



Language Guideline for Proposal Writing

Below are some examples of potential responses to use in a funding proposal. Feel free to cut and paste or adapt any of these responses to specific proposal questions. You can **personalize** the response as it relates to your own district, school and/or classroom with specific references to your own needs and plans for implementation of Starlab. Areas that will need your personalization are highlighted in red.

Project Description:

To achieve our vision “to provide a superior education for every student” and our mission “to achieve high levels of learning that lead to college or career readiness,” our teachers have identified an essential S.T.E.M. resource that will immerse all students in engaging and interactive Earth & Space Science virtual reality experiences using 21st century technology and real world applications in ways never before imagined by our educators. This resource is StarLab, a state-of-the-art, mobile planetarium package that takes our students beyond the classroom walls and immerses them in virtual reality Earth, Space & Life Science field trips without having to leave their campuses. Because it is portable, StarLab is available to and will travel to all **{twelve}** of the district’s campuses. With so much to explore in the massive night sky or even in one tiny biological cell, the StarLab planetarium offers endless opportunities to expand our curriculum, all while meeting NGSS standards and the new **{Tennessee}** Science Standards. And, it can be used again and again as a learning tool to fully engage our students.

StarLab will enable our teachers to bring Earth & Space Science to life in ways never before imagined. This resource enriches the learning experience of all learners and enables students to reach their Earth & Space Science curricula objectives while opening the door to STEM career opportunities. StarLab relates to students and the sciences of their times. We are in an era where innovation and creativity is needed in our state, country and around the world. The rapidly expanding space program, both in the private and public sectors, has produced resources relevant and engaging to our 21st century learners. With StarLab, we can ignite student passion for science and STEM careers without leaving our campus. When students can connect curriculum to real life situations, they take these experiences and hold on to them their whole lives.

Goals and Objectives:

Starlab will empower teachers to successfully implement the new **Tennessee** Science Standards. These new standards are formulated in the cutting-edge Three-Dimensional Learning Framework (Practices, Crosscutting Concepts, Core Ideas) as outlined by the Next Generation Science Standards. This approach to science education describes a vision of what it means to be proficient in science and thus prepared for 21st century S.T.E.M. careers.

Students who experience multiple StarLab programs will also be engaged in developmentally appropriate content that cultivates a deeper understanding of abstract scientific concepts and encourages further exploration of scientific content. StarLab gives teachers an essential resource to help meet the levels of progression of Earth, Space and Life Science as described by the **Tennessee** Academic Standards for Science.



Our Starlab Program goals are (examples):

- Each school (69 Elementary & Middle Schools) will have StarLab for a full week to enable every student the opportunity to experience StarLab at least once during the school year;
- A cadre of teachers in each building will be trained to operate StarLab and will skillfully guide students through the various programs in geology, space and astronomy, and life sciences;
- Through the use of the StarLab system in conjunction with classroom instruction, we will increase student achievement levels by 15% in Earth & Space standards as evidenced through end of unit assessments, quarterly assessments, and Florida Statewide Science Assessment data by the end of May 2020.
- In order to help close the achievement gap, we would prioritize sign-ups for our struggling schools to provide an experience these students may never see otherwise.

Elementary School Progression:

The elementary science progression is designed to capture the curiosity of children through relevant scientific content. Children are born investigators and have surprisingly sophisticated ways of thinking about the world. Engaging a young scientist with the practices and discipline of science is imperative in all grades but essential in grades K-5. It is important to build progressively more complex explanations of science and natural phenomena. Children form mental models of what science is at a young age. These mental models can lead to misconceptions, if not confronted early and addressed with a scaffolding of science content. It is the goal of elementary science to give background knowledge and age appropriate interaction with science as a platform to launch into deeper scientific thinking in grades 6-12.

Middle School Progression:

Integrated science is a core focus within the middle school grades, and therefore, Disciplinary Core Ideas and their components are mixed heterogeneously throughout grades 6-8. Middle school science has a standards shift that more appropriately reflects content with crosscutting concepts as opposed to concentrating on topics as discrete notions in isolation. This is accomplished both within and through the grade levels by scaffolding core ideas with fluidity, relevance, and relatedness. Middle school teachers recognize that learning develops over time, and learning progressions must follow a clear path with appropriate grade-level expectations.

High School Progression:

When students enter high school, they will have experienced a broad, interdisciplinary science education as they progressed through grades K-8. The notions defined in the K-8 science standards will frame this experience. The high school progression will continue on this path and further embed themes of mathematics and english language arts into the science standards. The progression of science education in high school acknowledges and complements the cognitive development of the student.

Project Activities:

With the StarLab interactive experience as a learning tool, teachers will engage students with a wide range of lessons, including science, history, geography, mythology and astronomy. All of the scientifically-accurate materials and curriculum are designed and reviewed by teachers with their specific needs in mind and meet current Next Generation Science Standards (NGSS). Easy-to-follow manuals, hands-on activities, topic discussions, educator guides and more empower teachers to immerse their students in Earth, Space and Life Science curriculum in ways never before imagined.



StarLab is a key portal through which students and teachers alike use their collective imaginations to improve instruction and increase learning through interactive lessons. Imagine a geology or astronomy experience where:

- Interactive lessons in astronomy, geology, history, weather, mythology and biology are taken to an entirely new level of engagement;
- Students are more involved in the lesson and better equipped to retain important information - all aligned with state and national standards;
- Visual representations of the stars, the planets and other subjects are in a dynamic space that naturally invites exploration;
- Student passion for science and S.T.E.M. careers can be ignited and connected to real life situations;
- Students are engaged in their learning, and teachers are passionate about teaching.

Expected outcome:

StarLab specifically targets and enhances teacher instruction and student learning in **EARTH AND SPACE SCIENCES (ESS)** and **LIFE SCIENCES (LS)** across all grades Pre-K through Twelfth Grades. Students will know:

EARTH AND SPACE SCIENCES (ESS)

1: Earth's Place in the Universe

- A. The Universe and Its Stars
- B. Earth and the Solar System
- C. The History of Planet Earth

2: Earth's Systems

- A. Earth Materials and Systems
- B. Plate Tectonics and Large-Scale System Interactions
- C. The Roles of Water in Earth's Surface Processes
- D. Weather and Climate E. Biogeology

3: Earth and Human Activity

- A. Natural Resources
- B. Natural Hazards
- C. Human Impacts on Earth Systems
- D. Global Climate Change

LIFE SCIENCES (LS)

1: From Molecules to Organisms: Structures and Processes

- A. Structure and Function

2: Ecosystems: Interactions, Energy, and Dynamics

- A. Interdependent Relationships in Ecosystems
- B. Cycles of Matter and Energy Transfer in Ecosystems
- C. Ecosystem Dynamics, Functioning, and Resilience
- D. Social Interactions and Group Behavior

3: Biological Change: Unity and Diversity

- B. Natural Selection
- C. Adaptation
- D. Biodiversity and Humans



Plan for Measuring Project Results:

The **Tennessee Comprehensive Assessment Program** has been the state's testing program since 1988, and includes **TNReady** assessment in science. Student scores on the science portion will be monitored and compared each year to gauge the effectiveness StarLab has on achieving our Earth, Space and Life Science curriculum objectives. (**Reference any state and/or local testing that can be monitored for improvement**)

Since StarLab will need to be signed out by teachers, we will be able to track exactly how many and which kind of experiences teachers are using, the number and grades of students participating in each experience and monitor StarLab's use at school events and how many families experience StarLab.

Each teacher using StarLab in his or her curriculum will complete a survey to help us monitor its value as an essential S.T.E.M. resource.

In Closing:

StarLab will provide a portal that permits students and teachers alike to use their collective imaginations to improve instruction and increase learning through interactive lessons. Imagine a classroom experience where:

- A "field trip" inside the building can bring Earth & Space Science to life in ways never before imagined
- Interactive lessons in astronomy, geology, history, weather, mythology and biology are taken to an entirely new level of experience for students and teachers
- Students are more engaged in the lesson and better equipped to retain important information...all aligned with national standards
- Visual representations of the stars, the planets and other subjects are in a dynamic space that naturally invites exploration
- Students are motivated to learn because they are actively engaged, not just a passive receiver of instruction
- Student passion for Science and STEM careers can be ignited without leaving our campus...and they can connect curriculum to real life situations
- Students are excited about learning... and teachers are excited about teaching

This is the interactive experience we imagine at **{Insert Name of Your School}**. When students experience STEM education directly, they are more engaged, more motivated, and achieve more. Starlab provides an opportunity to bring a variety of science experiences to life for our school community. It is like taking a field trip without leaving school....and can be repeated again and again. It is an engaging and empowering environment where teaching and learning is a shared adventure.

StarLab would not only be an amazing learning tool for all ages, it will also give our students and families richer S.T.E.M. experiences that will result in deeper connections and retention of abstract concepts. Immersing our students in new and advanced learning opportunities such as StarLab will not only inspire them to be excited and engaged in their learning, but it will stimulate their out-of-the-box engineering design skills and empower them to see themselves as leaders in our community and for the future. When students experience S.T.E.M. education directly, they are more motivated and achieve more.



StarLab provides an opportunity to bring a variety of science experiences to life for our students and community. And, it can be repeated again and again. StarLab is all about inspiration and possibilities!

Starlab will provide more engaging, immersive S.T.E.M. experiences that few of our students would receive otherwise. It will engage them in a real-life way of learning in this rural and economically challenged community. Hopefully, this experience will be the catalyst that sparks that passion in the next astronomer or geologist or environmentalist from {Insert Name of Your School or Town}. StarLab is all about possibilities! Its potential impact throughout {Insert Name of Your County} over the next decade and beyond is priceless. This one-time purchase will provide a sustainable technology that will be used by students, teachers, parents and community members for years to come. Thank you for reviewing this proposal, and we look forward to working with {Insert Name of Funder}. Certainly, any help and consideration at this point is greatly appreciated by our staff and more importantly, our students.