



POWERED BY
RAPTORS 1711
TC CENTRAL ROBOTICS TEAM



Planning Guide for FIRST teams



Hello FIRST Teams!

The members of Traverse City Central High School's FRC Team 1711, The Raptors have created an innovative way to spread the message of FIRST to children and families across our region. We call it Super Science Saturday. Blending exciting hands-on activities with the spirit of FIRST, Super Science Saturday inspires community members of all ages. We initially developed the event bring awareness of our team and reach out into the community, inspiring interest in not only FIRST but STEM as well. Team 1711 has always included a strong communications component, so we added the A to STEM and made Super Science Saturday a STEAM event by adding science related Art activities. SSS has made the Raptors the talk of the town. We have found children who attended our SSS events develop a lasting interest in STEM and go on to become Raptors or join other regional FIRST teams. We have created this guide in hopes that other FIRST teams can use our experience to start their own Super Science events.



--FIRST Robotics Team 1711, the Raptors

What is Super Science Saturday?



Super Science Saturday is an interactive science fair. The event features drop-in stations each with a different hands-on STEM project or activity. Children and their parents rotate around the room to experience all of the opportunities. In addition to the stations, SSS should have one or two centerpiece events, like driving actual FRC competition robots and/or engaging in a STEM game. The success of a Super Science event depends on creative planning, active promotion, and full team participation.



Set Up the Committee

Establish a committee of team members. We recommend one student and one mentor as leads for the event who can be assisted by committees with specific roles.

Student Director: This student sets schedules and monitors progress as well as doing pretty much everything else that gets overlooked.

Adult Mentor: These events are a great opportunity for students to completely manage their own event, but one designated adult contact helps them know where to turn with questions and for support.

Publicity and Promotion Team: Early promotion is critical to the success of the event and may be more important than any other aspect. The children will have fun with even the most basic activities, but if their parents don't learn about the event, there will be no event.

Fundraising Team: Super Science events are a great outreach opportunities, but we have found that families so enjoy the day that they ask to make donations. This team can plan and collect donations.

Drop-in Stations Team: Each activity should have one primary student assigned, for both planning before the event and assuring things go smoothly through the event.

Special Activity Team: These students design, plan, and run a centerpiece event.

Make an Overall Plan

The best events start with a clear plan. Early on it may be difficult to get into details, but there are basic questions that must be answered in advance.

WHEN AND WHERE WILL THE EVENT BE HELD?

While this seems basic, there are a few critical considerations. It is important to choose the right venue. A large open area is best for these events. Because small children are involved, keeping everything in one spaces allow parents to give their children a bit more autonomy than they would have in an event that spans several rooms. A Gymnasium or Cafeteria is better than classroom wing. To build the excitement, it's best to have to have the featured event in the center of the space. If there is no single headline event make driving the team's previous FRC robots the centerpiece.



Example: 1711 usually uses an open-house set up so that the kids can wander at their leisure. For our December 2016 event, our team made small robots that children could drive. We placed the miniature robot arena in the center of the cafeteria, with all the other stations



surrounding it. As a result, the children enjoying any event could still see and be a part of the mini robot action.

Timing is also important. While winter would be an ideal time for this sort of indoor event, the FRC season takes all of January through April. We have found that the fall works best. It takes a minimum of 6 weeks to plan and publicize a Super Science



event, and that also must be considered. Early November is an excellent option. It is late enough in the school year that academic adjustment are well underway, but before the busy holidays. It's is also a great way to develop some team enthusiasm before the build season.

The Raptors generally have a five hour event, from 10:00 a.m. to 3:00 p.m. We have held longer events but found that the crowd, and the energy level of the team tend to fade in the late afternoon.

Where will the event be held:

What Day will the event occur:

What is the time frame:

It also important early on to decide if there is going to be an admission fee. Super Science Saturday is an excellent way to build awareness for the FRC program, and your team. It is also a great way to get younger children involved in STEM activities. While those are reasons enough to create the event, there is also the possibility for fundraising and identifying sponsors.

We have tried many different approaches for the Traverse City event . One of them is to have an admission charge. We have also offered free admission with a free-will donation, and free admission with a premium or bonus for a donation. It needs to be decided in advance because it is a detail that must be included in publicity.

Will there be an admission charge:

How much:

Once these details are decided, it is time to break into committees and begin the work of creating the event. The following activities should be executed simultaneously by the various committees. If there is a priority, publicity comes first.

Publicity

There are three key aspects to advertising your event: mass media publicity, elementary school outreach, and publicity.





ENGAGE THE MEDIA EARLY

Radio stations and newspapers will gladly add your event to their community calendars, but many require as much as a four week notice before the event. Create a press release early that has the key details: When, Where, How much, and For whom, and be sure to include a strong message on the value of STEM for young children. Radio stations and even locally produced morning shows will often be eager to interview students. Find the most charismatic members of your team and offer them up for interviews. In larger cities local media may be quite selective, but in smaller communities local media can be your best asset.

ELEMENTARY SCHOOLS

Regardless of where you are, local primary schools are absolutely the best places to spread your message. There are several strategies to use, and some are quite simple.

Primary School newsletters. Most schools have regular communications with parents, usually through an email newsletter. We have found

these newsletters are most often compiled and distributed by school office staff, or the principal's administrative staff. Sending information about your event to these key people in each school will get the most benefit for the least amount of expense and effort. We recommend establishing a two way connection with these contacts. Begin with an introduction and ask when the best time would be to submit information for a parent newsletter. Also ask how they would like information. We have found these communications are the most effective when they come from the student team members who identify themselves as students.

School visits. While they take more time, school visits are an excellent way to get children excited about your event. Visits can be arranged with specific classrooms, all the students in one grade, or an entire school. Have a group of FRC students go tell students about your event and build their excitement. If possible, take a past FRC robot to demonstrate. Also include an experiment or science game to that will involve student participation. School assemblies work very well, as do lunch hours and after school clubs. Do not overlook home school groups which are always looking for activities. School visits usually need to be scheduled four to six weeks in advance.



SOCIAL MEDIA

Parents are on Facebook; creating a Facebook page or event is a great way to reach them. Every member of the team must promote the event on their pages. For your first event you will need to use images of your team in action, hopefully with children. Photographs are important for sharing.

POSTERS

Sometimes you have to go old school. Make posters for your event and place them strategically. Hang them up (with the appropriate permission) in elementary schools, libraries, youth centers, and even local pediatricians. Be sure to include all important information on your posters: the date, time period, location, example exhibits, food availability, and potential costs.

Fundraising

As we have discussed, Super Science Saturday can be an opportunity for fundraising. There are several options to consider.

An admission charge. This could be a fixed price or a suggested donation. We have had good success with a donation premium, things like team buttons or temporary team tattoos.

A bake sale or other food available for purchase.

Parents and team members can bring cookies and snacks for sale, or an entire lunch could be offered. Offering food is also a service many parents of attendees are happy to have. In order for it to make any significant funds, the food must be donated. Food sales will usually not raise enough to offset any significant food expense.



Event sponsorship. There may be local businesses that would like to sponsor an educational event for children. Banks, childrens stores and even pediatric offices could benefit from having their name associated with the event.

Station Creation

The stations are a large part of your Super Science event. They should be designed, created, tested, and run by the your students (unless an adult is required to operate them). Don't forget that SSS is a learning experience for the team as well.

Once your committee has come up with a list of stations, they should assign the projects to members of the team. We have found that assigning a senior team member to each station as the station lead makes both planning and execution go smoothly. The station lead is responsible for assuring the proper materials are available for the activity as well as recruiting team members to



staff the station during the event. We recommend groups of two to five for each station depending on the complexity and level of input required. The students will act as experts on their particular activity and explain the concepts behind it to both children and parents. Students' presentations should be reviewed and practiced before the event. This allows the student members of your FIRST team to expand their own knowledge through teaching others.

AGE APPROPRIATENESS

What is your target age group?

BUDGET

Are the materials for the station expensive?

SAFETY

Are there any portions of your stations that need adult supervision or that the kids won't be able to do?

VENUE

Are there specific requirements (high ceilings, electricity, mess clean-up) that your stations need from your venue ?

Station Ideas

Create a FIRST Information Station. People can ask questions, sign up for teams in the area, and learn about competitions and other events put on by FIRST teams.

Robot Driving Have a robot or two at your event from prior years for people to see, and perhaps

drive. People want to see the products of your organization.

Electronic Take Apart Children love to take apart old electronics. We have found it easy to find surplus, outdated computers for donation. All that



is required are tools and old electronic hardware. Team members do need to supervise this station closely to see that tools are used appropriately, and that nothing dangerous is uncovered inside the donated electronics.

Lemon Power By placing dissimilar metals in a lemon it can be used to power a small light bulb.

Slime Make slime out of borax, glue, and food dye for the kids take it home. Show simple chemical reactions that happens that make slime slimy. This is another very popular station, although it does require a fair number of supplies.

Grape Crusher Try to protect a grape from getting crushed by a hammer-lever with only a small piece of paper and a toothpick.





Goldie Blox Goldie Blox is an interactive game with a story that guides the building steps. It is designed to interest young girls in STEM activities, but boys love it too.

Airplanes Make paper airplanes and see how they are able to fly with lift and drag. This simple activity requires very few materials

Coke & Mentos See what happens when mentos are placed in various liquids and why the mentos react so violently with the Coke.

Brain Hats Using a template sheet, children color and cut out the brain halves. The team members help tape the two halves together to make a hat. These templates can be found in various places on the web.



Fabric Chromatography Children write their names or decorate a piece of fabric with permanent markers, then a few drops of alcohol are applied to the fabric and the children can watch as the colors bleed into their component parts. 100% cotton fabric works best.

Michigan Technological University has created a website which contains many fun and exciting activities which make great



stations for Super Science Saturday. Check out this website for some awesome station ideas. <http://mindtrekkers.mtu.edu>

Have Questions?

Have questions about Super Science Saturday and what it entails, or looking to give us feedback? Need advice on holding your own Super Science Saturday event? Contact us at raptorsteam1711@gmail.com. We'll be happy to answer your questions and hear about any input on the event and its elements. What worked? What did not? How can we expand the influence of the event within FIRST's mission? We always welcome new ideas and additions to Super Science Saturday! 

EVENT DAY CHECKLIST:

- Materials
- Students to run events
- Posters, sign stands
- Clean-up materials for each exhibit
- Volunteers for setup
- Volunteers for teardown
- Volunteers for clean-up
- Adult supervision.
- Feedback. Have a place for people to leave their comments to allow you to create a more successful event in following years

