

# MARYLAND ENGINEERING CHALLENGES 2019



Future City - January 19  
Wood Bridge - February 2  
Paper Airplane - February 10  
Safe Racer - March 9  
Straw Bridge - March 16  
Theme Park - March 16  
Hovercraft - March 16  
Cargo Ship - April 14  
Robot - April 13 or 14

#### **Sponsored by:**

BGE - Northrop Grumman - KELVIN  
Engineering Society of Baltimore  
W.R. Grace Foundation

#### **Supported by:**

Technology & Engineering Educators  
Association of Maryland

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

#### **OTHER IMPORTANT DATES**

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

Wednesday, Nov. 14 | 4-7 pm  
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. Registration  
encouraged. Email [jkeffer@thebmi.org](mailto:jkeffer@thebmi.org).

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

Saturday, Jan. 26 | 10am-2pm  
Work with engineers to explore the  
design and construction aspects of  
Challenges. Especially helpful for  
first-time coaches and/or those with  
little engineering experience.

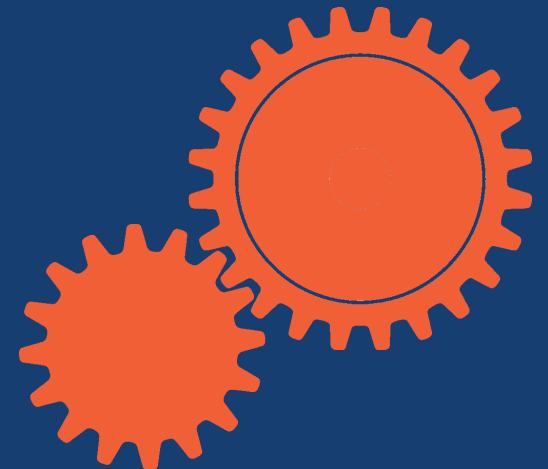
Free; attendance not required. Registration  
required by Jan. 18. Email [jkeffer@thebmi.org](mailto:jkeffer@thebmi.org)

**BMI** Baltimore Museum  
OF Industry

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Baltimore Museum  
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# MARYLAND ENGINEERING CHALLENGES 2019



**BMI**

# 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.

## **THEME PARK**

**Grades 4-5**

Construct a moving theme park ride, based on a literature curriculum reading.



# 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."  
Takes place at Morgan State University.

## **STRAW BRIDGE**

**Grades 6-8**

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

## **FUTURE CITY**

**Grades 7-8**

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.