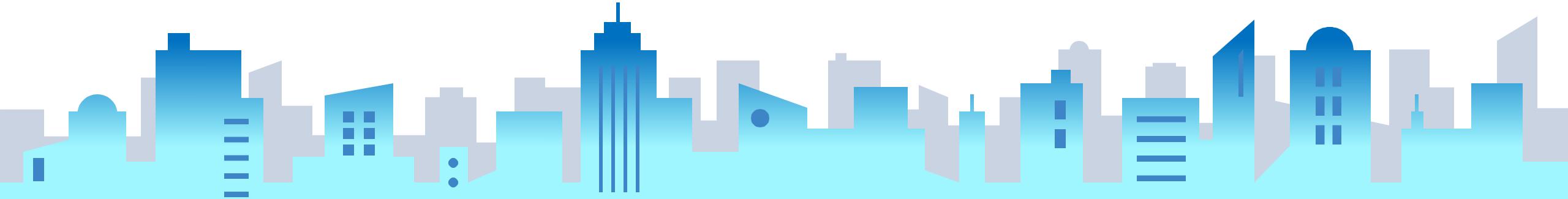




CITY SHAPERSM

**FIRST LEGO LEAGUE KICKOFF
AUGUST 3, 2019**



Welcome

Professor Srinivasan Seshan

CMU Department Head of Computer Science

10 Year Volunteer for FIRST

Head Referee

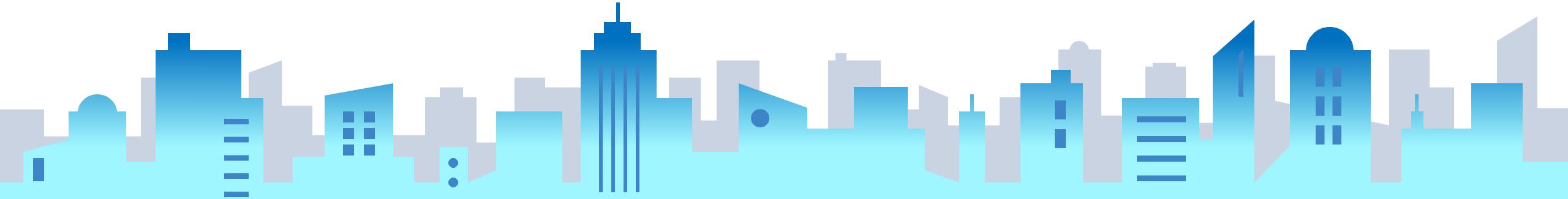


Introducing....

Sanjay and Arvind Seshan

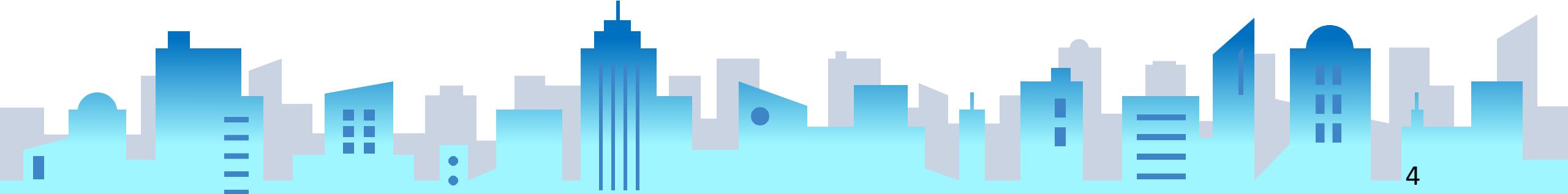
Founder of EV3Lessons.com/FLLTutorials.com

2018 Detroit World Festival Champion's Award Winner



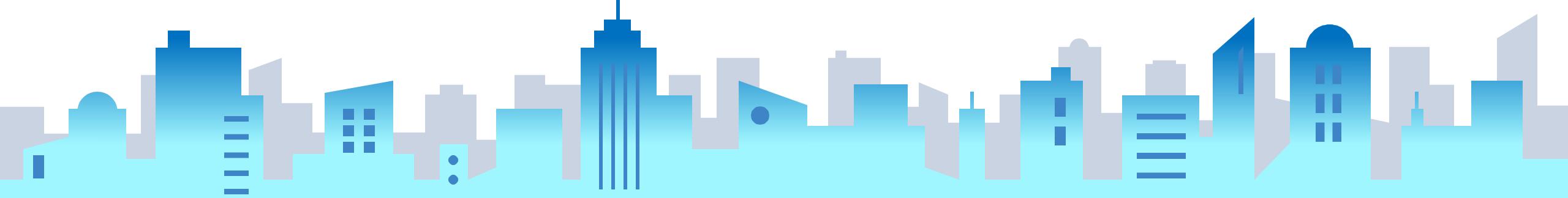
Agenda

- **Introductions**
- **Guest Speakers**
- **Project Tips**
- **CITY SHAPER Missions and Rules**



Introducing....

FRC Not The Droids You Are Looking For



READ THE RULES CAREFULLY

- There are many changes this year.
- Don't assume that everything is the same as a previous year
- Team members should read them, not just the coach

Missions

The object of the game is to shape your growing city with more stable, beautiful, useful, accessible and sustainable buildings and structures. Solve the real-world problems represented in the Missions to score points. You can also score by moving new units on the field. New unit point values depend on their height and location.

Remember: Each official match lasts 2-1/2 minutes. You may not have time to complete all the Missions, so be strategic about which ones you choose.

NOTE: If your Robot and all its equipment fit in the 'Small Inspection Area', the advantage for this game is 5 points added to each Mission where you score ANY points. Exceptions: Mission 14 doesn't apply, and for Mission 2, you get 10 added instead of 5.

Mission 1 Elevated places (Score all that apply)

- If the Robot is Supported by the Bridge: **20**
- If one or more Flags are clearly raised any distance, only by the Robot: **15 Each Flag**

You can only get Flag points if you get Bridge points.

Rule 31 allowance: It is okay and expected for Robots to collide while trying to earn Flag points.

When clearly only one Robot is holding a Flag raised, only that Robot scores for that Flag.



Mission 2 Crane (score all that apply)

If the Hooked Blue Unit is

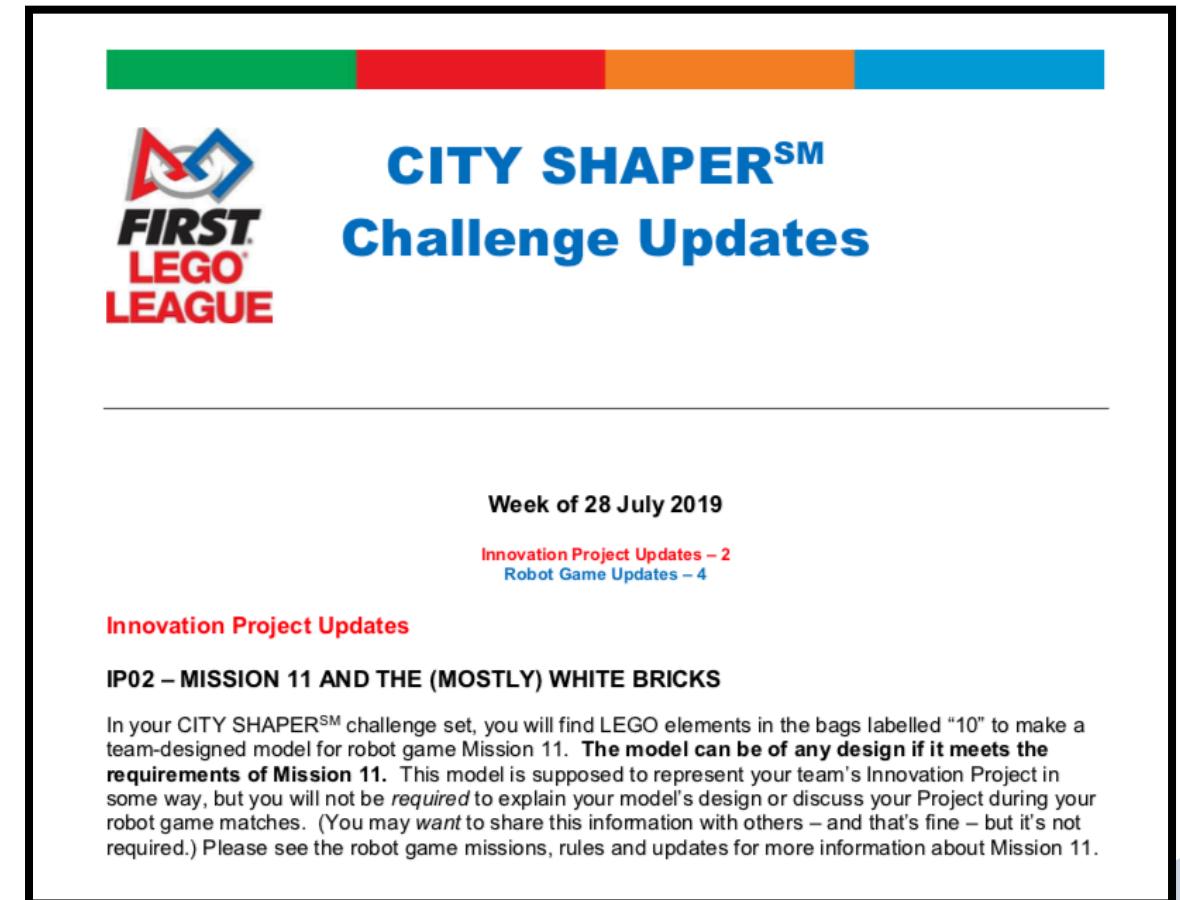
- clearly lowered any distance from the Guide Hole: **20**
- Independent and Supported by another Blue Unit: **15**
- and Level 1 is Completely in the Blue Circle: **15**



LOOK FOR CHALLENGE UPDATES

- There are already 6 updates already!
- Have someone on the team check for updates every week

<https://www.firstinspires.org/resource-library/fll/challenge-and-resources>



The image shows a screenshot of the FIRST LEGO League CITY SHAPER challenge updates page. At the top, there's a horizontal bar divided into four colored segments: green, red, orange, and blue. Below the bar, the FIRST LEGO LEAGUE logo is displayed, featuring a blue triangle icon above the words "FIRST" in white, "LEGO" in red, and "LEAGUE" in white. To the right of the logo, the text "CITY SHAPERSM Challenge Updates" is written in blue. A thin horizontal line separates this header from the main content area. In the main area, the text "Week of 28 July 2019" is centered. Below it, there are two links: "Innovation Project Updates – 2" and "Robot Game Updates – 4". Another thin horizontal line separates these links from the detailed content below. The detailed content starts with "Innovation Project Updates" in red text, followed by "IP02 – MISSION 11 AND THE (MOSTLY) WHITE BRICKS" in bold black text. A descriptive paragraph follows, explaining the purpose of the mission and the requirements for the Innovation Project model. The background of the slide features a stylized city skyline graphic at the bottom.

**CITY SHAPERSM
Challenge Updates**

Week of 28 July 2019

Innovation Project Updates – 2
Robot Game Updates – 4

Innovation Project Updates

IP02 – MISSION 11 AND THE (MOSTLY) WHITE BRICKS

In your CITY SHAPERSM challenge set, you will find LEGO elements in the bags labelled "10" to make a team-designed model for robot game Mission 11. **The model can be of any design if it meets the requirements of Mission 11.** This model is supposed to represent your team's Innovation Project in some way, but you will not be *required* to explain your model's design or discuss your Project during your robot game matches. (You may *want* to share this information with others – and that's fine – but it's not required.) Please see the robot game missions, rules and updates for more information about Mission 11.

USE ANY PROGRAMMING LANGUAGE

You can program in any language this season!

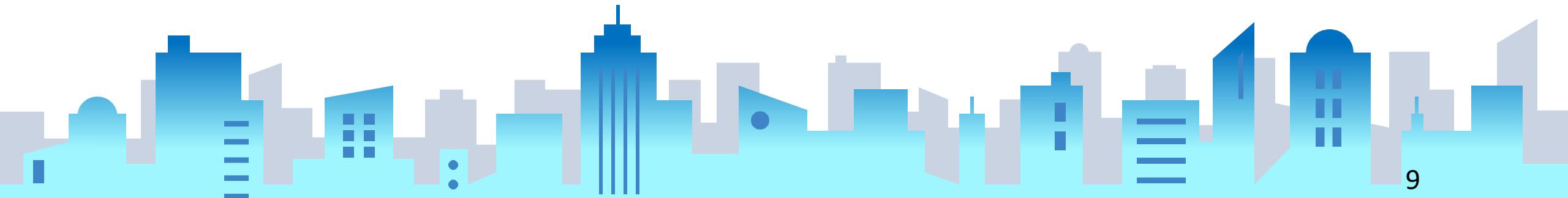
“You can use any software that allows the Robot to move autonomously – meaning it moves on its own. **No** form of remote control is allowed.”

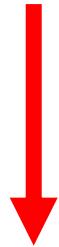
Good reference to learn about compatible languages:
Coach Corner article on Open Software (FLLTutorials.com)
or <https://bit.ly/2MtNnNr>

	Allowed in FIRST LEGO League							
	EV3-G	ROBOTC	LabVIEW	MakeCode	Python (ev3dev)	Java (leJOS)	EV3Basic	OpenRoberta (leJOS or ev3dev)
Website	https://education.lego.com	http://robotc.net/	https://sine.ni.com/nips/cds/view/p/lang/en/nid/212785	https://makecode.minecraft.net/storms.com/	https://www.ev3dev.org/	http://www.lejos.org/	https://github.com/Oppendragon/EV3Basic	https://lab.open-robotica.org/
Learning curve (on average)	Low	Medium-High (there is a natural lang version)	Medium	Low	High	High	Medium	Low
Biggest pro	Lots of FLL-related and EV3 programming resources	Established, debugged, supported, used by FIRST teams	Similar to EV3-G with more programming capabilities	Graphical and text, supported by Microsoft and LEGO Edu	Extra modes for sensors; great community; Good language to learn	Very extensible programming language and extra modes	Simple text-based language	Scratch-like environment
Biggest con	All modes on sensors not accessible	Cost	Cost; doesn't work with latest LabVIEW software (need 2016 version or older)	Still in beta; requires active Internet connection (could be a problem at competition venue)	Complex initial setup; New beta version recommended	Complex initial setup	Not much support, not widely used	Requires active Internet connection (could be a problem at competition venue)
Useable in FLL right now	Yes	Yes	Yes	Somewhat	Yes	Yes	?	Yes
Works with	EV3 / NXT	EV3 / NXT / RCX	EV3 / NXT	EV3	EV3	EV3 / NXT / RCX	EV3	EV3 / NXT
Firmware	Official LEGO firmware	3rd party firmware	3rd party firmware	Official LEGO Firmware (v1.10E required)	N/A (runs from SD card) on EV3, 3rd party firmware on NXT/RCX	N/A (runs from SD card)	Official LEGO firmware	N/A (Install ev3dev or leJOS)
Requires SD Card	No	No	No	No	Yes	Yes on EV3, No on NXT / RCX	No	Yes
Cost	Free	Free Trial/\$50-\$300	Addon module is free, but LabVIEW itself is not.	Free	Free	Free	Free	Free
Graphical / Text Programming Language	Graphical	Both	Graphical	National Instruments LabVIEW 2016 (or earlier) with addon module	Hybrid - switchable mode (Blocks and JavaScript)	Text	Text	Hybrid - switchable modes
IDE (programming software)	Yes	Yes	National Instruments LabVIEW 2016 (or earlier) with addon module	Web browser based	Yes (Visual Studio Code with extension)	Yes (Eclipse with extension)	Yes (Microsoft Small Basic)	Web browser based
Operating System:								
Windows	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mac	Yes	No	probably	Yes	Yes	Yes	No	Yes
Linux	No	No	probably not	Yes	Yes	Yes	No	Yes
Chromebook	Yes (limited functionality)	No	No	* Should work	Sort of (no IDE - ssh)	No	No	Yes
iPad	Yes (limited functionality)	No	No	* Should work	Sort of (no IDE - ssh)	No	No	Yes
Android	Yes (limited functionality)	No	No	* Should work	Sort of (no IDE - ssh)	No	No	Yes
Tutorials:								

KEY TERMS

- **02. EQUIPMENT** – This is anything **you bring** to a Match for Mission-related activity, including the Robot.
- **33. INDEPENDENT** – Not touching any equipment.
- **34. SUPPORTED** – 100% of its weight is held up **and** kept from falling.





BONUS FOR SMALL EQUIPMENT

19. Show the Referee that ALL your Equipment fits in either the Large or Small Inspection Area (your choice), under an imaginary ceiling 12 in. (30.5 cm) high. If it fits in the **Small** Inspection area, you get an advantage. The “Small Area” advantage for the City Shaper game is 5 points added to each Mission where you score ANY points. Exceptions: Mission 14 doesn’t apply, and for Mission 2, you get 10 added instead of 5.

After passing Inspection, arrange your Equipment anywhere in Home for storage and adjustments, and/or the Launch Area for Launch.

Before the Match starts, you are allowed to calibrate sensors anywhere you like, and/or ask the Referee to check the correctness of Mission Models and setups.



Large inspection area

13.5x26x12 in



Small inspection area

13.5x19x12 in

START IN LAUNCH, BUT RETURN HOME

06. LAUNCH AREA – This is the Mat's inner quarter-circle area and the black lines that form it. It extends to include the face of the south Border Wall, but no further. It does not include the white band of sponsor logos.



Launch area

07. HOME – Table surface west of the Field Mat that includes the faces of its Border Walls.



Home



INTERRUPTION RULES

27 INTERRUPTION PROCEDURE – If you Interrupt the Robot, stop it instantly, then calmly pick it up for the next Launch.

Where was the Robot Interrupted?

→ Completely in Home: No problem.

→ Not Completely in Home: Lose a Precision Token.

28 INTERRUPTION WITH CARGO – If the Robot has Cargo when Interrupted,

Where was the Cargo acquired?

→ Completely in the Launch Area: Keep it.

→ Not Completely in the Launch Area...

Where was the Cargo at Interruption?

→ Completely in Home: Keep it.

→ Not Completely in Home: Referee takes it.

29 STRANDED CARGO – If the Uninterrupted Robot loses Cargo, let the Cargo come to rest.

Where did the Cargo come to rest?

→ Completely in Home: Keep it.

→ Not Completely in Home: Leave as is.

CITY SHAPER SCORER

Small inspection area

Flags

Robot

Crane

CITY SHAPER Scorer

FIRST LEGO League TUTORIALS

CITY SHAPER

A00 - Advantage: 0

Does the team's Equipment fit in the Small Inspection Area?

Yes No

5 Points added to each Mission 1-13 and an additional 5 to M02.

M01 - Elevated Places: 0

Is the Robot Supported by the Bridge?

Yes No

How many Flags are clearly raised any distance, only by the Robot

0 0

M02 - Crane: 0

Is Hooked Blue Unit clearly lowered any distance from the Crane's Hook?

Yes No

M05 - Treehouse: 0

How many Units are Independent and Supported by the Tree's Large Branches?

0 0

M06 - Traffic Jam: 0

Is the Traffic Jam lifted, its moving part is Independent and Supported only by its hinges?

Yes No

M10 - Steel Construction: 0

Is the Steel Structure standing, and is Independent and Supported only by its hinges?

Yes No

M11 - Innovative Architecture: 0

Is the structure Completely in any Circle?

Yes No

Is the structure partly in any Circle?

Yes No

M07 - Swing: 0

Structure must be team designed and clearly bigger than a Blue Building Unit. Must be built from the team's LEGO

Points: 75

Reset

- This Scorer is available on FLLTutorials.com and as Apps for iOS and Android
- Available in English, Spanish, and Portuguese (more languages to come)
- <http://flltutorials.com/Resources/2019/scorer/>

MISSION OVERVIEW

Mission 1 Elevated places (Score all that apply)

- If the Robot is Supported by the Bridge: **20**
- If one or more Flags are clearly raised any distance, only by the Robot: **15 Each Flag**

You can only get Flag points if you get Bridge points.

Rule 31 allowance: It is okay and expected for Robots to collide while trying to earn Flag points.

When clearly only one Robot is holding a Flag raised, only that Robot scores for that Flag.



Mission 2 Crane (score all that apply)

If the Hooked Blue Unit is

- Clearly lowered any distance from the Guide Hole: **20**
- Independent and Supported by another Blue Unit: **15**
- and** Level 1 is Completely in the Blue Circle: **15**



Mission 3 Inspection drone

→ If the Inspection Drone is Supported by axle (A) on the Bridge: **10**



Mission 4 Design for wildlife

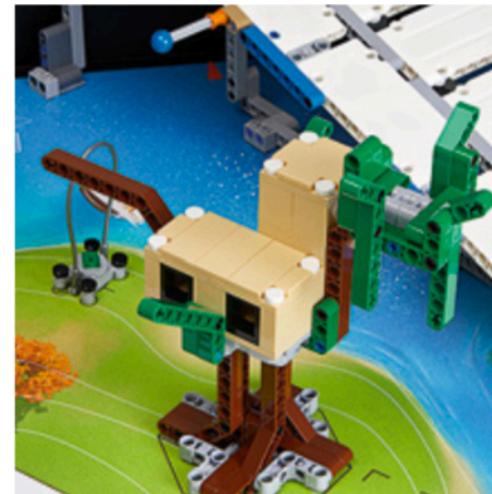
→ If the Bat is Supported by branch (B) on the Tree: **10**



Mission 5 Treehouse (Score all that apply)

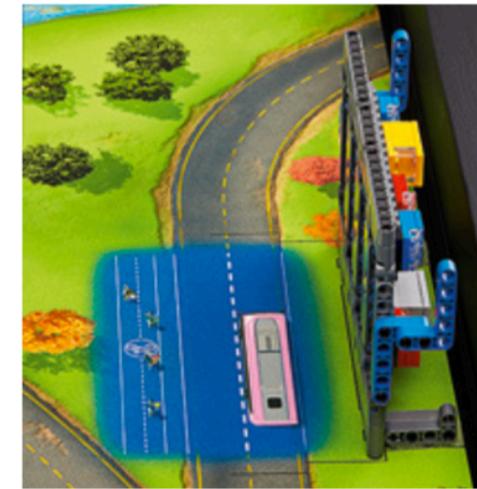
If a Unit is Independent and Supported by the Tree's

- Large Branches: **10 Each Unit**
- Small Branches: **15 Each Unit**



Mission 6 Traffic jam

→ If the Traffic Jam is lifted, its moving part is Independent, and it is Supported by its own hinges as shown: **10**



Mission 7 Swing

→ If the Swing is released: **20**



Mission 8 Elevator (Score one or the other)

If the Elevator's moving parts are Independent, and Supported only by its hinges as shown, in the following position

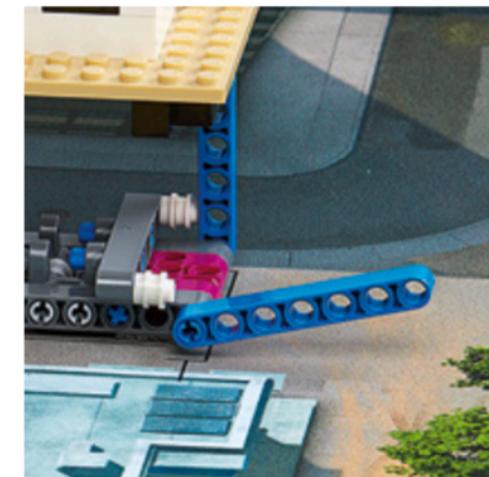
- Blue Car Down: **15**
- Balanced: **20**



Mission 9 Safety factor

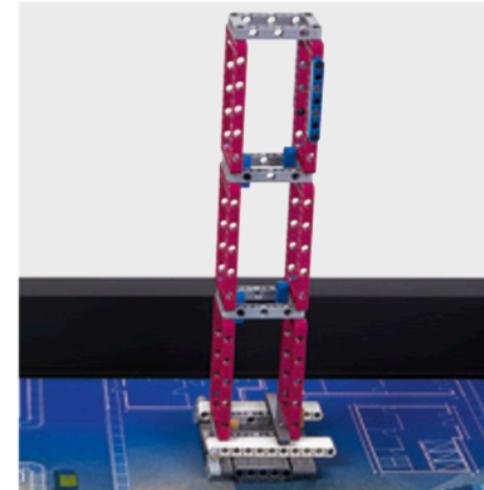
→ If the Test Building is Independent and Supported only by the blue beams, and some beams have been knocked out at least half way:

10 Each Beam



Mission 10 Steel construction

→ If the Steel Structure is standing, and is Independent, and Supported only by its hinges as shown: **20**



Mission 11 Innovative architecture (score one or the other)

If there is a team-designed Structure clearly bigger than a Blue Building Unit, built only from your white LEGO bricks

- Completely In any Circle: **15**
- Partly in any Circle: **10**

Random Structure shown. Design and build your own Structure before you compete, then bring that to each Match. You don't build it during the Match.

Your mission 11 Structure needs to be built from Bag 10 elements only. It can include the red and gray elements. Not all of the Bag 10 elements need to be used.



Mission 12 Design & build (Please take the needed time to understand the scoring examples)

→ LOCATION - If there are any Circles with at least one color-matching Unit Completely In, and Flat Down on the Mat:
10 Each Circle

(Note: The Blue Circle is not Part of Mission 12).

→ HEIGHT - If there are Independent Stacks at least partly in any Circles, add all of their heights together:
5 Each Level

(Note: A Stack is one or more Building Units with Level 1 touching Flat Down on the Mat, and any higher levels touching Flat Down on the level below).



Color match = no
Tan stack = 2 levels
White stack = 1 level
15 points shown



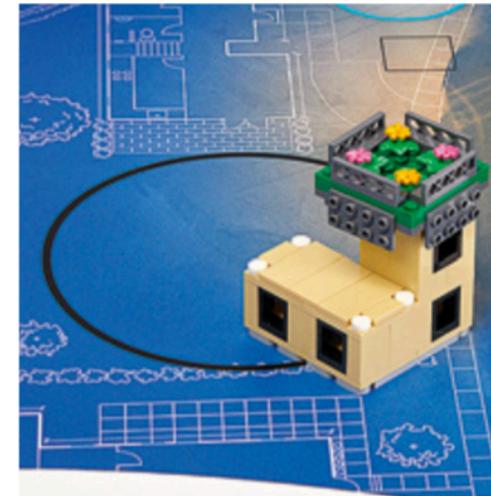
Color match = no
Bridged stack = 4 levels
20 points shown



Color match = red
Red stack = 2 levels
Other stack = 4 levels
40 points shown

Mission 13 Sustainability upgrades (only one counts per stack)

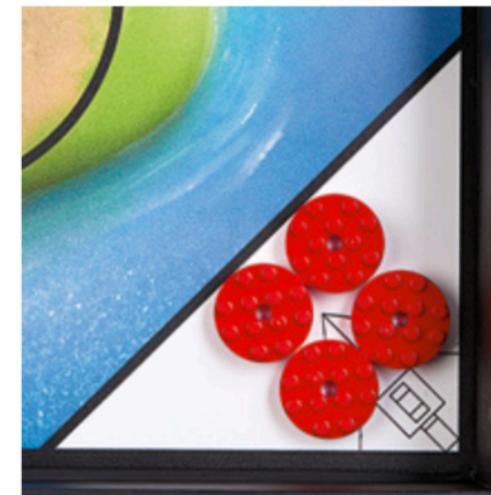
→ If an Upgrade (solar panels, roof garden, insulation) is Independent, and Supported only by a Stack which is at least partly in any Circle: **10 Each Upgrade**



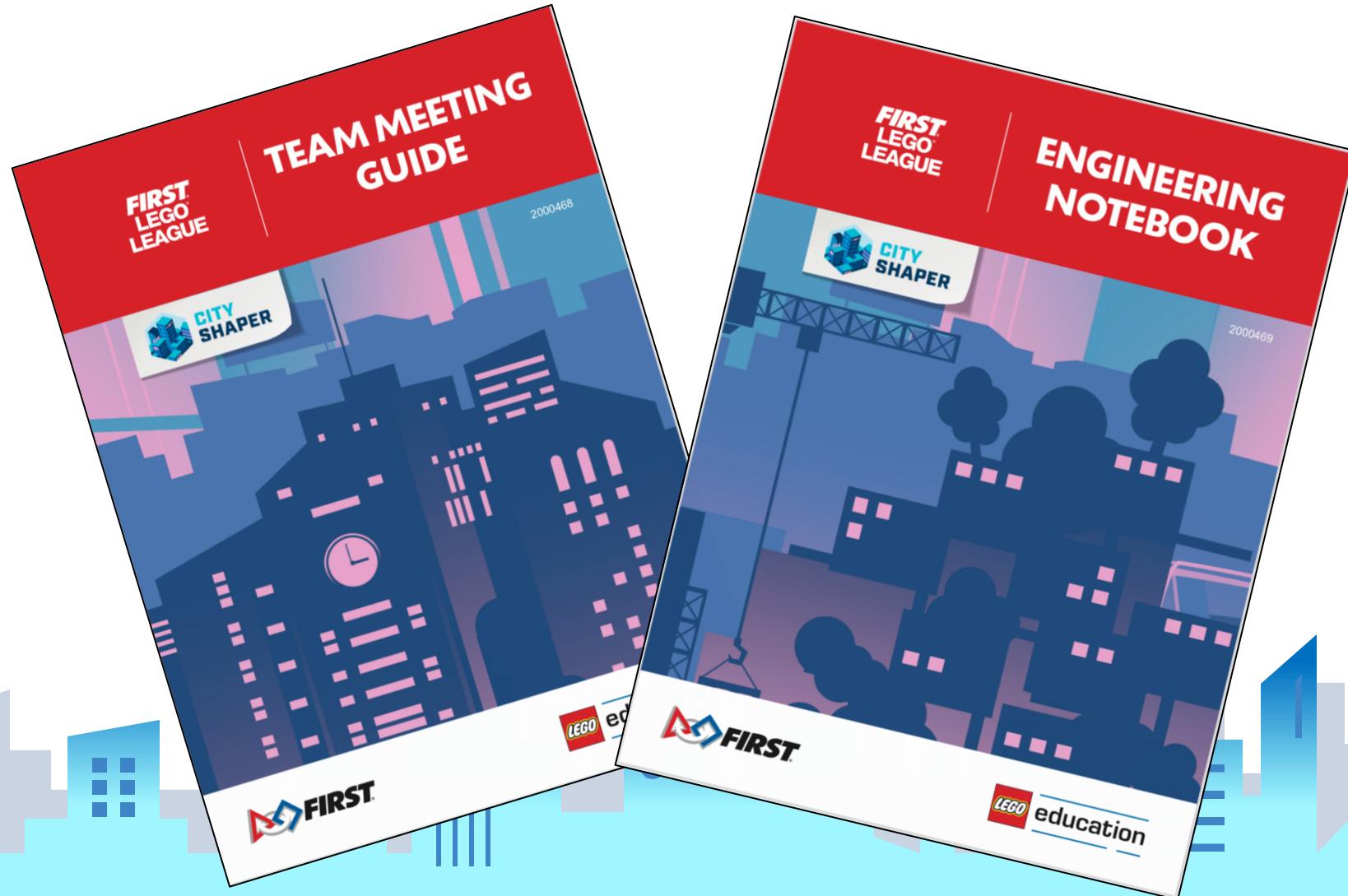
Mission 14 Precision (only one score counts)

→ If the number of Precision Tokens left on the Field is 6:

60 / 5: 45 / 4: 30 / 3: 20 / 2: 10 / 1: 5



REFER TO THE ENGINEERING NOTEBOOKS & TEAM MEETING GUIDE



DOWNLOAD NEW RUBRICS



Core Values

Team Number _____
Judging Room _____

For each skill area, clearly mark the box that best describes the team's accomplishments. If the team does not demonstrate skill in a particular area, then put an 'X' in the first box for Not Demonstrated (ND). Please provide as many written comments as you can to acknowledge each team's hard work and to help teams improve. Use the back for additional comments if needed.

	Beginning	Developing	Accomplished	Exemplary
Discovery Team explored and improved skills or ideas within all three aspects (Robot, Innovation Project, Core Values) of FIRST® LEGO® League; used creativity & persistence to solve problems				
N	minimal examples / all examples from 1 aspect	some examples / examples from 2 aspects	multiple examples / examples from all 3 aspects	multiple examples of new skills & ideas; extensive examples of improving in all 3 aspects
Team Identity Fun expression of team identity; team expresses how they enjoy FIRST LEGO League				
N	minimal identity; minimal enjoyment	some identity; enjoyment is unclear	clear identity; team clearly expresses their enjoyment	clear identity; team engages others in their enjoyment
Impact Team applied knowledge, skills and/or values learned in FIRST LEGO League to improve themselves and their world				
N	unclear impact of FIRST LEGO League	knowledge, values or skills impacted some team members	knowledge, values or skills impacted all team members	knowledge, values or skills impacted all team members AND team used values or skills to help others
Effectiveness Problem solving and decision-making processes help team achieve their goals				
N	team goals AND team processes unclear	team goals OR team processes unclear	clear team goals and processes	clear processes enable team to accomplish well defined goals
Efficiency Resources used relative to what the team accomplishes (time management, distribution of roles and responsibilities); team is stronger together than its individual members				
N	limited time management / role definition	clear time management / role definition	good time management / role definition allows team to avoid wasting effort OR resources	excellent time management / role definition allows team to avoid wasting effort AND resources
Kids Do the Work Appropriate balance between team responsibility and coach guidance				
N	limited team responsibility AND excessive coach guidance	limited team responsibility OR excessive coach guidance	Good balance between team responsibility and coach guidance	team independence with appropriate coach guidance
Inclusion Consideration and appreciation for the contributions (ideas and skills) and differences of all team members.				
N	limited consideration / appreciation for contributions	consideration / appreciation for contributions of most team members	clear consideration / appreciation for contributions of all team members	actively welcomed & recognized
Respect Team members act and speak with deference so others feel valued—especially when solving problems or resolving conflicts				
N	not evident with majority of team members	evident with majority of team members	clearly evident with all team members	clearly evident with all team members AND team encourages respect in others
Cooperation® Learning is more important than winning: Team learns from, teaches, and cooperates with each other and competing teams. Team competes in the spirit of friendly competition				
N	unclear or lack of team members cooperating with each other	team members cooperate with each other	team actively learns from and teaches teammates; celebrates other teams' successes	team actively helps, learns from, or collaborates with other teams AND celebrates other teams' successes
Comments				
Great Job...		Think about...		



Robot Design

Team Number _____
Judging Room _____

For each Robot Design criteria, clearly mark the box that best describes the ability of the team to demonstrate or provide evidence (such as analysis or test data) that their robot and processes meet that level of achievement. If the team does NOT describe a particular criteria at all, then put an 'X' in the first box for Not Demonstrated (ND). Please provide as many written comments as you can to acknowledge each team's hard work and to help teams improve. Use the back for additional comments if needed.

	Beginning	Developing	Accomplished	Exemplary
Durability Robot designed to maintain structural integrity and have the ability to withstand rigors of competition				
N	quite fragile; breaks a lot	frequent or significant faults/repairs	rare faults/repairs	sound construction; no repairs
Mechanical Efficiency Robot designed to be easy to repair, modify, and be handled by technicians				
N	excessive time to repair/modify	inefficient to repair/modify	appropriate time to repair/modify	streamlined time to repair/modify
Mechanization Robot mechanisms designed to move or act with appropriate speed, strength and accuracy for intended tasks (propulsion and execution)				
N	imbalance of speed, strength and accuracy on most tasks	imbalance of speed, strength and accuracy on some tasks	appropriate balance of speed, strength and accuracy on most tasks	appropriate balance of speed, strength and accuracy on every task
Programming Quality Programs are appropriate for the intended purpose and should achieve consistent results, assuming no mechanical faults				
N	would not achieve purpose AND would be inconsistent	would not achieve purpose OR would be inconsistent	should achieve purpose repeatedly	should achieve purpose every time
Programming Efficiency Programs are modular, streamlined, and understandable				
N	excessive code and difficult to understand	inefficient code and challenge to understand	appropriate code and easy to understand	streamlined code and easy for anyone to understand
Automation/Navigation Robot designed to move or act as intended using mechanical and/or sensor feedback (with minimal reliance on driver intervention and/or program timing)				
N	frequent driver intervention to aim AND retrieve robot	frequent driver intervention to aim OR retrieve robot	robot moves/acts as intended repeatedly w/ occasional driver intervention	robot moves/acts as intended every time with no driver intervention
Design Process Developed and explained improvement cycles where alternatives were considered and narrowed, selections tested, designs improved (applies to programming as well as mechanical design)				
N	organization AND explanation need improvement	organization OR explanation need improvement	systematic and well-explained	systematic, well-explained and well-documented
Mission Strategy Clearly defined and described the team's game strategy				
N	no clear goals AND no clear strategy	no clear goals OR no clear strategy	clear strategy to accomplish well-defined goals	clear strategy to accomplish most/all game missions
Innovation Team identifies their sources of inspiration and creates new, unique, or unexpected feature(s) (e.g. designs, programs, strategies or applications) that are beneficial in performing the specified tasks				
N	No original feature(s)	original feature(s) with some added value or potential	original feature(s) with the potential to add significant value	original feature(s) that add significant value
Comments				
Great Job...		Think about...		



Innovation Project

Team Number _____
Judging Room _____

For each skill area, clearly mark the box that best describes the team's accomplishments. Teams should demonstrate everything at the level; if they are missing part, mark the level below. If the team does not demonstrate an area, put an 'X' in the first box for Not Demonstrated (ND). Please provide as many written comments as you can to acknowledge each team's hard work and to help teams improve. Use the back for additional comments if needed.

*Required for Award Consideration

	Beginning	Developing	Accomplished	Exemplary
Problem Identification* Clear definition of the problem being studied				
N	unclear; few details	partially clear; details missing	mostly clear; detailed	clear; very detailed
Sources of Information Quality and variety of data/evidence and sources cited				
N	minimal quality; variety limited	quality OR variety need improvement; did not include professional(s)	sufficient quality and variety; included professional(s)	extensive quality and variety; included multiple professionals
Problem Analysis Depth to which the problem was studied and analyzed by the team, including extent of analysis of existing solutions				
N	minimal study; no analysis	minimal study; some analysis	sufficient study and analysis	extensive study and analysis
Team Solution* Clear explanation of the proposed solution and description of how it solves the problem				
N	difficult to understand	some parts confusing	understandable	easy to understand by all
Innovation Degree to which the team's solution makes life better by improving existing options, developing a new application of existing ideas, or solving the problem in a completely new way				
N	existing solution/application	solution/application contains some original element(s)	original solution/application; potential added value	original solution/application; demonstrated added value
Solution Development Systematic process used to select, develop, evaluate, test, and improve the solution (Implementation could include cost, ease of manufacturing, etc.)				
N	process AND explanation need improvement	process OR explanation need improvement	systematic process included evaluation	systematic process included evaluation; implementation considered
Sharing* Degree to which the team shared their Project before the tournament with others who might benefit from the team's efforts				
N	shared with family / friends	shared outside family / friends (such as classmates)	shared with one audience who may benefit OR one professional	shared with multiple audiences who may benefit OR multiple professionals
Creativity Imagination used to develop and deliver the presentation				
N	minimally engaging OR unimaginative	engaging OR imaginative	engaging AND imaginative	very engaging AND exceptionally imaginative
Presentation Effectiveness Message delivery and organization of the presentation				
N	undear OR disorganized	partially clear; minimal organization	mostly clear; mostly organized	clear AND well organized
Comments				
Great Job...		Think about...		

Lot of subtle changes. Make sure you read everything carefully.

LOTS OF TUTORIALS FOR YOUR TEAM

- Lessons from Beginner to Advanced.
- EV3Lessons.com
- FLLTutorials.com

INTERMEDIATE PROGRAMMING LESSON

MOVE DISTANCE MY BLOCK (MOVE_CM)

By Sanjay and Arvind Seshan





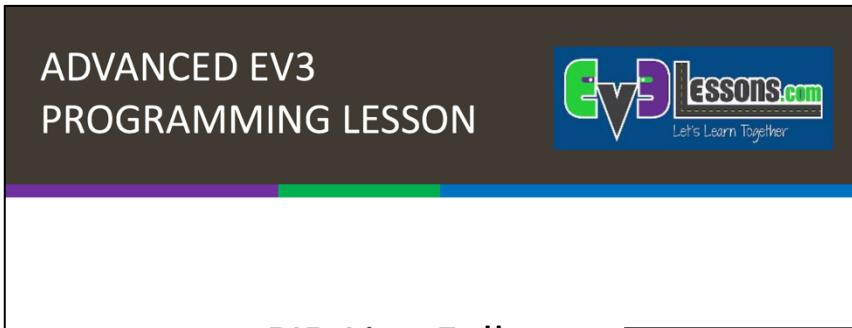




ADVANCED EV3 PROGRAMMING LESSON



PID Line Follower



FIRST® LEGO® League TUTORIALS

teach share learn

LESSON 8:
LINE FOLLOWING

SESHAN BROTHERS

Squaring on lines



BEGINNER INTERMEDIATE ADVANCED OTHER BEYOND EV3-G

Parallel Beam Synchronization

Arrays

Introduction to Proportional Control

Proportional Line Follower



USEFUL WORKSHEETS ON FLLTUTORIALS.COM

Robot Testing Worksheet Name: _____

Instructions:

- If you design more than one robot, use this chart to compare them. At the top of each column, describe your robot
- Come up with some basic tests to compare the robot designs. Can this robot move straight accurately? Can it turn consistently? Can it line follow? Can it detect a line? Did the robot move as intended?
- Discuss which robot performed the best to help you pick the best design for your team.

Robot 1:	Robot 2:	Robot 3:
Wheels:	Wheels:	Wheels:
Size:	Size:	Size:
Sensors:	Sensors:	Sensors:
Motors:	Motors:	Motors:

Mission Evaluation Worksheet Name: _____

Instructions:

- For each mission, fill in the information after reading the lines to get there, making it easier to navigate? Are the activation of the model hard?
- Based on the information, select the missions your team will attempt.
- Compare with other teammates and come to a consensus.
- Use this information to help you with the Mission Strategy.

Innovation Worksheet Name: _____

Instructions:

- Find as many similar products/solutions as you can find and compare them to your team's solution.
- The goal is to gather enough information to be able to explain how the team's solution is innovative (or not). You can share all this information with your judges.

Product/Link	Costs	Implementation Process	Pros	Cons

Learn the Core Values Name: _____

Instructions: Have each student fill in the form

Core Value	Definition	How will our team use this Core Value?
Discovery	We explore new skills and ideas.	1. 2.
Innovation	We use creativity and persistence to solve problems.	1. 2.
Impact	We apply what we learn to improve our world.	1. 2.
Inclusion	We respect each other and embrace our differences.	1. 2.
Teamwork	We are stronger when we work together.	1. 2.
Fun	We enjoy and celebrate what we do!	1. 2.

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Our Solution

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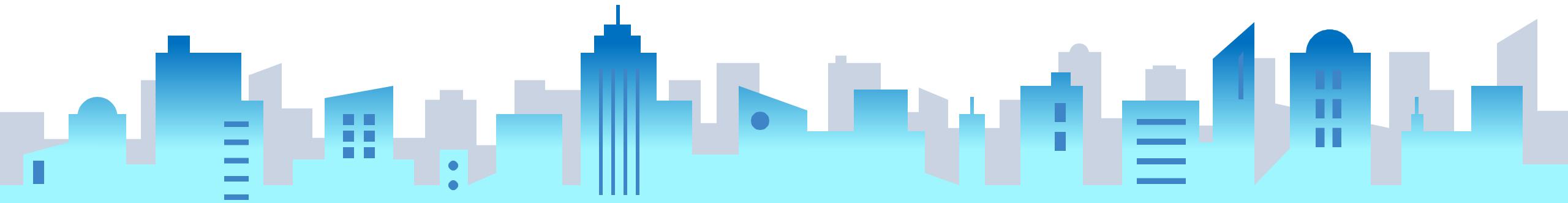
SIGN UP FOR EVENTS

- Sign up for our Competitive Scrimmage Tournament on December 7
- We host the only event that offers practice judging sessions to help you get ready for the Championship
- Contact us at team@ev3lessons.com

- **December 7th 2019 A Galaxy Far Far Away (AM only) – Competitive Scrimmage –**
You don't have to travel to another galaxy! Just come to Lawrenceville for a great last adventure before the Grand Championship Tournament. FRC Team, Not the Droids You are Looking For, are your tournament hosts. This scrimmage will offer optional presentation feedback for anyone who wants a practice judging session before the Championship. Three rounds at the table with awards presented to top performers (and to the individual team with the best Star Wars joke). (Boys and Girls Club, 4600 Butler St. Pittsburgh, PA 15201) (limit 22 teams) – **AM**
Event: Doors open @ 8:00 a.m., Competition starts at 9:00 a.m., Ends by 1:30 p.m.

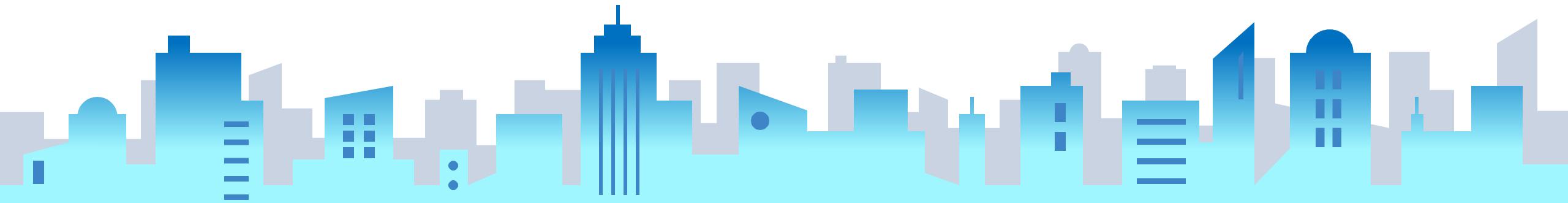
Introducing....

Nina Chase, Founder and Principal at Merritt
Chase and FIRST Alumna



Introducing....

**Professor Stephen Lee, Head of CMU
School of Architecture**



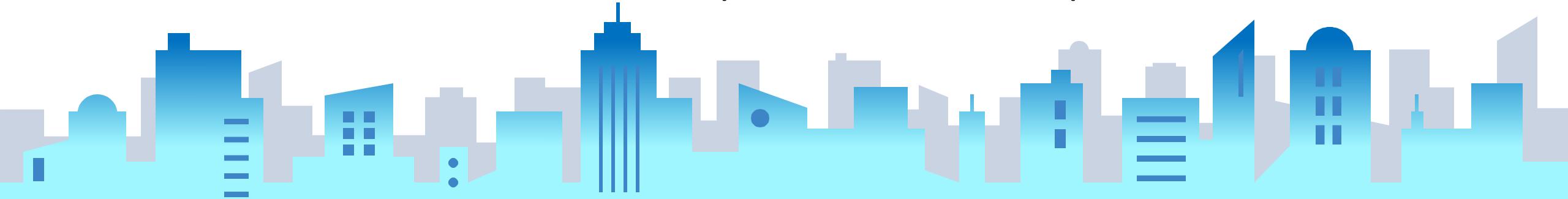
Project Tips – FLL Sharon Tiger Techs

2018 FLL WPA Champion's Award Winners

Detroit World Festival 2019 1st Place Inspiration

Global Innovation Semi-finalist Team

North American Open 2nd Place Champion's



Thank You for Attending and Good Luck!

Recording available at:
<https://youtu.be/wJCmiPJrBhc>



FIRST LEGO LEAGUE KICKOFF
AUGUST 3, 2019

