

# MARYLAND ENGINEERING CHALLENGES 2020



Future City - January 18  
Wood Bridge - January 18  
Straw Bridge - January 18  
Paper Airplane - February 22  
Safe Racer - February 22  
Hovercraft - April 26  
Cargo Ship - April 26  
Robot - April 26

#### **Sponsored by:**

BGE, an Exelon Company -  
Northrop Grumman - KELVIN -  
Engineering Society of Baltimore -  
W.R. Grace Foundation

#### **Supported by:**

Technology & Engineering Educators  
Association of Maryland

Check guides and participation  
details at [thebmi.org](http://thebmi.org)

Participating in the Challenges helps students develop comprehension and problem-solving skills; encourages teamwork and self-confidence; and promotes meaningful mentor relationships with engineering professionals.

#### **Coaches' Information Session**

Wednesday, Nov. 13 | 4-7pm

Interested in the Challenges but not sure what to do? Drop in throughout the evening to meet the engineers who judge each Challenge. They will answer questions, demonstrate past projects, and explain requirements.

Free; attendance not required.  
Register: [jcelmer@thebmi.org](mailto:jcelmer@thebmi.org).

#### **Robot Coaches' Hands-on Workshop**

Wednesday, Nov. 13 | 4-7pm

Saturday, Jan. 25 | 10am-2pm

Learn the practical aspects of the Robot Challenge. Work with engineers to explore design and construction aspects of this project. Especially helpful for first-time Coaches and/or those with little engineering experience.

Free; registration required:  
[jcelmer@thebmi.org](mailto:jcelmer@thebmi.org).

Baltimore Museum  
OF Industry



# 2020

Our mission is to introduce students in grades I-12 to the role of engineers in today's society and to connect what students learn in school with real-world engineering concepts.

1415 Key Highway, Baltimore, MD 21230  
[www.thebmi.org](http://www.thebmi.org) | 410.727.4808

# ELEMENTARY SCHOOL LEVEL

## PAPER AIRPLANE Grades 1-5

Design a paper airplane to safely fly a paper clip "passenger" as far and accurately as possible.

## SAFE RACER Grades 2-3

Build a safe and speedy car to allow the "driver," Eggbert(a), to survive a crash test and distance trial.



# MIDDLE SCHOOL LEVEL

## ROBOT Grades 6-8

Construct a two or four leg robot to walk under direction over uneven terrain.

## HOVERCRAFT Grades 6-8

Build the fastest hovercraft to travel across the "Chesapeake Bay."

## STRAW BRIDGE Grades 6-8

Construct a paper straw bridge to support a scale model truck for one minute.

## FUTURE CITY Grades 6-8

Design a city of the future using SimCity software and create a model of one area.

# HIGH SCHOOL LEVEL



## ROBOT Grades 9-12

Construct a two or four leg robot to walk under direction over uneven terrain.

## WOOD BRIDGE Grades 9-12

Design a structurally efficient bridge to hold the maximum load before breaking.

## CARGO SHIP Grades 9-12

Design and demonstrate a ship to carry containerized cargo over a real water course.