FLL Coaches Clinic Game, Project, Core Values, Tournament, Q&A

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University of Texas at Dallas October 8, 2016 September:

Getting started, team activities, project selection, game analysis, project research

October:

Skill building, project development, robot chassis and experiments, solve a mission or two

November:

Project finalization, sharing, scrimmages, solve more missions

December:

Final tournament preparation, Qualifier events

Sections:

- **Core Values**
- The Project
- The Robot Game Robot Game Rules
  - **Robot Game Missions**
  - Robot Game Executive Summary

Central component of FIRST LEGO League:

- We are a team.
- We do the work to find solutions with guidance from our coaches and mentors.
- We know our coaches and mentors don't have all the answers; we learn together.
- We honor the spirit of friendly competition.
- What we discover is more important than what we win.
- We share our experiences with others.
- We display Gracious Professionalism® and Coopertition® in everything we do.
- We have FUN!



Directions: 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. When you have completed the evaluation, please circle the team's areas of strength.

	Beginning	Developing	Accomplished	Exemplary	
D		alanced emphasis on all three st about winning awards	ore Values) of FLL; it's not		
N D	emphasis on only one	emphasis on two aspects; one aspect neglected	emphasis on all three aspects	balanced emphasis on all three aspects	
Т	eam Spirit E	nthusiastic and fun expressior	n of the team identity		
ND		minimal enthusiasm OR minimal identity	team is enthusiastic and fun; clear identity	team engages others in their enthusiasm & fun; clear identity	
In		oplication of FLL values and so tential examples from daily lit		escribe current and	
N D	team does not apply FLL	team able to describe at least one example	team able to describe multiple examples	team able to describe multiple examples, incl. individual stories	
E	-	oblem solving and decision n		achieve their goals	
N D		team goals OR team processes unclear	clear team goals and processes	clear processes enable team to accomplish well defined goals	
E		esources used relative to what th ad responsibilities)	e team accomplishes (time mar	agement, distribution of roles	
N D	limited time management	limited time management OR unclear roles	excellent time management and role definition allows team to accomplish most goals	excellent time management and role definition allows teams to accomplish all goals	
ĸ	ids Do the Work A	opropriate balance between te	eam responsibility and coach	guidance	
N D		limited team responsibility OR	Good balance between team	team independence with	
_	excessive coach guidance	excessive coach guidance	responsibility and coach guidance	minimal coach guidance	
_	nclusion C	onsideration and appreciation	for the contributions (ideas a	minimal coach guidance	
_	nclusion Common Common Common Market Common	onsideration and appreciation embers, with balanced involv unbalanced team involvement	for the contributions (ideas a ement balanced team involvement AND	minimal coach guidance	
_	nclusion C m unbalanced team involvement AND lack of appreciation for contributions	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members	
_	nclusion C m unbalanced team involvement AND lack of appreciation for contributions tespect Te	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions am members act and speak	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members with integrity so others feel v	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members	
_	nclusion C munbalanced team involvement AND lack of appreciation for contributions tespect Te science Science	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions aam members act and speak plving problems or resolving c	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members with integrity so others feel v	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members alued especially when	
_	Inclusion     C       unbalanced team involvement     MD       AND lack of appreciation for     contributions       contributions     So       inot evident with majority of team members	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions eam members act and speak living problems or resolving c evident with majority of	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members with integrity so others feel v onflicts almost always evident with all team members	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members alued especially when always evident, even in the most difficult situations	
In N D R N D	nclusion       C         unbalanced team involvement       AND lack of appreciation for contributions         tespect       To so the second sec	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions am members act and speak living problems or resolving c evident with majority of team members	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members with integrity so others feel v onflicts almost always evident with all team members	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members alued especially when always evident, even in the most difficult situations	
In N D R N D C N	nclusion       C         unbalanced team involvement       AND lack of appreciation for contributions         tespect       To so the second sec	onsideration and appreciation embers, with balanced involve unbalanced team involvement OR lack of appreciation for contributions am members act and speak olving problems or resolving c evident with majority of team members am competes in the spirit of f evident with majority of	for the contributions (ideas a ement balanced team involvement AND appreciation for contributions of most team members with integrity so others feel v onflicts almost always evident with all team members friendly competition and coop almost always evident with	minimal coach guidance and skills) of all team balanced team involvement AND appreciation for contributions of all team members alued especially when always evident, even in the most difficult situations perates with others always evident, even in difficult situationsand team	

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Optional in qualifiers; may be required at Championship



## Model Scout Robotics, 2013 N. Amer Championship

## **Model Scout Robotics**

#### Discovery







Problems seniors encounter: Making beds, shopping for groceries, proper medication



Light sensor calibration



**Core Values** 



We do the work to find solutions with guidance from our coaches



What we discover is more important than what we win

#### We share our experiences with others





#### Inclusion



Meeting at championship

Lead roles Katie: Captain Veronica: Project Anthony: Lawyer / Robot Matthew: Programming Walter: Attachments (We work together in all areas!)



Attachment improvements from all members

### Coopertition



Cooperation on lever mission

Team website with tips



Helped other teams with software

#### Integration



Presentation skills



Rubiks cube solver robot



Perot Museum Discovery Days



BSA Troop 219 demo



## **Republic of Pi**, **2014 World Festival**



## **REPUBLIC OF PI**

of the Republic of Pi, in Order to form a more perfect circle, establish radius, insure diameter, provide

Article I: The Bill of Core Values

Section I - We are a team

Section IX - We have fun

area, promote the circumference, and secure the blessings of P1 to ourselves and our pl-sterity, do

We the Jeog

ordain and establish this Constitution for the Republic of Pi.

### #3034

#### Dept. of Discovery





lobot self-tes









#### Federal Bureau of Inclusion



Veronica: Executive Anthony: Chief Justice

Sec. of Attachments Walter: Matthew: Sec. of Programming

(We work together in all areas!)



Meeting at qualifie





Attachments and improvements contributed by all

Dept. of Coopertition

#### Central Integration Agency

Characteristics of wildfires





Rubiks cube solver robot



seum Discovery Days Exh Feb 8 & Apr 12





Section II - We do the work to find solutions Section V - What we discover is more important than what we win

Section VI - We share our experiences with others









Coppell scrimmage: Robot attachment tips Team website with tips



Sharing robot ideas with other teams



nthony Mellon Supreme Court Justice Executive









## Project



Directions: 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. When you have completed the evaluation, please circle the team's areas of strength.

ca	ams improve. <i>When you have</i> Beginning	Developing	Accomplished	Exemplary				
Π	Problem Identification * Cle		•					
	N D unclear; few details	partially clear; details missing	mostly clear; detailed	clear; very detailed				
		es (e.g. books, magazines, lity sources cited, including	websites, reports and other professionals in the field	resources) and number of				
	N one type of information cited; minimal sources	two types of information cited; several sources	three types of information cited; many sources, including professionals	four(+) types of information cited; extensive sources, incl. professionals				
	Problem Analysis Dep	oth to which the problem wa	s studied and analyzed by th					
•	N minimal study; no team D analysis	minimal study; some team analysis	sufficient study and analysis by team	extensive study and analys by team				
		Extent to which existing solu verify the originality of the te	utions were analyzed by the team's solution	team, Including an effort to				
	N minimal review; no team D analysis	minimal review; some team analysis	sufficient review and analysis by team	extensive review and analysis by team				
CONTINUENTS.								
		ar explanation of the propos	ed solution	1				
	N difficult to understand	some parts confusing	understandable	easy to understand by all				
8	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 D existing solution/application	solution/application contains some original element(s)	original solution/application	original solution/application with the potential to add significant value				
	Implementation Cor	nsideration of factors for imp	lementation (cost, ease of m	anufacturing, etc.)				
	N D minimal factors considered	some factors considered	factors well considered; some question about proposed solution	factors well considered and feasibl solution proposed				
Continents				and the strength of the				
	mig	ht benefit from the team's e	ed their Project before the top fforts shared with one individual					
5	N D shared with one individual	shared with one group	or group who may benefit	shared with multiple individuals or groups who may benefit				
		d deliver the presentation						
	N minimally engaging OR D unimaginative	engaging OR imaginative	engaging AND imaginative	very engaging AND exceptionally imaginative				
-	Presentation Effectiveness	Message delivery and or	ganization of the presentation	n				
	N D unclear OR disorganized	partially clear; minimal organization	mostly clear; mostly organized	clear AND well organized				
Comments								
5		Dessent	lun anatine Calution					

Strengths:

Innovative Solution

Presentation

\*Required for Award Consideration

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Research

Clearly state problem being addressed

Interview experts

Document research and sharing with others Bibliography Interviews Presentations

Presentations

Perform some critical analysis of solution Cost, benefit, feasibility Posters

Powerpoint

Be careful of AV setup time and equipment failure

Skit or performance

Presentation

Demonstration

Practice – Practice – Practice!

Judging of mechanical and programming design of team's robot

Panel of judges will interview the team and want to see demonstrations of robot capabilities





Directions: 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. When you have completed the evaluation, please circle the team's areas of strength.

D	Beginning	Developing	Accomplished	Exemplary					
	<b>urability</b> Evi	ence of structural integrity; ability to withstand rigo		competition					
N D	quite fragile; breaks a lot	frequent or significant faults/repairs	rare faults/repairs	sound construction; no repairs					
M	echanical Efficiency Eco	onomic use of parts and time	; easy to repair and modify						
N D		inefficient parts or time to repair/modify	appropriate use of parts and time to repair/modify	streamlined use of parts and time to repair/modify					
M	Mechanization         Ability of robot mechanisms to move or act with appropriate speed, strength and accuracy for intended tasks (propulsion and execution)								
N D	imbalance of speed	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					
Pr		ograms are appropriate for th ults, assuming no mechanica		Ild achieve consistent					
N D	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					
Pr	rogramming Efficiency Pro	grams are modular, streamlined	l, and understandable	· · · · · ·					
N D	excessive code and difficult to understand	inefficient code and challenge to understand	appropriate code and easy to understand	streamlined code and eas for anyone to understand					
A	Automation/Navigation Ability of the robot to move or act as intended using mechanical and/or sensor feedback (with minimal reliance on driver intervention and/or program timing)								
N D	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					
	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation	develop and explain improve l, selections tested, designs al design) organization OR explanation	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to prograr systematic and well-	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained					
	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation need improvement	frequent driver intervention to aim OR retrieve robot develop and explain improve selections tested, designs i cal design) organization OR explanation need improvement	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to prograr systematic and well- explained	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained and well-documented					
	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation need improvement ission Strategy Ab no clear goals AND no	develop and explain improve l, selections tested, designs al design) organization OR explanation	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to prograr systematic and well- explained cribe the team's game strate clear strategy to accomplish	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained and well-documented gy clear strategy to accomplish					
D N D M N D	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation need improvement ission Strategy Ab no clear goals AND no clear strategy novation Cre	frequent driver intervention to aim OR retrieve robot develop and explain improve selections tested, designs i cal design) organization OR explanation need improvement ility to clearly define and deso no clear goals OR no clear strategy sation of new, unique, or une	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to progran systematic and well- explained cribe the team's game strate clear strategy to accomplish the team's well defined goals xpected feature(s) (e.g. desi	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained and well-documented gy clear strategy to accomplish most/all game missions gns, programs, strategies					
	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation need improvement ission Strategy Ab no clear goals AND no clear strategy novation Cre	frequent driver intervention to aim OR retrieve robot develop and explain improve l, selections tested, designs i cal design) organization OR explanation need improvement ility to clearly define and design no clear goals OR no clear strategy	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to progran systematic and well- explained cribe the team's game strate clear strategy to accomplish the team's well defined goals xpected feature(s) (e.g. desi	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained and well-documented gy clear strategy to accomplish most/all game missions gns, programs, strategies d tasks					
D N D M N D In N	frequent driver intervention to aim AND retrieve robot esign Process Ability to narrowec mechanic organization AND explanation need improvement ission Strategy Ab no clear goals AND no clear strategy novation Cre or a original feature(s) with no	develop and explain improve to aim OR retrieve robot develop and explain improve selections tested, designs al design) organization OR explanation need improvement ility to clearly define and design no clear goals OR no clear strategy eation of new, unique, or une applications) that are benefic original feature(s) with some	robot moves/acts as intended repeatedly w/ occasional driver intervention ement cycles where alternati mproved (applies to prograr systematic and well- explained cribe the team's game strate clear strategy to accomplish the team's well defined goals xpected feature(s) (e.g. desi ial in performing the specific original feature(s) with the potential	robot moves/acts as intended every time with n driver intervention ves are considered and nming as well as systematic, well-explained and well-documented gy clear strategy to accomplish most/all game missions igns, programs, strategies d tasks original feature(s) that add					

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Focus on design process used to create robot

During judging, let the team members least involved in robot construction drive the robot

Make sure everyone has something to do in presentation

Have props or photos showing previous designs that were discarded

## **Robot Design**

# LEGO Digital Designer is a good way to draw/print/document LEGO models



Carefully learn all rules and mission descriptions

Game strategy: Determine which missions increase score and are easiest to complete

Calculate highest possible score

Focus on robot consistency and reliability

Use scoring apps and scoring tools

## Be sure drive team members are familiar with FLL Score sheets

leam #:	 Referee		
Round:	Table:		



(plages	circle	211	selections	or	fill	in	the	blanke	١.
(please	circle	all	selections	01	1111	ILI I	uie	DIATIKS	,

Shark and tank are completely in Target NONE		
Shark touching only tank floor (NOT wall)	Yes	s No
Nothing touched the Shark except the tank*	Yes	s No
2) M02 Service Dog Action		
Robot must cross fence from West, between		
Warning Fence is down	Yes	
Robot completely crossed fence*	Yes	s No
M03 Animal Conservation Pairs made by rotation of Mode	əl	
Pairs of Identical Animals completely on same side* 0 1	23	450
M04 Feeding (only one color per Area)		
Pieces of food completely in Animal Areas 0 1 2 3 4	15	678
M05 Biomimicry		
Wall supports complete weight of White Gecko	Yes	s No
Wall supports complete weight of Robot	Yes	s No
M06 Milking Automation Movement made by red lever		
All Milk has rolled out*	Yes	s No
All Manure has rolled out*	Yes	s No
) M07 Panda Release		
Slider appears fully opened clockwise	Yes	s No
M08 Camera Recovery		
Camera is completely in Base	Yes	s No

	7
ALLIES	w

D	M09 Training and Research					
	Manure samples must be moved one at a time					
	Dog, Trainer completely in Training/Research Area	Yes	No			
	Zoologist completely in Training/Research Area	Yes	No			
	Manure completely in Training/Research Area* NONE		(1-7)			
0)	M10 Bee Keeping					
	Bee is on Beehive with NO Honey in Beehive	Yes	No			
	Bee is on Beehive and Honey is completely in Base	Yes	No			
1)	M11 Prosthesis			-		
ץ			No			
	Prosthesis fitted to Pet, NOT held by Ref	Yes Yes	NO			
	Prosthesis fitted to Pet and completely in Farm	res	INO			
2)	M12 Seal in Base					
	Seal is completely in Base, NOT broken	Yes	No			
3)	M13 Milk in Base					
ſ	All three Milk are completely in Base	Yes	No			
4)	M14 Milk on Ramp (Select option that best fits)					
[	NONE	ΑE	3 C			
	<ul> <li>All three milk supported by Ramp</li> </ul>					
	B) (A) + only things supported by & touching Ramp					
	C) (A) + (B) + standing					
5)	M15 All Samples					
	All seven Manure Samples completely in Training/Resea	rch Ar	ea			
		Yes	No			
5)	Penalties			-		
Ĺ	Number of Manure Samples in the white triangle area					
		23	4 5			
				-		
	Return Loose Items					
	1xGorilla, 1xBat, 1xFlamingo, 1xFrog, 1xWhiteGecko,					
	1xShark&Tank, 1xProsthesis, 12xManureSamples, 3xMa					
	3xMilk, 8xFood, 1xPet, 1xBee, 1xHoney, 1xSeal, 1xCam	era				



NONE (1-7)

Manure completely in T/R Area\*

Team Initials:

Drive team members are allowed to discuss scoring sheets with referees

- ONLY the drive team members (not coaches)
- Rule GP3 Benefit of the Doubt
- Be courteous!
- Consider whether points will actually improve ranking
- Once score sheets are signed, they're final!

## Morning

- Load in and setup
- Judged sessions (Robot Design, Project, Core Values)
- One or two Robot Game rounds
- Lunch

Afternoon

- Remaining Robot Game rounds
- Callbacks
- Awards and advancement

## What to bring



What to Bring to an Event Aug. 8 2016 | | 0 KB Content Type: FIRST LEGO League Tags: Event Preparation, Events

- Robot and attachments
- Parts kit
- · Print-out of programs and robot specification page
- Materials, props, and equipment needed for Project presentation
- Laptop computer with batteries and/or AC adaptor, extra batteries, extension cords
- Team scrapbook
- Team banner, posters, or other decorations for pit space
- Snacks and drinks
- · Storage box for personal items USB cable or IR tower Team introduction page
- Fun, inexpensive gifts to share with other teams (pins, hats, personalized, team playing cards)

Some events require teams to bring a printed page of information about themselves, usually known as the Team Info Sheet, Team Information Sheet, or Team Profile. These pages typically include a picture of the team, a picture of the robot, and a description of the team's Project, Robot design process, and how they follow the *FIRST* LEGO League Core Values. Please check with your tournament director to find out if you are required to bring one to your event.

(34)

## Other suggestions – game cart

Office Depot Mobile Folding Cart - \$15

32 liter Really Useful Box - \$27

Can hold robot and parts between matches

Acts as a side table during Robot Game

Store judging handouts



Available from Staples and Vistaprint

Often on sale (look for online coupons)



## Other suggestions – Judge and Pit giveaways

## **Buttons**

Art

Wooden nickels

Candy is popular but prohibited by some venues





The afternoon period of a competition day is often slow

Bring activities to share with other teams in the Pit Area

- Other interesting LEGO robots
- Team information
- Displays
- Videos

FLL events take place beyond the North Texas region; including Oklahoma, Central Texas, etc.

"Espionage":

Visit events you aren't competing at Visit veteran team meetings and events

"Peek behind the curtains": Volunteer at an event Become a judge or referee