Thank you for your interest in registering for tryouts for the Glades Middle School Cougar Path FFL Team.

By completing all sections of this Summer Project, YOU WILL ADVANCE straight thorough to Round 2 of Tryouts

If you need more space for answers, please add additional pages.

The answers, design and concepts received by GMS from these Summer Projects may be used during the 2014/2015-competition season.

The completion of this Summer Project will be used as an aid for team for team selection(s) and does not guarantee a place in the team.

You completed Summer Project must be given to Mrs. Farkas, starting the 1st week of school, but no later than the 1st Tryout. The 1st Tryout will occur after school during the 2nd week of school. Day(s) will be announced.

Summer Projects will not be received before the start of the school year, and the order in which the projects are received will have absolutely nothing to do with team selections, so relax and do your best.

Returning GMS Robotics Competition team members are REQUIRED to complete this Summer Project in order to be considered for a spot on the team(s).

**Important websites to use to complete your assignment**

http://www.usfirst.org/roboticsprograms/fll


http://www.usfirst.org/roboticsprograms/fll

Recommended Book - *Beginning Lego Mindstorms EV3* by Mark Rollins
Student Information

Name: __________________________________________________________

Grade: _______________________________________________________

Science Teacher________________________________________________

1. Have you competed on a FLL Team before? If so, list the year(s), the school you represented and the Team Name(s).

2. Tell us about yourself; include interests, talents, sporting and other achievements.

3. Give your best description and understanding of teamwork.

What is FLL/FIRST

1. What do the letters F.I.R.S.T represent?

   F
   I
   R
   S
   T
2. What do the letters FLL represent?

   F

   L

   L

3. What are the 8 Core Values, which are the cornerstone of the FLL program?

4. In your own words, what is the importance of having these core values?

5. What is Gracious Professionalism?

6. How would you explain Gracious Professionalism to someone else?

7. Provide 5 examples where you practice Gracious Professionalism in your daily life?
   a)
   
   b)
   
   c)
   
   d)
Tourndament Components

During the FLL tournament there are four events that each team competes in: Teamwork/Core Values, Robot Design and the Robot Match Game, and the Project. Each of the sections makes up 33% of your score.

Teamwork Component

Teamwork is critical to succeed in FIRST LEGO® League and is the key ingredient in any team’s success. During the 5-minute Core Values/Teamwork session, teams are evaluated on their ability to work together during a problem solving session, and the presence of gracious professionalism as they work together. Here are two teamwork tasks that were presented in 2012/2013. How would you achieve these tasks and what would you do to assist your team members in achieving the result?

#1 Traffic Jam

Here’s the problem:

![Traffic Jam Problem Image]

There are seven stepping-stones and six people. On the three left-hand stones, facing the center, stand three of the people. The other three people stand on the three right-hand stones, also facing the center. The center stone is not occupied.

The challenge: exchanging places

Everyone must move so that the people originally standing on the right-hand stepping stones are on the left-hand stones, and those originally standing on the left-hand stepping stones are on the right-hand stones, with the center stone again unoccupied.

The rules:

1. After each move, each person must be standing on a stepping-stone.
2. If you start on the left, you may only move to the right. If you start on the right, you may only move to the left.
3. You may "jump" another person if there is an empty stone on the other side. You may not "jump" more than one person.
4. Only one person can move at a time.
Design a Tool. In this activity develop a new tool to safely retrieve a golf ball from a garbage can. You cannot touch the garbage can, but the tool can. Here is the material you have to work with:

1. paper lunch bag (yes, you can also use the bag in your build)
1. golf ball
4. pieces of 4" string
4. drinking straws
1. pair of wooden chopsticks
4. small paper clips
4. rubber bands
5. Post-It notes (3" x 3")
3. pipe cleaners, 1 pencil
1. foot piece of masking tape
**Robotics Design**

During this session, you will share with the judges a little bit about your robot, such as the number and type of sensors, drivetrain details, number of parts, and the number of attachments. They would also like to know what programming language you used, the number of programs and the amount of memory used by each program.

**EV3 - Parts Identification**

<table>
<thead>
<tr>
<th>Structural</th>
<th>CATEGORY NAME</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use the Word Banks to Label the EV3 Intelligent Brick and Parts.

1. Touch Sensor
2. Gyro Sensor
3. Color Sensor
4. Ultrasonic Sensor
5. Sensor Data Bank
6. 11. A. Inputs Ports
7. B. Outputs Ports
8. C. LCD screen
9. D. SD Card Port
10. E. EV3 Brick Buttons (Up, Down, Left, Right)
11. F. USB Port
12. G. Back/Previous Button
13. H. On/Off/Select Button
14. I. Medium Motor
15. J. Large Motor
16. K. Guide Line

12. NAME: DETECTS: UNITS: PORT:
13. NAME: DETECTS: UNITS: PORT:
14. NAME: DETECTS: UNITS: PORT:
15. NAME: DETECTS: UNITS: PORT:
8. List the two (2) **MOST IMPORTANT** concerns you need to pay attention to BEFORE you build a robot (Hint: Research tournament ROBOT Rules and Thinking about robot design).

9. Using the Lego Digital Designer to design your competition robot: Use 3 sensors, a claw attachment and gear mechanism that control the claw. Once it is created print its image and building directions. Attach it to your packet.

**Program**

- Go to the following website to download the software to program the EV3.-
- There are a number of videos that are downloaded. I would take the time to watch them
- Download the user guide. Use it to learn how to program your robot.

**Tournament**

10. Research and list Two FLL Tournament rules for each of the Categories below.

A. Robot

   1) 

   2) 

B. Game Table (the table used for matches at tournaments).

   1) 

   2) 

C. Match

   1) 

   2) 

D. Team
Project

Overview:

In 2014-2015 Season, the FLL theme will be “World Class. FLL says kids “will redesign how we gather knowledge and skills in the 21st century. Teams will teach adults about the ways that kids need and want to learn.”

Through the Project, FLL teams learn more about the science behind

Your goal is to identify a problem and develop an innovative solution.

KNOW THE PROBLEM - RESEARCH

The team will have to find a specific problem, create an innovative solution, test their solution and present their findings to a judging panel.

Here are some questions to consider as you explore the concepts related to 21st Century Learning and Teaching:

– What are the skills needed in the 21st Century?
– What do teachers need to know about teaching in the 21st Century?
– How do we make technology work in education?
– How can we create the idea of open and shared education?
– How do we foster innovation and the creative spirit?
– How does the Internet and new social media have an impact on teaching and learning?
– What types of technology are made for education?
– How does the brain work when it is learning new things?
– What are some groundbreaking teaching methods?

We will transform our learning by using documentaries created by the experts in the field of “Learning and Teaching in the 21st Century”. Listed below are the links to some very good resources. You may use the web to find additional resources.

• Future of Learning
  o https://www.youtube.com/watch?v=xo8J3_dZom8

• 21st Century Skills
  o https://www.youtube.com/watch?v=qwJlhZcAd0I

• What is 21st Century Education
  o https://www.youtube.com/watch?v=GegtmJPdrM

• 21:21 - Aligning 21st Century Learning with 21st Century Learners
Summarize what you have learned about the future of learning by completing the following graphic organizer.
Solution

Develop an Innovative Solution:

- Thinking outside of the box, forgetting reality, imagine that you have all of the resources you need, be 100% creative and invent a solution to the problem?

- What does innovative mean?
  - Makes life better by improving something that already exists, using something that exists in a new way, or inventing something totally new.
  - Does not have to be complicated to be innovative.
  - Does not have to include robotic solution.

- On the space below present your innovated solution. You must communicate your own 21st Century Skills to present your ideas to your teammates and coaches. Details are important.