LIBRARY & COMMUNITY STEM INITIATIVES

RICK HANSEN ROBOTICS
FIRST TEAM 1241
FIRST TEAM 1285

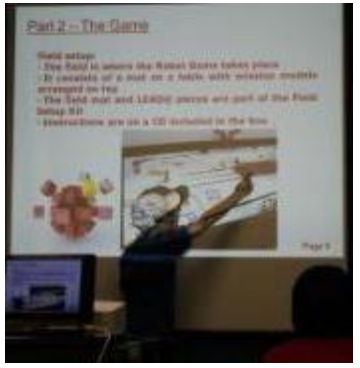



ARTI JAVERI

WHAT I WANT YOU TO GET OUT OF THIS

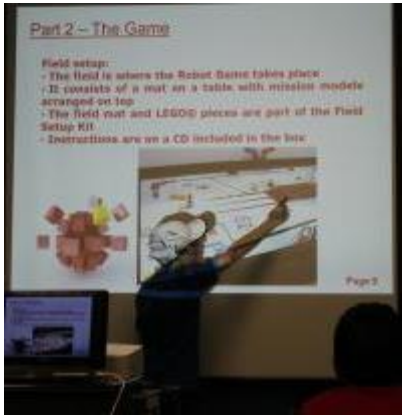
- an understanding of how to start a robotics program at your libraries
- steps to help you succeed in planning, organizing and execution of the Robotics program in your library
- a look at the Badge Program (a students journey)



GOAL OF THE LIBRARY PROGRAM

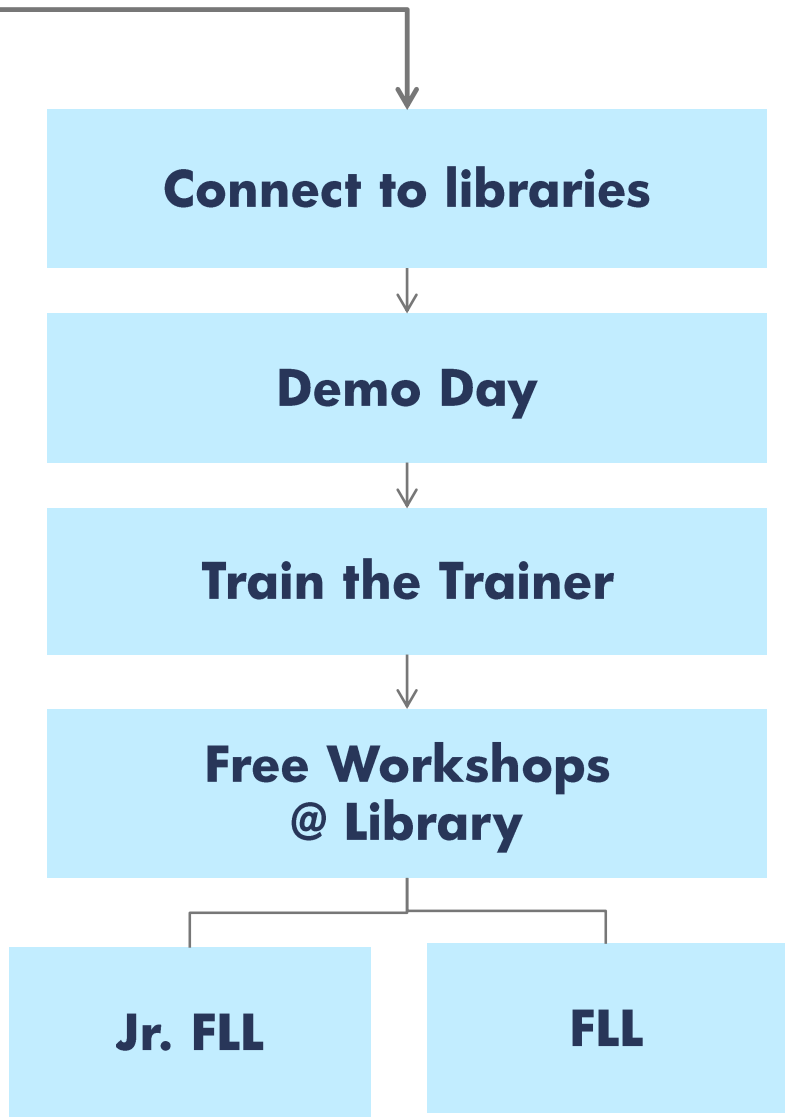
- create opportunities for libraries to be involved in STEM and 21st century learning Programs (STEAM)
- students gain leadership, teamwork, communications, presentation, organizational, management and networking skills while building confidence and become difference makers
- spread awareness, inspire and impact our community



STEPS

Create a group: "Library Team"

- Alumni Mentor (1)
- Adult Mentor (1)
- Experienced Students (2-4)
- Shadow Students (2-4)



Connect Libraries

- **Approach Libraries (meetings, emails, invite to events)**
- **Provide them and Review with them the "Guide to Robotics"**
- **Act as the mediator/facilitator for everything within this guide in order to have run the program**
- **Review the FIRST Robotics Canada Library Initiative Documents**

Teams Requirements:

- 2-3 hours to review guide and workshop structure
- willing to answer email requests and meeting requests from libraries
- approach libraries in your area
- have basic knowledge of what is taught in workshops
- understand structure and process of how this work

Demo Day

- **This is one of your marketing tools to gauge the demand**
- **Set a date/time with your local library to do a demo**
- **Choose dates with other events so that you have *maximum audiences***
- **Examples: Celebration square events, kids on recess events, library milestones etc.**

Teams Requirements:

- prep for demo day
- flyers, brochures, team info marketing materials
- Information on next events
  - sign up sheet for an info night
  - sign up for workshops
  - timeline to sign up
  - open registration workshops

Train the Trainer

(getting prepared to run the workshops)

Remember – YOU are teaching children!

- **Create an Intro to Workshops and the FIRST Program for your students that will deliver the workshop**
- **Structure of "library team" (refer: Structure)**
- **Decide on what you will offer (refer: Pathways)**
- **Schedule workshop times**
- **Train the students to deliver: Key elements on how to work with kids (behavior, language etc.) and Program 4 Weeks Outline**
- **Check all resources available (lego, materials, chart paper etc.)**

Team Requirements:
- dependent on team

Free Workshops
(Nov-Dec, Jul-Aug)

- **Recheck: Resources and equipment (Lego, Fisher Technik, VEX robots/parts, FRC robot/parts, projector, etc.)**
- **Recheck 4 -6 weeks workshop detailed session outline**
- **Registration Desk Set up Requirements**
- **Tracking of participants (Fan Club)**
- **Flyers, marketing materials for your team**
- **Parent info session**
- **Reward and recognition (badges)**

Team Requirements:
- Prep Time per workshop: 2-3 hrs per workshop
- Actual Workshop Day: 3 hrs per workshop day

SUMMARY

- INSPIRATION
- EMPOWERMENT
- CITIZENS THAT ARE DIFFERENCE MAKERS
- EXPAND THE CAPACITY FOR GROWTH

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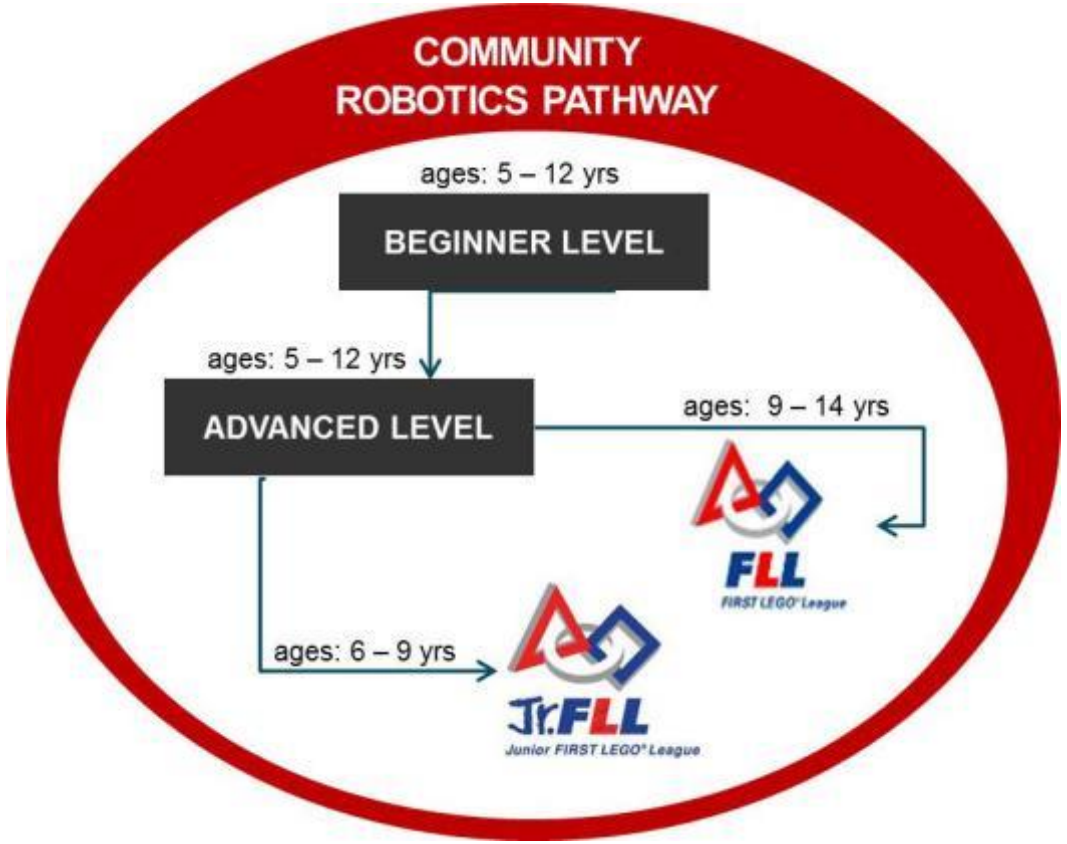
THANK YOU!

RELATED INFORMATION

ROBOTICS PROGRAMS

Offering Robotics Programs in the Community



Free Drop in Program

- Year round
- Age Group 5-12
- Beginner, Advanced

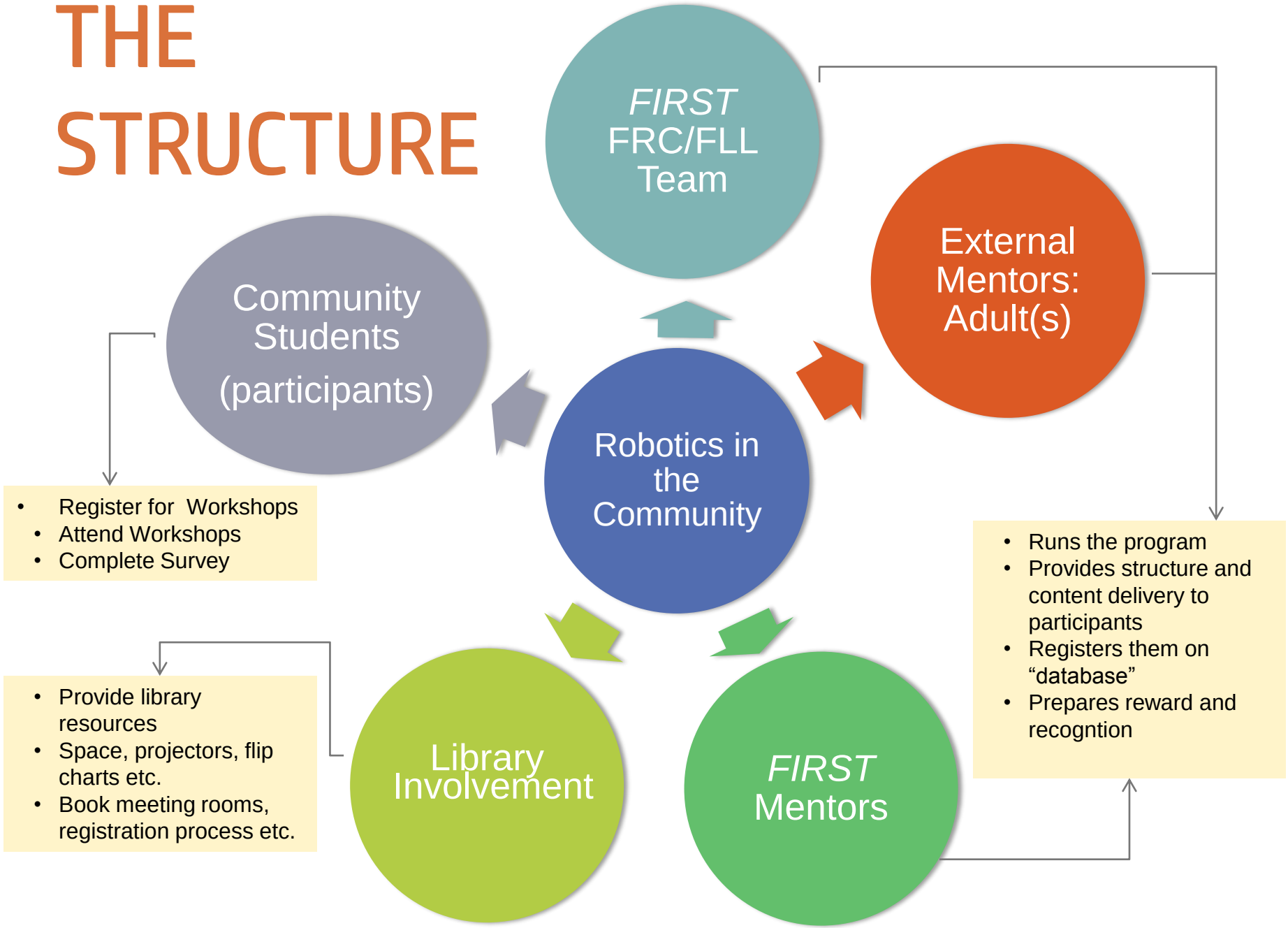
Jr. FLL (Competitive Teams)

- July—December
- Ages 6-9—up to 6 students

FLL Competitive Teams)

- July—December
- Ages 9—14—up to 10 students max

THE STRUCTURE



FREE-WORKSHOPS OUTLINE

Week 1/Lesson 1 - Introduction to the Robot (Senior & Junior)

Activity 1: What is a Robot?
30 minutes
- What is a robot?
- Android vs. Cyborgs
- Robots vs Machines

Activity 2: Show and Tell
30 minutes
- Bring in Vex Robots to show, students also get to drive the robot
- LEGO MINDSTORM robots to show
- FisherTechnik Robots to show
- Videos of Androids and other Robots

FREE-WORKSHOPS OUTLINE

Week 2/Lesson 2 – Mechanisms/Build Workshop (Senior & Junior)

Activity 1: Types of Mechanisms
20 minutes
- Introduce Basic mechanisms such as: Motors, Gears and Gear ratios, Sprockets, Levers
- Use Lego, Vex and a bicycle to explain

Activity 2: Catapult Project
40 minutes
- *May Build FisherTechnik Kits instead of Catapult
- Equipment required:
- Structure Material
- Elastics
- Plastic Spoon
- Ping Pong Ball

FREE-WORKSHOPS OUTLINE

Week3/Lesson 3 – Programming Workshop

Activity 1: Introduction to Programming
30 minutes

- Explain the idea of breaking down into really small steps
- Coloured Foam blocks to be arranged in particular way with blindfold
- Explain the idea of breaking down into really small steps
- Jelly Sandwich Activity: Students have to clearly instruct Teacher in making a Jelly Sandwich with ingredients

Activity 2: Different Types of Sensors
30 minutes

- Show different types of sensors used in robots with LEGO MINDSTORM and Vex Robots.
- Go back to how robots reflect human like qualities and explain different sensors on the human body

FREE-WORKSHOPS OUTLINE

Week 4/Lesson 4 – Design/Build Workshop

Activity 1: Intro to Design

20 minutes

Design Process – think things through before building!
Good Vs Bad Design examples and get students to critique them and propose different solutions.

Activity 2: Build FisherTechnik Kits

40 minutes

Creating robots using FisherTechnik kits.