

**LEGO<sup>®</sup>  
LEAGUE**

VIRGINIA + WASHINGTON, D.C.

# 2018 CHAMPIONSHIP

Harrisonburg, Virginia  
December 1-2, 2018



**JAMES MADISON  
UNIVERSITY<sup>®</sup>**

# ● Welcome! ●

Students involved in this weekend's competition have used advanced LEGO EV3 and NXT kits to build robots that are programmed to perform specific, precise tasks. Over the course of about 9 weeks, the participating teams designed, researched, built, programmed, tested, refined, and retested a fully autonomous robot capable of completing a number of very challenging missions.

Over the weekend they will be judged on their core values, research project, and robot design, as well as demonstrate just how well their robot performs on the competition tables. This year's theme, INTO ORBIT, asks teams to "explore, challenge, and innovate in the vast expanse of space." After developing an understanding of the problem, teams have been asked to design an innovative solution—a solution that adds value to society by improving something that already exists, using something that exists in a new way, or inventing something totally new.

Through their participation in FIRST LEGO League, students learn to apply their skills in science, technology, engineering and math, hopefully sparking further interest in these fields. We are excited to see what teams have done with the INTO ORBIT theme. It is our expectation that teams, including mentors, guests, siblings, and coaches will exhibit "Gracious Professionalism," including respect for the host facility, respect for the volunteers and FIRST LEGO League staff, and willingness to engage other teams with encouragement and camaraderie.

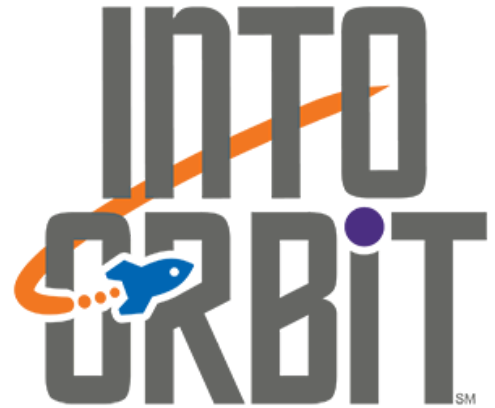
We welcome you to this championship tournament and wish you the best of science (not luck) during the competition.

**– Nick Swayne, Executive Director, FIRST LEGO League in Virginia + Washington, D.C.**

**– Krystian Jones, Assistant Director, FIRST LEGO League in Virginia + Washington, D.C.**

## ● Challenge ●

The project assignment for the INTO ORBIT season is to identify a physical or social problem faced by humans during long duration space exploration within our sun's solar system and propose a solution.



## ● Missions ●

M01–Space Travel	10-22 points
M02–Solar Panel Array	18-22 points
M03–3D Printing	18-22 points
M04–Crater Crossing	20 points
M05–Extraction	8-16 points
M06–Space Station Modules	14-16 points
M07–Space Walk Emergency	18-22 points
M08–Aerobic Exercise	18-22 points
M09–Strength Exercise	16 points
M10–Food Production	16 points
M11–Escape Velocity	24 points
M12–Satellite Orbits	8 points
M13–Observatory	16-20 points
M14–Meteoroid Deflection	8-12 points
M15–Lander Touch-Down	15-22 points

## ● Judging Criteria ●

Robot Design	33%
Research Project	33%
Core Values	33%
Robot Performance	Top 40%

## ● Behavior and Safety Guidelines ●

### Behavior Expectation

Respect the facilities; Treat them at least as well as you would treat your home.

### Safety Exits

Exits are located throughout the building. In case of an emergency, use the closest exit to leave the building. Gather in the parking lot directly in front of Memorial Hall.

### Campus Programs

Please note: Campus programs are only for those participants who pre-registered online. There is not sufficient space for siblings or parents in the rooms.

## ● Other Activities ●

Movie- The Martian  
***Memorial Hall 6110***

# ● Saturday, December 1st, 2018 ●

Team Sign In	7:45-8:30
<i>Memorial Hall Auditorium</i>	
Coaches Meeting	8:30-8:45
<i>Locations TBD</i>	
Opening Ceremony	8:50-9:20
<i>Memorial Hall Auditorium</i>	
Tournament Events	9:30-5:30
Division 1	
Judging- TEAMS ONLY	
<b>Research Projects</b>	10:00-12:30
<b>Core Values</b>	
<b>Robot Design</b>	
Lunch	12:30-1:30
Regroup	1:30-2:00
<i>Memorial Hall Auditorium</i>	
Campus Programs	2:00-4:30
<i>Various Locations- preregistered participants only</i>	
Division 2	9:30-12:00
Campus Programs	
<i>Various Locations- preregistered participants only</i>	
Lunch	12:00-2:00
Judging- TEAMS ONLY	
<b>Research Projects</b>	2:00-5:30
<b>Core Values</b>	
<b>Robot Design</b>	

● **Sunday, December 2nd, 2018** ●

**Team Sign In** 7:30-8:30  
*Harrisonburg High School Main Gym*

**Opening Ceremony** 8:40-9:00  
*Harrisonburg High School Main Gym*

**Tournament Events** 9:15-3:45

Robot Performance- Open to Public  
*Harrisonburg High School Main Gym*

Practice Tables- See Schedule

*Harrisonburg High School Main Gym*

**Parade of Teams** 30 mins after rounds  
*Harrisonburg High School Main Gym*

**Awards Ceremony**  
*Harrisonburg High School Main Gym*

## ● Activities for Parents ●

### Local Events

Harrisonburg Holiday Art Market

John C. Wells Planetarium Shows

### Downtown Cultural Attractions

Cat's Cradle

Denton Pocket Park

The Hardesty-Higgins House

The Harrisonburg Children's Museum

The Fire Museum

The Regional Library

Ruby's Arcade

### Downtown Shopping

10,000 Villages

The Lady Jane Boutique

The Laughing Dog

Shenandoah Bicycle Company

Larkin Arts

Walkabout Outfitters

### Downtown Dining (featuring but not limited to)

Bella Luna

Wood Fired Pizza

Beyond

Tapas, sushi and bar

Jack Brown's

Billy Jack's

Wings and Things

Indian Cuisine

Jimmy Madison's

Sabor a Mexico

Taj of India

Clementine's Cafe

Mexican Food

Southern Kitchen

FoodbarFood