

BURNS  MCDONNELL®



**BATTLE OF  
THE BRAINS**

Kansas City's most exciting K-12 STEM competition!

2021

# COMPETITION PACKET

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# WHAT IS BATTLE OF THE BRAINS?

*Inspired by kids, built by Burns & McDonnell.*

It's Kansas City's most exciting K-12 STEM competition — Burns & McDonnell Battle of the Brains. Metro-area schools can earn a piece of \$155,000-plus in grants for STEM education by dreaming up an exhibit concept for Science City — and one student team sees its idea come to life in a big way! So far, more than 25,000 students in 55 school districts have benefited from this immersive educational opportunity.

*What is your team's concept for the next \$1 million exhibit at Science City?*

## BENEFITS

- A competition for all — general education classrooms, teacher-led enrichment, gifted programs, etc.
- Clear expectations and rules with a high level of support from competition organizers
- Encourages teamwork, collaboration and executive functioning skills with a real-world challenge
- No-cost, high-reward and relevant experience for students and teachers
- Opportunity to connect with Burns & McDonnell STEM professionals
- Process encourages use of design thinking principles and 21st century skills used by Burns & McDonnell professionals every day
- Project-based learning that aligns with NGSS Science & Engineering Practices and can be incorporated into existing curriculum
- Supports big thinking, a growth mindset and developing the “whole child”

## GRANT DISTRIBUTION

The Burns & McDonnell Foundation awards \$155,000-plus in grants. The grand prize winner also has the opportunity to work with Burns & McDonnell architects, engineers, construction managers, graphic designers and researchers to bring its ideas to life at Science City.

- \$50,000 grand prize
- \$25,000 finalist
- \$20,000 finalist
- \$15,000 finalist
- \$10,000 finalist
- 15, \$2,500 finalists

# PARTICIPATION

Burns & McDonnell Battle of the Brains has two divisions: elementary (K-6) and secondary (7-12). Each team must design a STEM exhibit focused around a single topic or main idea.

- Entrants must be full-time K-12 students and be currently enrolled in and attending a public, private, parochial or home-based school in any of the following counties:
  - Kansas: Atchison, Douglas, Franklin, Jefferson, Johnson, Leavenworth, Miami, Shawnee, Wyandotte
  - Missouri: Bates, Buchanan, Caldwell, Cass, Clay, Clinton, Jackson, Johnson, Lafayette, Livingston, Platte, Ray
- A school may submit an unlimited number of entries.
- Each team may have one leader or two co-leaders.

## DELIVERABLES

- **PDF proposal**, which must follow these rules to be compliant:
  - Address all rubric sections
  - Contain no information identifying your school
  - Formatted on letter-sized paper (8.5 x 11 in.)
  - Include at least one original diagram/sketch/rendering of your exhibit (included in page count)
  - Maximum of four single-sided pages
  - Not include hyperlinks to additional content
  - Submitted as a PDF
  - Written in English
- **Video commercial** for the exhibit, which must follow these rules to be compliant:
  - Be in English.
  - Be no longer than two 2 minutes

## RECOMMENDATIONS

- Addressing the rubric sections in order is greatly preferred by our judges
- For the PDF proposal, we suggest 1-inch margins and font size no smaller than 10 points
- Though only one original diagram/sketch/rendering is required, we encourage more than one

## DEADLINE

PDF proposal and video must be uploaded to [botbk.com](http://botbk.com) by 5 p.m. Central on Nov. 2.

# JUDGING

**Round 1:** Entries are screened for compliance.

**Round 2:** Only 10 entries from each division are elevated to a top 20, where submissions are then evaluated against each other regardless of division. These scores count for 70% of the final rankings.

**Round 3:** Public voting determines the remaining 30% of rankings.

## KEY DATES



–



Competition Sign-Up



–



Battle Plan Teacher Info Sessions



–



Proposal Upload Period



Teacher Appreciation Event



–



Round 1 and 2 Judging



Finalists Announced



–



Round 3 Public Voting



Awards Ceremony

# RUBRIC

Section 1: Creativity and Inspiration				
Expectations	1-5	6-11	12-17	/17
<ul style="list-style-type: none"> <li>Clearly expresses the exhibit's main idea.</li> <li>Demonstrates how the exhibit teaches STEM principles or concepts.</li> <li>Explains the inspiration behind the exhibit.</li> <li>Explains ideas the team considered and didn't use, and why.</li> </ul>	<ul style="list-style-type: none"> <li>Doesn't explain a main idea.</li> <li>STEM concepts are unclear or the information is inaccurate.</li> <li>Doesn't address the inspiration behind the exhibit.</li> <li>Explains only the one idea the team used.</li> </ul>	<ul style="list-style-type: none"> <li>Presents a main idea but doesn't explain it well.</li> <li>STEM concepts are explained but need more development.</li> <li>Briefly states how the team was inspired to develop the exhibit.</li> <li>Explains 2-3 ideas considered and why they weren't used.</li> </ul>	<ul style="list-style-type: none"> <li>Presents and clearly explains a main idea.</li> <li>STEM concepts are comprehensive, accurate and easily understood.</li> <li>Clearly explains how the team was inspired to develop the exhibit.</li> <li>Explains 4+ ideas considered and why they weren't used.</li> </ul>	
Section 2: Interactive Exhibit Engagement				
Expectations	1-8	9-17	18-25	/25
<ul style="list-style-type: none"> <li>Explains how exhibit elements help users learn through fun, hands-on activities.</li> <li>Describes several different activities the user can explore.</li> <li>Outlines how the exhibit appeals to users of all ages.</li> <li>Provides examples of follow-up questions the exhibit will generate.</li> <li>Uses well-written, well-edited text to describe the exhibit.</li> <li>Uses 1 or more original diagrams, sketches, models and/or renderings to illustrate the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Exhibit elements provides learning but are generally not hands-on.</li> <li>Describes 1-2 different activities the user can explore.</li> <li>Appeals to 1 narrow age group.</li> <li>Doesn't offer examples of follow-up questions.</li> <li>Text is not clear or is poorly written and edited.</li> <li>Original diagrams, sketches, models and/or renderings are unclear or do not provide much detail about the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Exhibit elements are fun and hands-on but the learning is not generally incorporated in the activities.</li> <li>Describes 3-5 different activities the user can explore.</li> <li>Appeals to a few different age groups.</li> <li>Offers 1-2 examples of follow up questions the exhibit will generate.</li> <li>Text is descriptive but could use some editing.</li> <li>Original diagrams, sketches, models and/or renderings provide some detail about the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Exhibit elements are fun and hands-on and the learning is built into the activities.</li> <li>Describes 6+ different activities the user can explore.</li> <li>Appeals to all age groups.</li> <li>Offers 3+ examples of follow up questions the exhibit will generate.</li> <li>Text is descriptive, well-written and well-edited.</li> <li>Original diagrams, sketches, models and/or renderings strongly detail the exhibit.</li> </ul>	
Section 3: Relevancy				
Expectations	1	2	3	/3
<ul style="list-style-type: none"> <li>Describes how the exhibit is applicable to the user's life.</li> <li>Outlines STEM jobs related to the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Doesn't show how the exhibit is applicable to the user's life.</li> <li>Doesn't include information about STEM jobs related to the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Provides 1-2 ways the exhibit is applicable to the user's life.</li> <li>Provides limited information about STEM jobs related to the exhibit.</li> </ul>	<ul style="list-style-type: none"> <li>Provides 3+ ways the exhibit is applicable to the user's life.</li> <li>Provides thorough information about STEM jobs related to the exhibit.</li> </ul>	
Section 4: Constructability				
Expectations	1	2-3	4-5	/5
<ul style="list-style-type: none"> <li>Describes how the exhibit stands up to intense daily use.</li> <li>Explains the exhibit's safety.</li> <li>Provides a list of materials needed with estimated pricing, within an approximate \$250,000 budget.</li> </ul>	<ul style="list-style-type: none"> <li>The exhibit's durability to intense daily use is not explained.</li> <li>The exhibit's safety is not addressed.</li> <li>The list of materials is missing, incomplete or provides no pricing/total cost.</li> </ul>	<ul style="list-style-type: none"> <li>Provides 1-2 examples explaining durability to intense daily use.</li> <li>The exhibit's safety is mentioned briefly but not explained.</li> <li>The list of materials is somewhat complete, but some pricing is missing or the total cost is dramatically over/under the budget.</li> </ul>	<ul style="list-style-type: none"> <li>Provides 3+ examples explaining durability to intense daily use.</li> <li>The exhibit's safety is fully explained.</li> <li>The list of materials is detailed and complete with pricing and takes full advantage of the budget.</li> </ul>	
POINTS TOTAL				/50