

2017 - 2018 STEM Challenge at Discovery Park of America

OVERVIEW:

Opened in 2013, the Discovery Park of America has quickly established itself as a premier destination for both families and schools. Since opening, over 900,000 guests have visited the park. Located in rural North West TN, one of the biggest challenges facing Discovery Park is the need to create new events and attractions that will keep the local population interested in making multiple visits as time passes.

Anticipating this need, park officials built a temporary exhibit hall into their main facility, the Discovery Center. The ATA Traveling Exhibit Hall is a 4000 square foot space, built to Smithsonian standards for artifact care and preservation. In the spring of 2015, Discovery Park hosted *Titanic: The Artifact Exhibition*. In the spring of 2016, the park hosted *Bodies Revealed*. Traveling exhibits are now booked through 2020!

Park officials also have long term plans to develop and build traveling exhibits that would first be displayed at Discovery Park of America, and then marketed to other institutions for display in their traveling exhibit halls and temporary exhibit galleries. Your challenge is to design a traveling exhibit for the Discovery Park of America!

The Northwest Tennessee STEM Innovation Hub (part of the Tennessee STEM Innovation Network) is committed to helping inspire and train the next generation of STEM leaders by working with local educators in both primary and higher education, business partners, and community stakeholders to accelerate the impact of STEM programs throughout the region.

To begin the challenge, you'll first need to familiarize yourself with what is already on display at the park. You can find a list of the current exhibits at discoveryparkofamerica.com/exhibits. Participating teams will also be invited to the park to view everything first hand. Challenge number one is to land on an idea for something Discovery Park officials haven't already done!

Mission Space – The first ever temporary exhibit at Discovery Park of America, January 2013





Once you've settled on a theme for your exhibit, you'll be ready to begin the design. As you complete this challenge, you will explore several aspects of STEM:

Science

- Is your traveling exhibit going to be scientifically themed? If so, what discipline of science will you be presenting? What specifics of that discipline will be included in your displays?
- Is your traveling exhibit going to be based upon historic events or cultural ideas? If so, there is still going to be science involved! How do you preserve a 19th century garment, 6th century stone tool, 14th century manuscript, 18th century painting, or 20th century consumer electronics? All things deteriorate over time; part of every museum's mission is to preserve them for future generations to enjoy.

Technology

- Displays often consist of two things, artifacts and interpretation. Interpretation is the term used to describe texts and images presented to explain artifacts to visitors. You'll need to develop interpretive graphic panels for your exhibit. What technology will you use to accomplish this task?
- Displays need to be presented to the public in the best possible lighting. What kind of systems will you use to do this?
- Your exhibit must include at least one interactive display. What technology will you use to allow visitors to engage with the material presented? (Remember, technology includes everything from simple machines like pulleys and levers to the newest touch-screen computers; the possibilities are endless!)

Engineering

- Except for the artifacts on display, everything in a Traveling exhibit needs to be built or assembled! What materials will you use for signage? What materials will you use for display cases? If an artifact weighing 500 lbs is on display, how will you keep it firmly secured in place at ground level? How will you safely display it at eye level?

Math

- Your exhibit plan will need to fill 2000 – 4000 square feet of space. How much room will you dedicate to graphic panels? How much space will you reserve for cases? How much space will you need reserved for "back of house" operations such as lighting control or server storage?
- Visitors need room too! How much floor space will be reserved for foot traffic? How many visitors will be able to safely and comfortably enjoy your display at one time?
- Building things costs money! What is the budget for your exhibit? How much will you allot for artifact acquisition? How much for construction? You're going to have to create a budget to complete the challenge.

STEM Education is about much more than the interconnected disciplines of Science, Technology, Engineering, and Math, though. STEM Education is way to prepare you for a future in the workforce. To succeed in this STEM challenge, you'll need to work as part of a team with a variety of people, across a variety of disciplines, exactly as you will need to do in the real world!

The Discovery Park Staff includes exhibit designers and fabricators, artists, subject matter experts, maintenance workers, IT professionals, educators, marketing professionals, event planners, accountants, administrators, and more. Without everyone working together as a team; Discovery Park could not have been built and could not operate from day to day!

The winning team of the inaugural challenge consisted of over 30 students. These students had to work together to create their vision for a traveling exhibit.

THE CHALLENGE:

(ROUND 1): Design a 2000 – 4000 square foot traveling exhibit for the Discovery Park of America.

To enter, teams must submit their plan in a three ring binder. To be considered valid, all entries must adhere to the following requirements:

Exhibit Requirements:

- Exhibit Narrative
 - A good exhibit tells a story. What story is your exhibit going to tell? An exhibit narrative must be included with your design.
- Display must be artifact driven
 - Include a plan of acquisition for the artifacts
 - Reproductions and props are permissible
- Include at least one interactive
 - An interactive is something that visitors *do*
- Interpretative Graphics
 - You must develop an overall design and at least 3 graphic samples for your exhibit. Your design must Include a color scheme, font choices, hierarchies of information, and intended final construction materials. The 3 samples must include:

- Introductory Panel

- Welcome visitors into the exhibit, explain to them what they are going to be viewing and why it is relevant to their lives.

- 2 Interpretative Panels

- Without interpretative panels visitors may not know what they are seeing! Explain to visitors what is on display and why it is relevant to the story you're telling.



An interpretative panel from the *Mission Space Exhibit*



Design Requirements:

- Flexibility
 - Your design must be adaptable to a variety of spaces of different sizes and shapes.
- Mobility
 - Your design must include a plan for travel. The displays and artifacts will need to be able to be packed for safe shipping to different locations.
- Visitor Traffic
 - Your plan must include a suggested traffic flow for visitors and adhere to ADA requirements for accessibility
- Security Concerns
 - Your plan must include a way to address the physical security of artifacts and the safety of visitors.
- Lighting
 - Your plan must include a lighting plan that works to present the display as attractively as possible to the public while also ensuring that no artifacts are damaged by exposure to light.
- Sound
 - Background music and sound can be used to greatly enhance the visitor experience. Include a plan for the use of ambient music, environmental sounds, or other sounds to that will help immerse visitors in the display.

Additional Requirements:

- Marketing
 - Without marketing, how will the world know about your exhibit? You'll need to develop a plan to market your exhibit to the public and a separate plan to market your exhibit to other institutions.
 - A name! A catchy name that is easy for people to remember is key in the marketing of any product.
- Education
 - Traveling exhibits typically come bundled with resources for teachers and educators. You will need to develop at least one lesson plan for school teachers based on the exhibit and one educational program for the public.
- 2D Representations
 - All submissions must include a 2D representation of the exhibit design

(Round 2): Discovery Park staff will review all entries and make selections for Round 2 of the challenge; the construction of a 3D model of your design and present your ideas to a panel of Discovery Park Staff and STEM Educators.

- 3D Model Requirements
 - Model must be built to scale
 - Models may be constructed of ANY material or materials.
- Presentation Requirements
 - 15 minute presentation, ANY multimedia or visual materials may be used.



ELIGIBILITY

Participants are limited to one team per school. Scout troops, youth groups, and other organizations may enter as a team. Registration is open to schools and organizations located in all of West Tennessee and Southwest Kentucky (Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, Marshall, and McCracken Counties).

MISC RULES & RESTRICTIONS

- Teachers and other adults may serve as advisors, but all team members must be 18 years of age or younger.
- All entries become the intellectual property of Discovery Park of America.

TIME LINE

- September 14, 2017
 - Information Session for Teachers, 4:00 – 5:00 PM at Discovery Park of America
- October 13 and 20, 2017
 - Open House for Challenge Teams at Discovery Park of America
- February 2, 2018
 - All entries must arrive at Discovery Park of America no later than 5:00 PM
- February 9, 2018
 - Participants selected for advancement to round 2 will be notified.
- March 23, 2018
 - The Final Round! All teams selected for participation in round 2 will present their models and ideas at Discovery Park of America.

PROCEDURE

- Register at the Discovery Park of America website;
www.discoveryparkofamerica.com/education/STEMChallenge
- Challenge teams will be invited to visit the Discovery Park of America for the STEM Competency Challenge open house to view existing exhibits and meet with park officials.
- After round 1 submissions have been made, park officials will review all entries and notify those who have been selected for round 2 of the challenge.
- Round 2 participants will be invited to Discovery Park to present their ideas, and winners will be announced.

PRIZES

- First Place - \$500
- Second Place - \$300
- Third Place - \$200



EVALUATION

Evaluation is based on points earned for the notebook, the design process, the architectural model, and the round 2 presentations. Registered teams will be provided a copy of the complete evaluation rubric.

QUESTIONS

Please submit all questions to education@discoveryparkofamerica.com.