one team may compete (e.g., school multipurpose room, computer lab). During their competition periods, team members of different teams competing in the same competition area shall not communicate with members of the other teams. If team members are participating virtually, they may neither be in the same room as nor be in communication with

individuals from a different team (e.g., if they have a sibling on a different team competing, chatting online with someone on a different team)

1. In cases where a competition area contains more than one team, team directors and mentors shall take appropriate action to ensure that no purposeful or inadvertent communication or collaboration occurs between teams. Examples of appropriate action include keeping teams as far away from each other as possible, keeping the volume of discussions to a minimum, ensuring that any written notes are only visible to individual teams and independent observers monitoring the competition.
2. Other Spaces. If possible, team directors should arrange a spectator area or other spaces for visitors to watch the competition without interrupting the competitors. Team directors shall ensure that spectators do not interact with competitors in any way that threatens their safety or the integrity of the competition.

ONE INSTANCE PER COMPETITION MATERIAL A team may work on only one instance of each Competition STK Material at a time during an online round.

1. **Shadowing.** Shadowing, following, parallel operations, training, or any other use of a second or more instance of the competition STK material is NOT permitted.
2. **Additional Competition Materials.** Teams may place an additional copy of the Competition STK Material in each round of competition on a backup computer. If the primary computer fails or the original material is corrupted or deleted, the team may use this second computer. Team directors shall ensure that the competition material is deleted after the round of competition.
3. **Re-Opening Competition Material.** A second instance of the competition STK material may be opened only if the original material is corrupted or malfunctions. After verifying that the second instance is not corrupt, the original instance must be closed and deleted. If the original instance is not closed and deleted, the team may be subject to an inquiry and a penalty. The competition period time will continue regardless of time required for opening the new competition material.
4. **Devices used.** Each team may only use two computers during the online rounds. The second computer, in addition to acting as the STK backup, may

be used to perform other activities, such as internet searches or to prepare the team's solution for submission to the Program Office. If team members are participating virtually, the one instance of Competition STK Material rule still applies. One computer may run the material, and screensharing on an online meeting application would be used to collaborate with virtual team members.

INTERNET CONNECTIVITY REQUIRED

Teams are responsible for their own e-mail connectivity as needed for the competition.

Backup Plan. Teams should have a backup plan so that they can still compete in the event of a network failure. Backup plan examples include the pre-arranged use of a library, local business, or a private residence with sufficient adult supervision and deemed safe by the team director.

OFFENSIVE ACTIVITY AND TAMPERING PROHIBITED

Participants shall not conduct offensive activity or tampering against other teams, competitors, the competition system, or non-participants to gain a competitive advantage. Offensive activity includes:

1. Hacking.
2. Interference with another team's ability to compete.
3. Social engineering or posting of false information to platforms including social media, text, chat, email, etc.
4. Tampering with, copying, or modifying components of competition materials or STK software.
5. Tampering with or modifying documents belonging to other participants or the StellarXplorers Program Office.
6. Any other activity aimed at manipulating or deceiving other competitors, the StellarXplorers Program Office, or the Competition Staff.

RESOURCES

1. **Internet Resources.** During Online Rounds, Internet resources such as FAQs, how-to guides, existing forums, and company websites are valid for competition use under the following conditions:

- a. The resource is **free** and access has not been granted based on a previous fee, membership, employment, purchase, credit card, or other monetary instrument.
- b. No token, smart card, common access card, etc., is required to access it.
- c. The resource is publicly and reasonably available to all teams.

2. **Printed Material.** Printed or handwritten reference materials (books, magazines, checklists, etc.) are permitted in competition spaces. Competitors shall choose and collect their team's printed material for the competition round WITHOUT the assistance of team directors, mentors, other teams' competitors, or non-competitors. Competitors are not required to reprint existing material.

3. **Electronic Media and Communication Devices.** Team directors shall ensure that their teams compete without outside assistance through electronic media or communication devices. The following stipulations apply to this rule.

- a. **Electronic Media** Because inconsistent Internet connections among teams may cause a competitive disadvantage, electronic media as defined below may be used in the online competition rounds under the following conditions.

(1) Permitted electronic media is defined as: memory sticks, flash drives, removable drives, CD-ROMs, or other similar storage devices.

(2) Media must be prepared by a team's competitors. Team directors, mentors, other teams, and non-competitors shall not prepare a team's electronic media.

(3) Authorized Documents and Data. Patches, updates, and other Internet resources and software tools authorized in the "Software Tools" paragraph in this document are permitted on electronic media.

(4) Scripts. Only scripts created by the team's COMPETITORS shall be stored on electronic media for the online competition rounds. Scripts created by anyone other than the competitors shall NOT be stored on electronic media or used by competitors during the rounds. However, teams are encouraged not to use scripts. They will NOT be allowed during the National Finals.

- b. **Communication Devices.** Cell phones, smartphones, and other wireless devices are allowed in the competition space but shall NOT be used to communicate in the competition space. Answering and making calls, texting, etc., shall be done outside of the competition space.
 - c. **Staging Resources.** Teams shall not stage or access unauthorized resources on the Internet, networks, systems, servers, storage devices, communications devices, etc. Emailing or otherwise transferring unauthorized tools, scripts, and data to the competition computer via another computer or device is also prohibited. Secure FTP sites may not be used.
4. **Software Tools** Competitors shall set up and use software tools without outside assistance. Internet resource conditions also apply to software tools.
- a. The tool must be searchable on the public Internet with Google and Yahoo search engines. ALL Internet users have access to the tool(s).
 - b. Software listed in the Team Competition Software paragraph in Chapter 3 is authorized for use in the online rounds of competition.
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OVERSIGHT

1. **Oversight Visits to Competition Spaces** Team directors shall allow the StellarXplorers competition team, AFA officials and Air Force officials to visit their competition spaces so that they may observe the conduct of the competition and fulfill their oversight role. An oversight visit does not relieve the team director of their authority and responsibilities for the team.
 2. **Information from a Competition System** During competition, StellarXplorers staff may request information on a team's systems for oversight, competition administration, and troubleshooting purposes. Teams shall provide the Competition Team information on their system(s) when requested.
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INQUIRIES

In cases of apparent violations of the rules listed above or scoring irregularities, the StellarXplorers Program Office may appoint a StellarXplorers Program Office member to conduct an inquiry. The following items may be part of an inquiry.

1. **Competition Material** Materials that involve rule violations or scoring irregularities require special handling of competition data by team directors.

a. **Security** The team director of a team that is the subject of an inquiry or who has team members that are subjects of an inquiry shall secure and take measures to prevent access to the competition materials. Materials shall not be opened, modified, or otherwise tampered with unless requested by the investigator.

b. **Transfer or Upload** When required, the team director shall cause the transfer or upload of the competition materials to a designated location.

2. **Interviews** Interviews conducted in the course of the inquiry may be held inperson, by telephone, or by other means.

3. **Questionnaires** The investigator may request that participants involved in an inquiry respond to a questionnaire concerning the inquiry.

PENALTIES

A team or participant that does not cooperate in an inquiry may incur a penalty to include the disqualification, suspension, or ban of an individual or team as determined by the StellarXplorers Program Office. Any and all of the penalties below may be applied for any violations of the rules in this document.

1. **Minor Penalties** In the event of a minor rule violation, the StellarXplorers Program Office may impose competition penalties on a team including:

- a. Score reduction.
- b. Time disadvantage in future competition rounds.
- c. Invalidation of a team's competition round score.

2. **Disqualification** If the StellarXplorers Program Office rules that a participant or team committed a major rules violation, they may be disqualified. Disqualified participants and teams are ineligible for awards and recognition and are subject to:

- a. **Suspension** The terms and time limit of a participant or team suspension from the competition are at the discretion of the StellarXplorers Program Office.
- b. **Termination** A participant or team is immediately terminated from the StellarXplorers Program for the entire season.
- c. **Ban** A ban is the permanent disqualification of a participant or team from the StellarXplorers Program. It is the most severe administrative penalty that can be imposed. Reinstatement is at the sole discretion of the StellarXplorers Program Office.

3. **Excessive Time** In addition to inquiries, a special review process governs competition times in some circumstances. Teams with qualifying scores for advancement to the Semifinals and National Finals will have their competition period times reviewed for irregularities at the end of all previous rounds.

- a. A team found to have exceeded the six consecutive-hour competition period for ANY of the Online Rounds will be penalized. For example, if a team is found to have taken excessive time in Round 1, the team's score for Round 1 may be less than originally published at the end of Round 1.
- b. Teams exceeding the six consecutive-hour competition period will have their score for that round reduced by 1% for every minute they exceed the six-hour period after a five-minute grace period.

4. **Other Penalties** Other penalties invoked by the StellarXplorers Program Office may affect a team's final score or advancement.

5. **Replacement Teams** If a team advanced to the Semifinals or National Finals Competition is suspended, unable to compete, or banned, a replacement team may be chosen at the option of the StellarXplorers Program Office from the season's competitors. In the event the StellarXplorers Program Office decides to designate a replacement team, the following criteria will be considered:

- a. The team with the next highest qualifying score from the Qualifying or Semifinals Rounds that was not advanced.
- b. If a designated replacement team does not respond with information required for competition or logistics when requested, the StellarXplorers Program Office may revoke the designation of the replacement team.

APPEALS, BACKUP DATE REQUESTS, AND SCORE CORRECTION REQUESTS

Appeals and backup date requests ensure competition fairness by considering unforeseen conditions that impact a team's ability to compete. They are NOT a vehicle for a team to pursue advancement in the competition by other means. Score correction requests allow team directors to contact the StellarXplorers Program Office if he or she believes their team's online round score is incorrect. The following rules apply to appeals, backup date requests, and score correction requests.

1. **Deadlines.** Unless otherwise published by the StellarXplorers Program Office, the following are the deadlines for all appeals and requests to be emailed to competition@stellarexplorers.org.
 - a. **Qualification, Quarterfinals, and Semifinals Rounds.** The deadline is 4:00 p.m. Eastern Time on the second workday after the competition round scores are published.
2. **Originator.** Only the team's team director may originate a team's appeal or request.
3. **Notification of Results.** The StellarXplorers Program Office will email the team director of the results of their appeals and requests.
4. **Format.** The format for appeals and requests can be found in Appendix VII.
5. **Decision Authority.** The StellarXplorers Program Office is the final decision authority on appeals and requests.
6. **Appeals and Backup Date Requests.** The following rules apply to appeals.
 - a. **Grounds Not Considered for Appeals or Backup Date Requests**
 - (1) **Loss of Internet Connection.** Loss of an Internet connection is only a cause for an appeal or backup date request if it was caused by a documented weather or man-made emergency that directly affected a team's ability to compete.
 - (2) **Failure to Receive Competition Email.** Team directors are required to contact the StellarXplorers Program Office if a competition email is not received in a timely manner.

b. **One Appeal per Round.** Teams may only submit one appeal per round.

c. **Proper Documentation.** All appeals and backup date requests must come with appropriate documentation. Examples of appropriate documentation include letters from school principals and news reports outlining school or organization closures.

7. **Score Correction Requests.** Unless a team director can properly document a scoring error, the request will not be considered and the official score will stand.

a. **One Scoring Request per Round.** Teams may only submit one scoring request per round.

b. **Proper Documentation.** The following are examples of proper documentation. A strong score correction request will involve more than one document.

Scores Sheet. The score sheet sent to the team director is the best documentation to prove a scoring error. The sheet may be copied and emailed to the StellarXplorers Program Office.

THE NATIONAL FINALS

GENERAL

The StellarXplorers National Finals is an in-person competition round. A separate document will be published after the Semifinal Round that will cover rules specific to the National Finals. Until this document is released, teams should assume that all rules governing behavior in the online rounds hold unless they conflict with rules in this chapter. Until this document is released, all rules in this chapter take precedence if there is a rules conflict.

GROUPS

The following groups will participate in The National Finals.

1. **Competition Team.** Competition Team includes the StellarXplorers Program Office and Competition Administration Teams that act as referees and system administrators.
2. **National Finalist Teams.** A national finalist team is a team of competitors competing in the National Finals. Teams do not include the team director, mentor, or chaperone.
 - a. **Competitors.** Only competitors previously registered to a team designated as a national finalist team may compete on that team. Combining of teams to make one national finalist team is prohibited. For national finalist teams, team directors shall designate no less than two and no more than six competitors from the registered team members.
 - (1) **Final Designation** Once the deadline has passed for the National Finals Competition team roster submission, the primary competitors may not be changed without the expressed approval of the StellarXplorers Program Office.
 - b. **Team Captain.** Team directors shall designate only ONE team captain per team for the National Finals. Co-captains are not recognized at the competition.
3. **Team director and Chaperone** The team director and one chaperone must attend the National Finals as a member of the team. The chaperone must be of the opposite gender of the team director if the students are not all the same

gender as the team director. If a team director has two or more teams advance to the National Finals, he or she shall act as a supervising adult capacity for only one team. The team director's Verification Official shall appoint a supervising chaperone for the other team(s) that qualifies for the National Finals. Appointed chaperones may have been technical mentors or team assistants if the verification official so chooses. Other attendees wishing to attend the National Finals may do so at their own expense but must coordinate with the StellarXplorers Program Office. Family members and other attendees may not share rooms with the StellarXplorers competitors.

COMPETITION EVENTS. The StellarXplorers National Finals will consist of the following events.

1. The National Finals will consist of a competition scenario combining elements from all three qualifying rounds: Mission Orbit Planning, Satellite Design and Launch.
2. Teams will develop and deliver a PowerPoint presentation discussing the methodology used to solve the competition scenario. This presentation will be verbally presented to the StellarXplorers Competition Team and other officials after the competition period. Teams will be evaluated and scored on this presentation. The presentation score will be included in the team's final competition score.
3. Each team member will complete a "closed-book" academic quiz based on information from the academic textbook. Each team member will work independently of the other team members and cannot communicate with the other member of their team while taking the quiz. Each team members will have 10 minutes to complete the Quiz. The team's score will be based on the average score of the quizzes completed by the team.
4. Other Events. Other National Finals Competition events may be selected by the StellarXplorers Program Office and will be announced when the National Finalist teams are published.

NO ELECTRONIC MEDIA. During the National Finals Competition, *NO* electronic media or communication devices are permitted in the competition spaces.

AWARDS

GENERAL. The Air Force Association (AFA) recognizes excellence in competition and support of StellarXplorers with awards and honors. StellarXplorers sponsors may also elect to recognize teams throughout the competition.

AWARD AUTHORITIES. Only the StellarXplorers Program Office shall approve other awards to be presented at the National Final.

THE NATIONAL FINALS AWARDS

1. **Overall Awards.** The top three teams will receive recognition for their achievements. They will be crowned the National Champion, National Second Place, and National Third Place teams respectively.

Note: Team members must attend the National Finals to receive any awards achieved by the team during the National Finals competition.

2. **National Finalist Medal.** This award is given to all competitors that participate in the National Finals.
 3. **Other Awards.** Sponsors of other National Finals challenges may present awards to the teams with the highest final scores in their events.
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REGION, STATE, AND LOCAL AWARDS PRESENTATIONS Awards may be presented to teams by Region or State AFA representatives, local AFA chapters, or other interested parties or organizations, depending on a team's overall performance.

APPENDIX I

TEAM DIRECTOR AGREEMENT

Volunteer team directors are vital to the success of StellarXplorers. Without team directors' voluntary partnership, StellarXplorers will never be able to expand to schools and students who are eager to participate - and our nation needs. The StellarXplorers team director serves in two roles. The team director (with additional assistance at her/his sole discretion) guides the team through preparation for the competition. As importantly, the team director is a critical member of the StellarXplorers management team who ensures:

1. Access to minor competitors in a way that protects them and respects parental prerogatives; and
2. The integrity of the competition during online and in-person competition. As a StellarXplorers team director, I agree to uphold the highest standards of integrity, sportsmanship, honesty, and good citizenship. I will encourage my team to compete fairly, honestly, and with a constructive attitude that celebrates our successes as well as those of other teams.

ACCESS TO COMPETITORS

1. Coordinate parental notification and permissions to allow their minor children to participate in the program in accordance with the current "StellarXplorers User Agreement and Privacy Policy" published by the Air Force Association.
2. Coordinate and provide permission for any student/cadet to register in the StellarXplorers registration system.
3. Coordinate, arrange, and approve involvement with the team by any "mentor(s)" [technical advisor(s)] or team assistants at the team director's sole discretion, whether in-person or online and whether obtained by any other source.
4. Abide by the StellarXplorers Standards of Conduct attached to this document.
5. Act as the team's single point of contact for the StellarXplorers Program Office.

ACADEMIC PROGRAM

1. Deliver basic space systems training to all assigned competitors as may be reasonably accommodated at the team director's sole discretion. Resources for

accomplishing this training may be found on the StellarXplorers website at www.StellarXplorers.org.

2. Encourage competitors to devote some time to self-study/preparation for the competition.

NOTE: This guidance may seem too flexible, but it is intended to spark creativity. Encouraging competitors to take a central role in team preparation (with adult guidance and involvement) enhances both team cohesion and performance.

COMPETITION MANAGEMENT

1. Select and designate competitors for each competition period. The competitors for any single competition period must be assigned from the competitors registered in the StellarXplorers registration system.
2. Uphold the integrity of the competition by ensuring that no more than six Competitors at a time in any round of the competition and those competitors do not receive assistance from any external source.
3. Ensure that all rules of the competition as described in the StellarXplorers Rules Book and competition emails are strictly followed.

COMPETITION LOGISTICS

1. Coordinate and support all elements of the preparatory training and online rounds, including arranging a competition location and obtaining necessary computer equipment for training/Online Rounds of the competition.
2. Provide feedback to the StellarXplorers management team and coordinate feedback from competitors designed to improve the entire program.
3. Agree to coordinate logistics for the trip with the StellarXplorers Program Office (all expenses except entertainment and personal expenditures will be funded), should the team advance to The National Finals Competition.
4. Agree to accompany the team and be responsible for supervision and guardianship during the travel and onsite at The National Finals Competition.

APPENDIX II

STANDARDS OF CONDUCT

Working with young people can be among the most gratifying and impactful endeavors an adult can undertake, but there are also special responsibilities that must be discharged to prevent harm to the minor. As a StellarXplorers team director, mentor, or team assistant, I promise to strictly follow the rules and guidelines in this StellarXplorers Standards of Conduct as a condition of my providing services to the youth participating in StellarXplorers.

As a StellarXplorers Team director, Mentor, or Team Assistant, I will:

- Treat everyone with respect, patience, integrity, courtesy, dignity, and consideration.
- Insofar as practical, avoid situations where I am alone with an individual minor.
- Use positive reinforcement rather than criticism when working with competitors.
- Refrain from giving gifts to minors without prior written approval from the parents or guardian of the individual.
- Report suspected abuse of any kind to law enforcement, school authorities and the local Child Protection Services agency as required by law; and
- Cooperate fully in any investigation of abuse of minors.

As a StellarXplorers Team director, Mentor, or Team Assistant, I will NOT:

- Smoke or use tobacco products in the presence of minors.
- Use, possess, or be under the influence of alcohol at any time while working with the team.
- Use, possess, or be under the influence of drugs (except for medicines proscribed by a doctor) at any time.
- Pose any health risk to others (e.g., no contact with the team when in a contagious condition).
- Strike, spank, shake, or slap any youth participating in StellarXplorers.
- Humiliate, ridicule, threaten, or degrade any youth participating in StellarXplorers.
- Touch a youth in a sexual or other inappropriate manner.
- Use discipline that frightens or humiliates any youth participating in StellarXplorers; and
- Use profanity in the presence of any youth participating in StellarXplorers.

I understand that any action inconsistent with these Standards of Conduct, or failure to act mandated by this Standards of Conduct, may result in my removal and prohibition from any future participation in StellarXplorers.

APPENDIX III

**HOME SCHOOL PARENTAL/GUARDIAN APPROVAL FOR STELLARXPLORERS
TEAM DIRECTOR**

I the parent/guardian of _____ hereby give my permission for
(Child's Name)

my child's StellarXplorers team director _____ to
(Team director's Name)

have unsupervised access to my child during StellarXplorers activities. I understand that in the absence of a governing body for my home school, that I am the verification official for the background of the StellarXplorers team director and take full responsibility in allowing the team director to interact with my child.

Parent/Guardian Name: _____ Signature: _____ Date: _____

Witness Name: _____ Signature: _____ Date: _____

Appendix IV

SAFETY

Safety and competitor protection are the top priorities of the StellarXplorers Program. A team director should always consider the health and well-being of his team in choosing a competition environment.

Safety and Competitor Protection Requirements. School, organization, and local directives govern the safety and protection requirements of minors and facility standards. Some safety considerations in choosing a competition space are listed below.

- Facility Security
 - Adequate Lighting
 - Emergency Services Available
 - Crime Areas
 - Electrical Safety
 - Vehicle Safety
 - Trip Hazards
 - First Aid Kit
- Slip areas caused by ice, snow, water, petroleum products, etc.
- Unsupervised access to competitors by other adults in public facilities

Team directors should mitigate any safety issues through remedial action or warnings to competitors and mentors.

Reporting. In the event of an accident or other incident involving competitors in a StellarXplorers event; school, organization, and local reporting procedures shall be followed. After notification of proper local authorities, team directors should notify the StellarXplorers Program Office following a significant incident at a StellarXplorers event. Incidents of interest to the StellarXplorers Program Office are:

- Competitor who is a missing person last seen at a StellarXplorers event
- Injured competitor requiring hospitalization.
- Criminal act against a competitor, team director, chaperone, mentor, competition team, or StellarXplorers supporter
- Severe weather or natural disaster that could negatively affect the competitors or competition.

Reports to the StellarXplorers Program Office can be transmitted via email to competition@stellarxplorers.org.

Appendix V

TEAM DIRECTOR ALTERNATE REQUEST

Team directors ensure that minors participating in the competition are protected and that parental prerogatives are respected. A team director Alternate is expected to assume the team director's responsibilities of protecting of minors and preserving the integrity of the competition by ensuring that all competitors conduct themselves in a fair, ethical, and sportsmanlike manner. Team director alternate requests may be submitted to competition@stellarxplorers.org in the following format.

***From (Team director's Information)**

Last Name:

First Name:

Team Number:

Email Address:

School Name/Organization Name:

Team director's Contact Telephone Number:

*Must match information on file with the StellarXplorers Program Office.

I will be unable to participate in the StellarXplorers competition during Enter Round of Substitution.

I request that StellarXplorers competition-related email be sent to my team director Alternate (*NAME OF TEAM DIRECTOR ALTERNATE*) for this round.

Below is his or her contact information:

Email Address:

Contact Phone Number:

I certify that (*NAME OF TEAM DIRECTOR ALTERNATE*):

Agrees to the team directors' Agreement and Standards of Conduct in the StellarXplorers Rules Book.

Appendix VI

COMPETITOR CODE OF CONDUCT

1. I will consider the ethical and legal implications of my actions every time I participate in StellarXplorers.
2. I will not conduct, nor will I condone, any actions that interfere with another team's or individual's computer system.
3. I will not illegally copy or distribute software or other intellectual property.
4. I will not visit inappropriate Web sites while preparing for or participating in StellarXplorers.
5. I will not participate in or condone cyberbullying which includes such behaviors as teasing, threatening, intimidating, humiliating, sexual harassment, racial harassment, and stalking.
6. I will follow the StellarXplorers rules of competition and will accept appropriate guidance from my team director.
7. I will not tamper with, modify, or attempt to manipulate any element of the StellarXplorers competition or scoring systems.
8. I will not attempt to deceive, hoax, or "prank" other teams by forwarding or posting erroneous or deceptive information on the Internet, by email, or on social networking sites.
9. I understand that violation of this code of conduct is grounds for my immediate dismissal from my team and the disqualification of my team from StellarXplorers competition.
10. I will strive to use my participation in StellarXplorers to further my understanding of America's role in space.

Appendix VII

APPEAL AND BACKUP DATE REQUEST FORMAT

All Requests and Appeals should be sent to competition@stellarexplorers.org. For more information, see "Appeals, Backup Date Requests, and Score Correction Requests".

From: (Team director's Email Address)

Sent: (No later than deadline, Eastern Time)

To: competition@stellarexplorers.org

Subject: Appeal: (School or Organization Name) (Team Number) (State/Territory/Province)

1. **Subject of Appeal.** (One Sentence)
2. **Requested Action.** (One Sentence)
3. **Originator.** (Team director's Name)
4. **Facts Bearing on the Appeal** (One fact per subparagraph. Facts must answer the 5Ws.)
 - a.
 - b.
 - c.
5. **Additional Comments.** (Limit 100 words)
6. **Supporting Attachments.** (Limit two. Official documents and scoring data provide the best documentation.)
 - 1.
 - 2.

Appeal or Request Example

From: Shur, Ima [mailto:Ima.Shur@metro.nyschools.us]

Sent: Friday, December 15, 2018 3:48 PM

To: competition@stellarexplorers.org

Subject: Appeal: Metro High School 05-7766 NY

1. **Subject of Appeal.** Power Outage Prevented Metro High’s Participation in Round 2.

2. **Requested Action.** To Reschedule Round 2, StellarXplorers Competition.

3. **Originator.** Ima Shur

4. **Facts Bearing on the Appeal**

a. At approximately 3:00 pm EST, Friday, December 15, 2018, the Metro High School team setup for Qualification Round 2.

b. At approximately 3:30 pm EST, Friday, December 15, 2018, a snowstorm caused a power outage that shutdown our school’s computer network, until Monday, December 18, 2018.

c. The Metro High School Principal, Dr. Baker, ordered the school closed at approximately 4:00 pm and sent home all people remaining in the school. (See Attachment 1.)

d. Due to the time of day, my team was unable to move to a nearby location to continue the competition.

e. Travel on Metro area roads was becoming dangerous, so I sent the team members home. (See Attachment 2, News Story, 5th paragraph).

f. I contacted the StellarXplorers Program Office at approximately 4:00 pm, Friday, December 15, 2018, and told them, that my team could not participate in the Round 2 of the StellarXplorers Competition.

5. Additional Comments (Limit 100 words). Any consideration you can give our team would be appreciated. We scored 5th overall in Round 1 and I am sure that we would have done as well or better in Round 2. If there is anything I can do to allow the Metro High School team to re-compete in Round 2, please let me know.

6. Supporting Attachments (Limit 2)

a. Letter from Principal Baker

b. News Article

Appendix VIII

SPONSORS AND SPONSORSHIPS

The Air Force Association and its StellarXplorers Program take great care in the branding of StellarXplorers. Our sponsors must have common values with the Air Force Association and make a significant contribution to the StellarXplorers Program before they can be associated with the program.

National Sponsors.

Our national sponsors provide the resources to sustain the StellarXplorers Program across the United States. According to their sponsorship level, StellarXplorers' national sponsors earn recognition in StellarXplorers events, as well as name association with StellarXplorers. StellarXplorers literature and other media contain the sponsors' logos. National sponsors conduct their sponsorship through the StellarXplorers Program Office.

Local Team Sponsors.

Local sponsors may sponsor specific local teams but may not use the StellarXplorers Logo in their advertising. If a team advances to the National Finals Competition or is involved in another event other than a team competition, the team shall not use the local sponsor's name, logo, or other identifying characteristics.

If you know of anyone interested in becoming a StellarXplorers national sponsor or if you want to know more about sponsorship, please visit our website at www.StellarXplorers.org or contact the StellarXplorers Program Office by email at competition@stellarxplorers.org.

Appendix IX

STELLARXPLORERS MEDIA GUIDELINES

StellarXplorers is a great opportunity for your high school or organization, such as JROTC, USNSCC, and CAP, to draw local and state media coverage. Television stations, newspapers, and radio stations are generally interested in good stories of youth doing good things, and StellarXplorers is a terrific example of that.

We encourage you to work through your school administration or unit public affairs representative when handling any media inquiries.

We also ask that you adhere to the following guidelines:

- StellarXplorers should be written as one word, with a capital "S" and a capital "X"
- At its first mention, the complete title of the program should be used: "StellarXplorers -The National High School Space Challenge"

In every release or interview please ensure the following is communicated:

- StellarXplorers was established by the Air Force Association.

Any use of the StellarXplorers logo or other collateral must be approved by the StellarXplorers Program Office. Use of the logo and the name, "StellarXplorers" must conform to the branding guidelines found on <https://www.afa.org/content/dam/afa/logos/StellarXplorersBrandingGuide.pdf>.

National media inquiries may be directed to the Air Force Association at competition@stellarxplorers.org.