BATTLE OF THE BRAINS IS BACK!
SIGN UP TODAY
KANSAS CITY'S SCIENCE CENTER

SCIENCE CITY

AT UNION STATION
The Impact

- $6,000,000 benefiting our science center
- $465,000 grants to schools
- 11,000+ students
- 800+ employee-owner involvement
- 80% visitor increase at Science City
With Burns & McDonnell Battle of the Brains, your team can earn a piece of $155,000-plus in grants for STEM education at your school by dreaming up an exhibit concept for Science City — and one school sees their idea come to life in a big way!

$155,000+ IN GRANTS.

Burns & McDonnell Battle of the Brains is Kansas City’s most exciting K-12 STEM competition. So far, more than 11,000 students in 50 school districts have benefited from this immersive educational opportunity.

THERE IS NO LIMIT TO THE NUMBER OF ENTRIES A SCHOOL MAY SUBMIT. The same teacher may lead multiple teams. Each team should have a maximum of two co-leaders. While there are no defined limits on team size, learning objectives diminish with teams of more than 20 students. Each team must design a STEM exhibit focused around a single topic or main idea of your choice.

ENTRANTS MUST:

- Be full-time K-12 students.
- Be currently enrolled in and attending a public, private, parochial or home-based school in any of the following counties:

Burns & McDonnell
Battle of the Brains
Competition Criteria

- CREATIVITY & INSPIRATION: 30 points
- SOCIAL MEDIA: 5 points
- INTERACTIVE EXHIBIT ENGAGEMENT: 35 points
- CONSTRUCTABILITY: 10 points
- VISUAL & WRITTEN PRESENTATION: 15 points
- STUDENT INVOLVEMENT: 5 points
School Grants

- $50,000
  THE BEST BRAIN IN BATTLE
- $25,000
  THE GLADIATOR
- $20,000
  THE SPARTAN
- $15,000
  THE WARRIOR
- $10,000
  THE GUARDIAN
- $2,500 x 10 school groups
  THE CHALLENGER

The grand prize winner will also be awarded the opportunity to work with architects, engineers, construction managers, graphic designers and researchers to bring their ideas to life at Science City!
JUDGING PROCESS

Battle of the Brains is judged using a rigorous three-step process.

ROUND 1
Burns & McDonnell and Science City screen all entries for compliance.

ROUND 2
The entries are judged by STEM professionals from Burns & McDonnell and Science City. The judges evaluate and rank the entries according to the criteria. Ten teams from each division (elementary and secondary) will be elevated to the top 20. Once in the top 20, all teams will be evaluated against each other regardless of division. The judges’ ranking of the top 20 accounts for 70 percent of the final rankings.

ROUND 3
Public votes from Nov. 17-24 on the remaining 30 percent of rankings at battleb.com. Anyone here or across the country with a valid email address can vote.

PUBLIC VOTE SIDE NOTE:
The public vote will affect the final rankings. Getting out the vote can make a difference!
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<th>Event</th>
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<tr>
<td>Now - 9/8</td>
<td>SIGN-UP</td>
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<tr>
<td>8/2 - 8/30</td>
<td>ATTEND A BATTLE PLAN TEACHER INFO SESSION</td>
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Submittal

1. Four page PDF proposal
2. Two minute video
Rubric

- Creativity & Inspiration: 30 points
- Interactive Exhibit Engagement: 35 points
- Social Media: 5 points
- Constructability: 10 points
- Visual & Written Presentation: 15 points
- Student Involvement: 5 points
ENTRY CHECKLIST

Your Burns & McDonnell Battle of the Brains submission should have three components.

An otherwise extraordinary entry could be disqualified if it doesn’t follow the rules. Use this checklist to help you submit a qualified entry. It’s smart to ask someone who hasn’t been involved in the preparation to check your entry for compliance.

1. Online Entry Form:
   - You entered the online entry form information on the competition website. This is the only place this information should be included to ensure a valid proposal.

2. Proposal PDF:
   - Is no more than four single-sided pages.
   - Is no larger than 10 MB.
   - Addresses the rubric criteria, organized in the order presented in the rubric.
   - Has no identifying school information. (Remember, blind proposal)
   - Is in English.
   - Is on letter-sized paper (8.5 x 11 inches) with 1-inch margins on all sides.
   - Uses a standard font no smaller than 10 points.
   - Includes at least one drawing or sketch of your exhibit. There is no limit to how many drawings and sketches you may include as long as your PDF doesn’t exceed four single-sided pages.

3. Video:
   - Describes your exhibit.
   - Is no longer than two minutes.
   - Is in one of these formats: .mp4, .mov or .flv.

These elements must be entered and uploaded at battlebics.com by 3 p.m. Central Time on Oct. 25.
Join the battle!
Battling with a victory in mind

1. What judges WANT to understand
   a) Creativity and Inspiration
   b) The Big Idea translated well
   c) Student STEM warriors

2. What students experience
   a) Becoming an expert
   b) Working as a Battle team

3. What happens in the classroom
   a) Thinking big beyond the text
   b) Integrating across the curriculum (PBL)
Warriors with an Idea (2015)

- **Camp STEM...Science, S'Mores and More** -- Christine Garrett (Rosehill Elementary -- Shawnee Mission)
- **Survive!** -- Dustin Springer (Valley Park Elementary -- Blue Valley)
- **Ants Enlarged: Learning from Ants** -- Julie Goldsberry (Bell Prairie Elementary -- North Kansas City)
- **Let's Get Ready to Rumble** – Jennifer Medina (Cordill Mason Elementary -- Blue Springs)
- **How it Works: Backyard Science** -- Jennifer Ford (Stilwell Elementary -- Blue Valley)
- **It's All in Your Head** – Barbara Noble (Longview Farms Elementary – Lee’s Summit)
- **Road Ready: The Science of Bridges & Byways** – Emily Storm (Bonner Springs, Delaware Ridge, Edwardsville Elementary – Bonner Springs)
- **Uniquely Kansas City** – Michael Torkelson (Highlands Elementary – Shawnee Mission)
- **Mission to Saturn** -- Lauranne Hess (Green Springs Elementary – Olathe)
- **Not-So-Simple Simple Machines Playground** – Jenny Reidlinger (Mason Elementary – Lee’s Summit)
Warriors with an Idea (2015)

- **Know Your Enemy** -- *Jessica Quiason* (Oxford Middle – Blue Valley)
- **Living in a Material World** -- *Jennifer O’Gorman* (Olathe Northwest High – Olathe)
- **Cultivating the City** -- *Glenda Ann Connelly* (Pleasant Ridge High – Easton)
- **A Bug's Eye View** -- *Michelle Humphrey* (Pleasant Hills Middle – Pleasant Hill)
- **Liftoff! KC** -- *Pamela Gove* (Gardner Edgerton High -- Gardner Edgerton)
- **Nature's Fault** – *Paul Rutherford* (Summit Technology Academy – Lee’s Summit)
- **Newton's Playground** – *Michelle Humphrey* (Pleasant Hills Middle – Pleasant Hill)
- **Simple Six** – *Larry Reynold* (Drexel High -- Drexel)
- **Every Which Wave** – *Amy Clement and Rhonda Reist* (Olathe North High -- Olathe)
- **Electri-City** – *Adam Arnold and Mary Cummings* (Belton High -- Belton School)
Making a Battle Plan ~ The Idea

What the students wrote:
Most of the inspiration for our idea of insects and flowers came to be when a couple of students in our class suggested insects as a topic. When someone mentioned ants and ant hills most of the students agreed, though some students still disagreed because the idea was very broad and unpolished. We started looking at other outdoor science exhibits and we ran across a picture of a giant blade of grass in a park. That was the spark for the “Bug’s Eye View.”

What the judges wrote:
• The main idea -- bugs -- is a critical subject for future.
• The exhibit would be a great opportunity to bring landscape education into the heart of the city.
Battle Tactics – the Classroom Perspective

- Allow students to take ownership of their idea – from start to finish.

- Students have to collaborate, use real-life skills, recognize the strengths of the individual and incorporate effective project management.

- The Battle incorporates the entire curriculum – from standards to effective communication.
Battle Tactics – the Classroom Perspective
Describing an Idea - Hive

Hive explores how a structure can modify and reflect sound, light, scale, and human interaction. Hive’s smaller chambers feature tubular instruments ranging from simple drum-like tubes to chimes suspended within the space. Each chamber has a unique acoustic properties that will affect the instruments’ tone, reverberation, and reflection as well as visitors’ perceptions. The large main chamber is topped by a soaring dome that filters the natural light of the Great Hall and creates intricate light and shadow patterns in the space. Just outside the installation, Philadelphia-based design educator Alex Gilliam’s notched cardboard Build It! Disks provide a hands-on cooperative building activity.

Soaring to the uppermost reaches of the Museum, Hive is built entirely of more than 2,700 wound paper tubes, a construction material that is recyclable, lightweight, and renewable. The tubes vary in size from several inches to 10 feet high and will be interlocked to create three dynamic interconnected, domed chambers. Reaching 60 feet tall, the installation’s tallest dome features an oculus over 10 feet in diameter. The tubes feature a reflective silver exterior and vivid magenta interior, creating a spectacular visual contrast with the Museum’s historic nineteenth-century interior and colossal Corinthian columns.

Hive’s form recalls other built and natural structures such as Saarinen’s Gateway Arch in St. Louis, Brunelleschi’s Dome at the Florence Cathedral in Italy, vernacular Musgum mud huts in Cameroon, and the curvature of a spider’s web. By utilizing the catenary shape, each chamber will balance structural forces and support its own weight, while attaining a height that enables a unique acoustic signature. The tall yet intimate forms allow visitors to inhabit the installation at the ground level and to experience it from the Museum’s upper-floor balconies, providing a variety of exciting perspectives.
What can you do with an idea?

The Hive
National Building Museum
Your Turn to Battle

Behind It All: A Big Idea

1. Using the image or exhibit text, develop a big idea stated as one sentence of what the exhibition is about. It is the first thing the team, together, should write.

2. List three subthemes or interactives that will address the big idea. Quick research is fine. Think creatively but make sure they support the big idea with focus, precision and soul.

*Museum collections reflect our amazing world, inspire wonder, and form the foundation for scientific discovery.*
Your Turn to Battle
Your Turn to Battle
Your Turn to Battle
Your Turn to Battle

Why Do So Many Critters Glow?

The midwater zone ranges from very dim to dark. So, a flicker of light is an effective way to communicate—like flashing your headlights to signal another driver at night.

Animals use light to get the attention of potential mates, distract predators, blend into their surroundings, or lure prey.

What Does It Take to Survive in the Twilight Zone?

Huge eyes and distinctive coloring: survival often depends on seeing...and not being seen.

Sunlight and food are scarce. Competition is fierce. When you're looking for lunch, you want to notice anything that moves. When your neighbor is looking for lunch, you want to be invisible.

Midwater animals have evolved specialized things to see in dim light and color patterns that help them avoid being seen.

The Ocean Is a Global System Essential to All Life—including Yours.

You don’t live in the ocean. But you need the ocean to live.
Your Turn to Battle

WITH EVERY BREATH YOU TAKE, THANK THE OCEAN
Go forth and battle

A few ideas FOR ideas:

1. Ask a veteran Battler!

2. Provide small teams an image or an object. Ask them to develop an idea and then have them pass the idea/image to another team to SCAMPER –
   - S substitute something
   - C combine with something else
   - A adapt something to it
   - M modify or magnify
   - P put it to some other use
   - E eliminate something
   - R reverse or rearrange
Go forth and battle

3. Play DISRUPTUS – use two random objects to:
   • Create – Imagine a new object or idea
   • Improve – make object better
   • Transform – use object for different purpose
   • Disrupt – different way to achieve the same purpose

4. Dust off your collection of *National Geographic* and pass them around for teams to gather inspiration for ideas.

5. Review ideas at other science centers.

6. Visit Science City remotely (http://www.unionstation.org/sciencecity/attractions) or in person – what BIG IDEAS are needed?
Creativity x Organization = A Successful Battle Plan