

Kinetic Knights

FRC Team #781

Table of Contents

| | |
|--|----|
| Kinetic Knights..... | 1 |
| FRC Team #781..... | 1 |
| 1.0 Welcome..... | 3 |
| 2.0 Team overview..... | 4 |
| 3.0 About FIRST and FRC..... | 6 |
| 4.0 Kinetic Knights Values and Guidelines..... | 8 |
| 5.0 Commitments..... | 10 |
| 6.0 Time Commitment..... | 11 |
| 7.0 Money..... | 12 |
| 8.0 Team Communications..... | 13 |
| 9.0 Team Behaviour and Rules..... | 14 |
| 10.0 Discipline and Dismissal Policy..... | 16 |
| 11.0 Conflict Resolution..... | 17 |
| 12.0 Parent Involvement..... | 18 |
| 13.0 Calendar and Schedule..... | 20 |
| 14.0 FRC “Seasons”..... | 22 |
| 15.0 Lead-Teams..... | 24 |
| 16.0 Competition Teams..... | 25 |
| 17.0 Student Leadership..... | 27 |
| 18.0 Social Media, Photos, Publications..... | 28 |
| 19.0 Health Policy..... | 29 |
| 20.0 Non-Discrimination Policy..... | 30 |
| Appendix A. Dress Code..... | 31 |
| Appendix B. Safety Rules..... | 32 |

ATTACHMENTS..... 35

Handbook Revision History..... 36

1.0 Welcome

Welcome to FRC Team 781, the Kinetic Knights!

To those families who have been with us and for those now joining us for their first year, we want to celebrate the growing community that we are so fortunate to be a part of, and to welcome you to it! It is because of each and every one of you that we are able to bring FIRST to more youth in the Kincardine community. FRC caters to a variety of interests: computer science, engineering, physics, math, graphic/video artistry, business, communications, and writing. No matter where your interests are, there is something waiting for you on our team!

In this Team Handbook we will describe team essentials, the essence of the Kinetic Knights and FIRST culture, information, and the expectations we have for students and parents. Team members and their parents are asked to read all sections to become familiar with the team’s policies. At the end, in addition to signing a ridiculous number of waivers, you will be asked to sign and return an acknowledgment that you have read and understand the information, including policies on safety rules, time commitments and student behaviour expectations.

This handbook is similar to a field guide in that it contains enough information to get team members started on their journey ahead, as well as including a few tidbits that you might not find elsewhere. Though there will be updates throughout the year, this is a good document to keep in a safe (and easy to remember) place to reference later. So jump right in and explore some things familiar and others waiting to be discovered!

Kinetic Knights Robotics

2.0 Team overview

There is no prior experience necessary to become a member of the Kinetic Knights. However, team members are expected to be dedicated and hardworking. This is a demanding program, but it is also one of the most rewarding things students can do in their teenage years.

What do we do?

We design and build a 120lb robot intended to and compete in a game that's different each year! But it's more than just building a robot – our team operates like a small business and feels like a family. We have different lead teams that handle everything from marketing and fundraising to programming and electrical work. Even if you have no idea how to hold a wrench, there's something for you here, and we'll teach you how! FIRST is not just about robots, it's about ideas and people, too.

Why do we do it?

Because it's fun! FIRST is all about having fun while learning, and so are we! Along the way, you can learn technical skills in mechanical and electrical work and computer programming, but you'll also learn about teamwork, leadership, respect, and integrity. You'll get hands-on learning from engineers and other professionals working in the real world. Above all, you make lifelong friendships and have a lot of fun!

Who is this team for?

Kinetic Knights Team 781 is for teens, ages 13-18 (rare exceptions can be made on a case-by-case basis for extremely driven younger students). Currently we are mostly secondary school students at Kincardine District Senior School but membership is open to students of other schools, private, or home as we are in fact a community team. If you have some special considerations, simply talk to the lead mentor.

Where do we meet?

Our meeting space and workshop is located at 330 Lambton Street, Kincardine, and has all the tools and materials we need, but it is "cozy".

How is the team run?

Gracious Professionalism[®] underpins the ethos of FIRST[®] and it's important that all of our students and mentors endeavor to live up to this standard of behaviour.

On the Kinetic Knights team, mentors actively share their knowledge and experiences with the students to help foster intellectual growth. The mentors and students become united through a partnership. Each works collaboratively toward a mutual and beneficial goal. Mentors provide students with opportunities to make choices, both good and bad. Mentors demonstrate the value of success they have encountered during their career path and use these skills and successes to share knowledge and values with team members. The "learning and doing" progresses in four steps. The mentor starts out as "I do" and in certain areas, aiming to finish as a sustaining "I watch."

Step 1: I do – You watch

Step 2: I do – You help

Step 3: You do – I help

Step 4: You do – I watch

The team should understand that in the end, responsibility lies with the mentors to ensure the safety and viability of the team. It's the students who will ensure its success. The mentors will create an environment where the students are able to make decisions and sometimes mistakes which they can learn from and will only intervene if they deem it necessary. You can always count on the mentors to explain the basis of the decisions.

Who are the mentors?

Kinetic Knights is supported by Kinetic Knights Robotics whose board of directors appoints team Mentors and has overall responsibility for team actions and decisions, and oversight of all mentors and student members.

Mentors

Mentors are adult volunteers, not necessarily parents, who are interested in helping our organization. If you are interested, feel free to speak up and say so! Prospective mentors will then be formally invited by the board of directors to provide technical and/or business assistance for the team. The board seeks out professionals and experts in their fields (i.e. practising engineers and active business people) to share their knowledge and skills with the team. Mentors go through a vetting process to ensure that they will be a good fit for the team, and hold values consistent with the Kinetic Knights and FIRST.

The Kinetic Knights team is sponsored by Kinetic Knights Youth Robotics, a local non-profit registered charity dedicated to sponsoring FIRST teams. We are not affiliated with any public or private schools, though we do work closely with them, thereby allowing our membership to be open to all students regardless of their educational affiliation.

Adult Volunteers

Adult volunteers are people who are interested in helping the organization by working alongside the mentors. Adult volunteers often help advise on team strategy, or aid in organizing trips, or a multitude of other essential tasks.

3.0 About FIRST and FRC

About FIRST

FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989. Based in Manchester, NH, the not-for-profit public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math (STEM), while building self-confidence, knowledge, and life skills. The intent is to inspire an appreciation for the real-life rewards and career opportunities in these fields by challenging students and their adult mentors to solve an intense engineering design problem.

FIRST Origins

FIRST was started by inventor Dean Kamen, who saw a culture based solely around athletics and celebrity gossip. Kamen realized that there is more need for people in science and technology careers than there are sports and entertainment. He partnered with Woodie Flowers, an MIT professor, to create FIRST.

FIRST has two key philosophies which are incorporated onto every team. They are Gracious Professionalism and Coopertition. These philosophies are expressed through the Core Values of FIRST which are:

Discovery: we explore new skills and ideas.

Innovation: we use creativity and persistence to solve problems.

Impact: We apply what we learn to improve our world.

Inclusion: We respect each other and embrace our differences.

Teamwork: We are stronger when we work together.

Fun: We enjoy and celebrate what we do!

FIRST redefines “Winning.”

FIRST is More Than Robots. Teams are rewarded for excellence in design, demonstrated team spirit, Gracious Professionalism®, maturity, and ability to overcome obstacles. Scoring the most points is a secondary goal. “Winning” means learning, being inspired, and building partnerships that last.

What is FRC?

FIRST Robotics Competition (FRC) combines the excitement of sport with the rigors of science and technology. Participants call it “the hardest fun you’ll ever have.” Under strict rules, limited resources, and an intense six-week time limit, teams of students are challenged to raise funds, design a team "brand," hone teamwork skills, and build and program industrial-size robots to play a difficult field game against like-minded competitors. The competitions are high-tech, spectator sporting events which are the result of brainstorming, teamwork, mentoring, and project deadlines. It’s as close to real-world engineering as a student can get.

FIRST Impact

Colleges and employers recognize the crucible FIRST participants have been through, value their experience and expertise and actively recruit such students. Participants have access to over \$50 million in scholarship money exclusively for students who participate in FIRST Robotics. Students who have graduated from FRC teams have gone on to attend some of the nation's top engineering schools and work with some of the world's biggest technology companies.

Skills Learned

Students are inspired to become leaders and innovators, and enhance their 21st century skills. They are learning from adult mentors who are Engineers, Business and Marketing professionals, Scientists, and Leaders in their industry and profession. These mentors will share their knowledge and skills with students, including:

- Public speaking and debate
- Advanced math and engineering skills
- Business planning, fundraising, project management, leadership, and teamwork
- Writing (technical, business, and creative)
- Graphic design, video production and photography
- Computer programming and Computer Aided Design (CAD)
- The Engineering process and scientific method

4.0 Kinetic Knights Values and Guidelines

Gracious Professionalism

A term coined by FIRST, Gracious Professionalism is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. As Kinetic Knights, we strive to be mindful, respectful, and treat others the way we want to be treated.

Coopertition®

Coopertition is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete. It means competing always, but assisting and enabling others when you can. This extends beyond the playing field. When trying out for a position on the Kinetic Knights you should be actively trying to help your teammates get better at the same time, and thus for the team to get better. Cheating and sabotage will never be tolerated.

We Is Greater Than Me

First and foremost, this is a team. What one or two people do isn't as important as what the team accomplishes together. Wins, losses, successes and failures are the result of the team's collective effort--- not the effort of a single person or sub-team. Team members are expected to put what's best for the team ahead of their own team-related ambitions. Students should always be asking themselves "What can I do to help the team succeed?" In the end, people rarely remember individual performances. What people always remember is what the team accomplishes.

Integrity

Students are expected to have integrity. This means being honest with each other as well as the team's mentors and not trying to cover up mistakes or errors in judgment. We understand that students and mentors make mistakes and that's OK. However, team members should own up to those mistakes. Being forthcoming and honest is always best.

Acceptance of Failure as a Tool for Learning

Many successful people fail quite often, but then learn from the mistakes and move forward, taking their failure in stride. A team member who has this ability can go far in the team and beyond.

Attitude is Everything

Whether it is an off-season meeting or an important match, go into each situation with a positive attitude. If you go into a situation with a great attitude, you're probably going to have a great experience.

You Get Out What You Put In

If you apply yourself and invest the time and effort into the program, you will have one of the most rewarding experiences of your life. On the other hand, if you put little effort in, you will not get as much out of it, and potentially hurt the experiences that your friends and peers would have gotten out of the program. Students who are hardworking and committed will be rewarded over students who have been on the team longer or have more experience. For example, students who join the team, show up to many events, and work hard to better themselves and the team, will be chosen for a position they desire over someone who does not put forth as much effort.

You are your own best Advocate

No adult mentor or student leader will 'make' a student do something. This is a self-motivated program. If you want to learn, ask a mentor. If you want to work, pick up a tool or ask a mentor (that is why they are there.) We will make every effort to encourage involvement by all team members, but in the end it's up to you. If you are not sure where you fit in, or aren't sure of what to do, please talk to a mentor. Self-motivation is what drives the Kinetic Knights!

Never Rest on Your Laurels, Always Keep Improving

Never assume you know everything. Always look for ways to improve yourself and the team. Every day is an opportunity to learn and improve. Try something new, work in a new lead team, practice an old skill, etc. Be proud of what you've accomplished in the past, but don't use it as an excuse to stop improving.

Take Responsibility

Team members must understand they have a sense of responsibility to make sure they are fulfilling their designated obligations. Take initiative to do things you have been assigned, before you are told, but please note that the mentors need to give approval before taking on an entirely new project.

Teamwork

Team members are urged to cooperate at all times. This means that if a mentor, or team leader makes a request, you will comply with the request to the best of your ability. Ignoring directions or requests from a mentor or student leader is not in the team's best interest. If you feel a request is out of order or beyond your capabilities, you are encouraged to respectfully talk it through with the person making the request or the Lead Mentor.

Conflict Resolution

Everyone wants to have a good time and the best way to ensure that is if you have an issue, it is best to discuss it with a mentor.

5.0 Commitments

Being a member of the Kinetic Knights family is a big commitment on many levels. We will go into much more detail about each of these commitments later in this handbook, but on a high level, team members and their families must be prepared for the following commitments.

- **Time** – Being a member of the Kinetic Knights is a huge time commitment for the team members and their families, especially from January to April when the team may meet over 30 hours per week.
- **Money** – All team members will be required to pay dues (\$100/year) and actively participate in team fundraising efforts. In addition, families are responsible for all travel costs related to competitions (transportation, hotel, food, etc.), though our fundraising efforts may work to offset some of these.
- **Communication** – Consistent communication within the team is vital to our success. Every team member commits to keeping updated with team communications at least daily.
- **Behaviour & Rules** – The Kinetic Knights spend a lot of time together, often in close quarters. To maintain a positive and enriching culture, the team has a very detailed list of rules and expectations which every member must agree to follow.
- **Parents** – As the parent of a Kinetic Knight, you commit to getting your child to meetings on time best you can, providing snacks and meals for the team according to the team schedule during build season, and keeping up-to-date on all team communication.

If there are financial difficulties with meals or dues, please see Section 7.0 for how we can help.

6.0 Time Commitment

FIRST Robotics Competition (FRC) is a year-round activity. The expectation is that team members will attend scheduled meetings, events, and competitions that take place throughout the year. While academic and family obligations come first, meeting your obligations to the team may mean re-arranging your schedule to be able to participate in team activities.

The time commitment expected of Kinetic Knights team members is fairly high and will be outlined further in the following descriptions of our “Seasons.” Commitment to the team increases substantially from January to May. Students are expected to be reliable: on-time, prepared to work, and arrive with a positive attitude.

To get the most out of what FIRST has to offer and to be a team member that others can count on, every team member needs to commit to making full participation in team activities a priority – requiring balance with your other obligations.

As a team, we understand scheduling conflicts, they happen. When they occur, we expect the student to inform the team, particularly a Team Lead / Lead Mentor, as soon as possible. Kinetic Knights has room for different levels of student commitment based on the obligations that student has. However, it is important for each team member to understand upfront that regular attendance often directly translates into more responsibility and voice in decision-making. While Kinetic Knights will work with each other to coordinate the Kinetic Knights schedule with the personal schedule of those on the team, forward progress for the team as a whole can't always wait for an individual team member. Decisions and completion of tasks may occur during a team member's absence, and such a decision is at the discretion of the team members, and mentors present at the time.

Partly due to the intense time commitment required by Kinetic Knights, the minimum age to join the team is 12 years old (by kick off day).

7.0 Money

Participating in a FIRST Robotics Competition is an expensive undertaking. The annual team budget is around \$95,000. Kinetic Knights relies heavily upon the support of our community through sponsorships, grants and corporate donations. The remainder comes from team fundraising, individual donations and student fees and dues. Together, we can do it.

To help, the annual student dues are \$100 per student. Team dues are required of all participants by October 30. Dues are an important part of our annual budget and help cover the costs of things like insurance and team t-shirts. Dues are non-refundable. You are welcome to try out the team to make sure it's a good fit for you and your family until the firm deadline when all payments are due.

All students are expected to actively participate in fundraising with the team. This participation takes many forms including letter writing to friends and family, visiting potential corporate donors, assisting with grant applications, staffing our table at fundraising events, writing thank you letters to donors and more.

The Kinetic Knights travel to two district competitions in March and April, if they have raised the required funding, and will potentially attend the FIRST Ontario Championship competition (Mississauga) and potentially the FIRST Championship competition in April. Each student must pay the student trip fees for each of these competitions (travel is not covered by dues). The team will book a block of rooms together for the best rates. Family members are welcome to request a room in the block if they wish to travel with the team. All team members are expected to stay in the team accommodations and their assigned room.

Families who think they may need financial help to travel must notify a Lead Mentor as soon as possible. Depending on the team's financial situation, there may be full or partial subsidy available for travel. The travel fees charged by the team are partially subsidized by the fundraising efforts of the team and by sponsorships.

The team does not want to exclude any interested student due to financial constraints. Please speak privately with a Lead Mentor if this is an issue for you. Subsidy requests must be brought to a Mentor well in advance of any payment deadlines and as soon as possible for financial planning purposes by the Lead Mentors and for unambiguous record keeping.

Cheques for dues payments, travel expenses, and donations should be made payable to Kinetic Knights Robotics. Cheques are the preferred method of payment.

8.0 Team Communications

Clear and consistent communication within the team is vital to our success and is an integral part of the team. Our primary method of communication is through Discord. Students are required to check Discord regularly to ensure they're up to date. This means at least daily during busy seasons, as well as making sure their phone is charged and battery is conserved during competitions. Additional information, calendars, meeting notes and other resources will be posted to the team google docs and on Discord.

We recognize that each family has unique circumstances. It is our goal to be as inclusive as possible while creating a robust and viable team. Technical and trade skills are the most obvious thing we teach, but we feel personal growth is the most important thing we teach. To this end, we strive to develop personal responsibility in each student and encourage the student to be the primary communication conduit with the team and mentors.

We encourage Parents to become members of the Parent Facebook page. This is a private group and membership is by invitation.

9.0 Team Behaviour and Rules

The rules below can be summarized as simply - *Play Safe, Play Hard, Play Fair*

For more detail and to ensure clarity, we've expanded on this principal below. None of the rules or language are meant to offend, most of this is what we would call common sense, but by being clear we hope to help you help the team.

Be Respectful: Team members are expected to be respectful at all times. This includes not talking over your teammates or holding side conversations when others are talking, refraining from the use of inappropriate, offensive, or foul language, and being respectful of everybody's ideas and opinions.

Cell Phone Use: During meetings, cell phone use in the service of the team is encouraged. Cell phones that distract from the discussion or work at hand will be asked to be put away. Additionally, team members will not be permitted to play video games or browse social media during meetings or times when they could be more productive. Recreational cell phone use should be saved for break times.

Attendance: All team members are expected to attend as many meetings as they can. Be prompt at all meetings and bring all required materials, if you have a conflict we understand – but please let a team lead /mentor know.

Tool Safety: We take tool safety very seriously and make it clear that mentors have the absolute say in when it is or is not appropriate for a student to use a tool. No student is allowed to use a power tool without first being trained on how to safely use it. A safety passport is available at the end of the handbook with specific safety rules.

Workshop Cleanliness: No open cups are allowed in the workshop, only closed-lidded bottles. Exceptions can be made during meal times. We expect that team members clean up after themselves and each other. This includes cleaning up your dishes after team meals, logging out of computers, cleaning machines, putting away tools and materials, and sweeping the floor and worktables after working in the shop even if you're not the last to leave or it's not your mess. It's about playing Fair.

Dress Code: Team members must adhere to the dress code in the addendum at back of the handbook – this is mostly for member's safety. For safety, long pants, closed toe shoes and safety glasses are always worn in the workshop.

Dating: It is highly recommended that students on the team not date within the team. Dating can create awkward situations both during the relationship and if it ends. Students who choose to date should notify the Lead Mentors early on - it's better to be open and upfront than to try to sneak around and hide it. They are expected to "leave the relationship at the door." This means no PDA, no holding hands, no sitting on each other's laps, showing preference, sneaking off to be alone, etc., this includes while at any team sanctioned activity. Teammates who choose to date might not be put in positions where they will have to work closely together (eg: drive team and/or pit crew) but this is to protect the best interests of the team and prevent awkward or uncomfortable situations for other students on the team. While we don't expect this to happen, it's important to mention.

Unacceptable Behaviours: There are certain behaviours that are unacceptable as Kinetic Knights. Though we don't expect that these behaviours will occur, we feel it is necessary to be very clear about them:

- Students will not display violent, harmful, or abusive behaviour, whether it is directed at other students, mentors, the public, the facilities or themselves.
- When attending team activities students will not use or bring tobacco, marijuana, alcohol, or illegal drugs.
- Students are responsible for arriving to team activities 'Fit for Duty', not under the influence of any substance that can cause a safety concern
- Students must inform mentors when taking prescription drugs
- Students will listen to the "mentor override" of mentors and follow it. If students are unable to do this, it puts them and others at risk. If the mentors tell you to do something, it's for a good reason. While they'll always endeavour to ensure you understand why, sometimes the explanation needs to wait.

While attending team activities and events there should always be at least 3 people present. This rule applies to all gatherings where students are present - not because there's a lack of trust between those of us on the team, but because this is a strong precedent in other community groups with youth and the board reasonably expects us to apply the same rule.

10.0 Discipline and Dismissal Policy

If students don't follow the behaviour rules, mentors or the board of directors will determine what discipline option best fits the circumstance. The following is a list of possible options that mentors will use. The first two options will always be incorporated-- ranging from a gentle reminder, to a heart-to-heart conversation, or, if needed for safety, mentors may need to simply say, "Stop!" Mentors commonly strive to co-create solutions with students, but in some unusual cases (when physical and/or emotional safety is at risk) a decision may not be open to negotiation (though we will be willing to hear the student's perspective afterward). Respect, understanding, and communication will be priorities in all situations.

Mentor responses to student behaviour when a rule is broken:

(listed from gentlest to most severe)

1. Remind student of the rules.
2. Support the student in shifting his/her behaviour.
3. Ask the student to step out of the shop or to go for a walk until calm.
4. Contact parent after meeting. (Parents often can help mentors and students understand each other more fully.)

If needed for safety or to maintain a healthy learning environment for all, Kinetic Knights reserves the right to:

5. Call the parent during the meeting or trip to pick up their student.
6. Ask the parent (non-mentor) to attend meetings with the student.
7. Ask a student to "take a week off".
8. Dismiss the student from the team. --This would occur only if the previous steps are not effective or if a very serious infraction occurs.

Though it is rare for the Kinetic Knights to have serious behaviour or discipline problems with a student, it is necessary for us to let our students and families know about our dismissal policy in the unlikely event that we do encounter difficulties. This is also about playing Fair.

11.0 Conflict Resolution

Anytime a group of people gathers around a goal, there may be some disagreements and awkward moments, this is normal. Many of these can be properly resolved by overlooking small offenses and forgiving the person who offended – as we often do. If you feel in conflict with another member, we ask that you reflect about the issue to decide if it is important enough to address. If, after reflection, you have the peace to dismiss the issue then it is passed and forgotten. The goal is positive progress, forgiveness, and friendship. If, however, you feel the offense must be addressed, the following guidelines have been established – to help everyone:

- The offended should seek to resolve the conflict between only the individuals involved. This means to admit what parts of the conflict are caused by each party, apologize and seek forgiveness. Real forgiveness is when you promise those involved to think charitably about them, to not bring up the matter again to be hurtful, to not gossip about them, and to resume the friendship enthusiastically. This should be done in a timely manner, preferably within 24 hours.
- Should the offended party feel threatened or unable to personally address the issue, he/she may seek the assistance of a mentor to mediate between the individuals. Parents of student members involved may also be asked to help with the mediation.
- If you have caused the offense, please have an open mind if the offended person comes to speak to you. This shows trust on their part, and a desire to rebuild the relationship.

When working through conflict, we are always mindful of the Kinetic Knights Values and Guidelines as presented earlier in the handbook. Many don't learn these methods until they are well past high school – and learning it on our team is part of how we help to build people, not just robots.

Our mentors seek transparency and to the best of our judgement, inclusiveness, in deliberations. Confidentiality sometimes trumps transparency. Time sometimes stumps our efforts. But in general, we want everyone to have input on issues that affect them. If you find yourself disagreeing with a decision made on the team, our mentors are committed to hearing you dissent with a peaceful and compassionate ear and working toward understanding.

12.0 Parent Involvement

Parents/guardians are an integral part of our team and important to our success. The team becomes like a family throughout the year because the members spend so much time together. Having the involvement of our parents only enhances this experience.

If you are a parent and interested in becoming a team mentor or adult volunteer, please see the lead mentors for an application.

Other ways parents/guardians are important to our team include:

Timely Transportation

Please do what you can to be on time for drop off and pick up of your student. If a student has to come late, let the team know via Facebook as soon as possible. At the end of the meetings, team mentors will wait with the students until they are picked up, so please be respectful and arrive on time or let the team know if you can't and make other arrangements for them to be picked up.

Meals/Snacks

All parents are expected to help out with providing meals and snacks during Build Season. Mentors and students work very hard during this time, and it is important for them to be well nourished. The mentors are providing their time and expertise on a volunteer basis – a tasty meal is a wonderful “thank you” for the effort they put in. Meals can be very simple (like spaghetti, subs, or pizza) or as elaborate as you may want. You will receive full information by email in December so that you can sign up for the meal(s) you'd like to provide.

We will let you know if any severe allergies exist on the team, which would need to be accommodated for. If your child has a severe allergy, intolerance, or diet, it may not be possible for other parents to make meals which accommodate when providing for the team. We can work these issues out on a case by case basis.

Supporting your Child

Collectively, the team's mentors spend countless hours working with the team and preparing behind the scenes. While you may not always agree with some of their decisions, please trust that they have the best interests of your child and the team in mind – never be afraid to reach out if you have an idea!

In addition please remind your child that it's important to actively participate. When first joining the Kinetic Knights they'll find new people, new things, new rules, etc. and all this can be pretty intimidating to a new member. The Kinetic Knights are going to push students out of their comfort zone from time to time and it's important that you encourage your child to embrace these new experiences rather than run from them.

It's normal for people to find they naturally fit with particular groups or organizations, and maybe not with others. We want to mention that if you find your child isn't enjoying the team then please consider that prior to pushing them to stay on. It doesn't mean they're not a fit for STEM or robotics, maybe it's just not right for them at the moment, but it's not fair to them, the mentors, or the rest of the team to force them to keep attending if they truly aren't interested. This advice isn't meant to assume anyone would do any differently, it's only meant to help.

Kinetic Knights Robotics has established a particular culture in which mentors and students collaborate. We work very hard to maintain a positive and enriching teaching environment where teens learn from experienced adults and they work together to achieve team goals.

Our team members come from varying backgrounds including different religious and political views, different parenting styles and educational philosophies, we include students who attend private, public schools and home schoolers, and we have different family make-ups. While at Kinetic Knights, team members and their parents are expected to conform to the Kinetic Knights non-discriminatory, collaborative culture. This extends to supporting sponsors you may not agree with – or at least keeping your current views about them private.

Contacting Mentors

During our most active seasons, if you want to speak to a mentor, the best time is immediately after meetings. We find Discord to be an effective way to relay information or to schedule a conversation, but experience tells us Discord is not as effective for addressing topics that are worthy of dialog (especially relating to any topic that is attached to emotions like frustration or anger). Mentors are available for spontaneous or pre-scheduled conversations in the 20 minutes after meetings end, or at other times upon request.

If you have information to relay to the mentors that has to do with that day of meeting, please let them know prior to the meeting.

Please note that the mentors always want to hear your concerns, and to help with this please bring them to a Mentor earlier, rather than later, at appropriate times. This allows them to be addressed and not compounded into larger issues. As mentors are volunteering their personal time, please be respectful. Parents who are not respectful to the mentors may cause unnecessary hardship for the team and its members, which we know is likely not the intent, but if unavoidable the membership of the student(s) may need to be revoked. This is a consequence of absolute last resort, which we don't expect to every use, nor has it ever been.

Financial Support

Monetary donations above and beyond the annual dues and fees are another way parents can help! Your tax-deductible donation will help pay for the purchase of robot parts and materials, tools, and competition-related expenses. Individual contributions, matching funds from an employer, in-kind donations, or corporate sponsorships are all welcome. Please contact the Lead Mentor for more information.

Competitions

We encourage the entire family to attend competitions. This includes siblings, parents, grandparents and friends. Competitions are free to attend. Whenever you are representing the Kinetic Knights team, whether it be wearing a fan t-shirt or visiting the pit during competition, all attendees are expected to model Gracious Professionalism at all times.

13.0 Calendar and Schedule

September

FIRST releases its calendar of events and other competition information.

Meetings every Tuesday, 4:30 PM to 6:00 PM (times subject to change), this meeting continuous all year.

October-December

Weekly team meetings will be held at 330 Lambton Street. Lead team meetings, outreach, and other group sessions as scheduled as needed. The Google calendar and Facebook meeting notices are regularly updated.

Meetings every Sunday, 1:00 PM to 5:00 PM (times subject to change)

Local off-season competitions:

Stemley Cup – (tentative)

Swatposium – (tentative)

January

FIRST Kick-off: usually the first Saturday of January (location to be decided) - Members of the team will join together for a “watch party” and “parts pickup.”

January- February (6 weeks)

Build Season

Work sessions and meetings daily:

Monday - Friday, 4:00 PM to 9 PM (times subject to change)

Saturday: 10:00 AM to 9:00 PM (times subject to change)

Robot reveal party for friends, family & sponsors

February – April

Work sessions and meetings (days/times subject to change):

Tuesday, 6:30 PM to 9:30 PM and other days as required

Saturday & Sunday, 1:00 PM to 6:00 PM

Ontario District Competitions (TBD) (Typically Friday evening through Sunday evening.)

Late April

Ontario District Championship Hershey Centre Mississauga (Wednesday through Saturday)

FIRST World Championship

Somewhere in the US (Wednesday evening through Saturday evening.)

May

Post-season team celebration and rest

Thank you event and demo; no other fundraisers or outreach events (subject to team changes)

June – August, 2019 (off season)

Summer activities include training, community outreach, and corporate fundraising

Meetings Tuesday, 4:30 PM to 6:00 PM (times subject to change)

Off-season competitions.

14.0 FRC “Seasons”

The Kinetic Knights are busy throughout the entire year! This quick, at-a-glance view of the “seasons” will give students a better understanding of the commitment level needed during the year.

Summer

Time commitment: approximately 4 hours/week

Summer is a time for mentors and team members alike to take a deep breath and celebrate a previous year’s job well-done! But while we slow down, there is still much to do. The team spends much of the summer securing funds for the next season (grants, sponsorships & donations), and holding outreach and recruiting events. We also use this time for things like mentor planning meetings, seminars, fun team building activities, off-season competitions and fundraisers.

Pre-Season (Fall)

Time commitment: approximately 10 hours/week

With the beginning of the academic school year, the Kinetic Knights start gearing up as well! New recruits are welcomed and oriented on the tools and software, students discuss and decide their governance, we continue to participate in off-season competitions, and everyone gets a chance to practice driving last year's robot! Fundraising, outreach, marketing, planning and fun team-building activities continue.

Build Season – 6 Weeks (Winter)

Time commitment: approximately 30+ hours/week

Hold on to your hats and fasten your seatbelts! Build season is an intense ride! The season starts on the first Saturday of January with an official Kick-off event. On this day FRC teams all around the world learn the competition game scenario and rules for the upcoming season. FIRST has removed the 6 week deadline for the completion of our competition robot however the team strives to stay within the old timing. With only six short weeks to design, build, and program a full-scale, 120lb+ robot, this becomes like a full time job for the team. We even eat meals at the shop so we can keep working!

This is the Kinetic Knights’ busiest time of the year, and there will be both students and mentors working tirelessly every day to ensure the robot is in peak condition for competition season. We typically meet 4 nights per week and all day Saturday – sometimes until 10:00 at night. Business activities continue alongside the Build activities.

Competition Season (Spring)

Time commitment: approximately 20 hours/week + competitions (2-3 nights in a hotel per event)

Competition Season is approaching the finish line for our hardworking team. We are busy, still meeting multiple times a week, but not as intense as Build Season. We choose the drive team if not already chosen, programmers put finishing touches on code, and every hand is put toward tying up loose ends. Sub-teams often meet separately.

Just as a sports team practices between games, so do the Kinetic Knights. Like many teams, we build a second, “practice” robot that is used between competitions to train the pit crew and drivers, as well as test and implement improvements.

We travel as a team to competitions. District competitions are two days long. We typically arrive Friday afternoon so we can load-in and set up our pit (a 10' x 10' booth where we fine-tune our robot between events.) All day Saturday and half of Sunday are for the qualification matches, which determine team rankings. After qualification matches, the top teams select other teams to be on their alliances for the elimination matches which take place Sunday afternoon. Awards are given out following the elimination matches.

The two days of each competition can feel like a true rite of passage -- in every good sense of the concept. The students are asked to work very hard on very little sleep and with long stretches between an early lunch and a late night dinner (although we bring lots of snacks). The exhilaration of each match fuels the team on, and after the end of each competition, students are even more connected as a team. Competitions are truly character building: from facing both defeat and victory with humility, to collaborating with other teams and talking to judges with confidence, students are asked to give the team all they've got during those two days.

The Kinetic Knights typically attend two district competitions in March/April. If we are fortunate enough to attend the Ontario District championship, it will be in Mississauga. If we are fortunate enough to qualify to attend FIRST championship it will be in the US usually the week after District Championship at the end of April.

15.0 Lead-Teams

The team has the ability to form sub-teams referred to as Lead-Teams (usually when the team is large). Prior to Build Season team members will sign up for various lead-teams. As the lead-teams divide and conquer, they are also tasked with communicating and working together to get the job done. It is not uncommon for team members to join multiple lead-teams, or to switch lead-teams mid-season.

Mechanical (Build Team)

The Mechanical lead-teams are responsible for building the physical body of the robot. During the build season, the teams fabricate (measure, cut and bend) all the parts and assemble them to make the final robot. Mechanical team members learn how to use a wide range of tools during the build season. During competitions, the mechanical teams are responsible for keeping the robot running.

CAD

A good robot design is carefully thought out and drafted on the computer with Computer Aided Design (CAD) software. This enables the team to calculate changes prior to making them, accurately measure parts, and print models to put in their engineering notebook to share with the judges at competitions. CAD training is done in the off-season and these sub-team members are typically busy all year.

Electrical

The Electrical lead-team is responsible for the electronic layout, wiring design and sensors on the robot. In order to do so effectively, team members acquire a firm understanding of both basic and advanced electrical principles, ranging from Ohm's law to understanding the functioning of circuit board components. The electrical team strives to provide a neat, organized, snag-free, and self-contained electrical configuration with simple connections to the rest of the robot wiring.

Programming

The Programming lead-team is responsible for a variety of software projects, both on and off the robot. The team writes and implements algorithms to control the robot, in both a user-operated mode and an autonomous mode. In preparing the robot code, the team works closely with the electrical team to ensure that inputs and outputs are properly utilized in the software. These sub-team members are exposed to the LabVIEW programming languages and structures.

Marketing

Our Marketing/Award lead-teams posts regularly on social media, maintains the website and blog, and produces marketing materials such as brochures, banners, photo slide shows and videos. This team also manages the Kinetic Knights brand and oversees all documents produced to maintain a consistent image.

Business

The Business lead team is responsible for coordinating fundraising, budgeting and accounting. Fundraising efforts includes gathering and contacting sponsors, organizing fundraising events, filling out grant applications, and staying in touch with our sponsors. Throughout the season and summer months, this group will learn how to set up accounting balances, create worthwhile presentations, conduct phone interviews, and conduct general business.

Awards

This lead team organizes our award applications, which is a critical piece of how we can succeed in getting to the Championships! These can be worked on all year around.

16.0 Competition Teams

Drive Team

The Drive Team will be determined (ideally) during the middle of the build season and will be based on a number of tasks, including game rules knowledge, a driving obstacle course, and other challenges the mentors and build lead deem applicable. All team members will have the opportunity to participate in preliminary tryouts; this simply makes sure it's fair. Those who want to try should have a chance to, and it's not uncommon to have more than one member for each position in case someone is absent.

The Drive Team is typically made up of four positions as outlined below:

Driver

The Driver is responsible for driving the robot on the game field.

Operator

The Operator assists the Driver and may control manipulators on the robot.

Human Player

The Human Player is responsible for retrieving and returning game elements through mechanisms provided by the game field. The exact role is modified every year according to the game rules.

Coach

The Coach, is responsible for being the “eyes of the match” and directing the Driver, Operator, and Human Player through an adaptive strategy all while monitoring the time, the score, and the actions of other robots.

During tryouts, the mentors will watch the candidates through practices and trials to assess communication skills and the ability to drive/operate successfully. We also routinely pair up different driver/operator combinations until we as a team have come up with the combination of people that we believe will work the best. These trials are specifically designed to display the abilities and skills of all the candidates and simulate

how they would perform under real match conditions/scenarios. Since the Drive Team IS a team, we will select students for positions based on their ability to work well with each other as well as their objective skill. Teamwork, communication, and demonstrated leadership are key here.

Drive Team members are responsible for:

- Attending all scheduled practices between and during competitions.
- Attending all of the Kinetic Knights competitions.
- Maintaining a high level of dedication to the team.
- Having a complete understanding of FIRST's rules and regulations to minimize errors and penalties during competition.
- Being receptive to their mentors' instructions and following through

Pit Crew

Members of the Pit Crew troubleshoot various aspects of the robot during competition events. This crew will stay in the pit area as necessary. The pit crew is also responsible for speaking with judges at competitions when they approach the pit. Each pit crew member should be able to specifically describe various aspects of the robot, and what the robot does on the game field. The pit crew should also have knowledge of the team's off-season events, fundraisers, and outreach activities. Since we never know which judges will visit the pit, all members of the pit crew should know the business plan, safety procedures, and details about the robot.

Criteria for being selected to be a member of the pit crew includes, but is not limited to: the drive team, the safety captain, lead-team leaders, and students who have demonstrated exceptional knowledge during the engineering and building of the robot

Scouting Team

Scouting is the important practice of observing and recording data on other robots in a competition to learn their strengths and shortcomings. That information is then used to aid the drive team in entering a match well-informed about their partners and opponents. It is also compiled into lists and other formats to aid our alliance in selecting partners for the elimination rounds.

There are three main types of scouting that this team will be responsible for:

Pre-Competition Scouting

The collecting of info before events on competing teams, including their strategy, robot, Win/Loss ratio, etc.

Pit Scouting

This allows teams the chance to explain their robot and strategy themselves. Pit scouting generally includes talking to teams in their pits personally, so as to get to know their robot and members.

Match/Alliance Scouting

This includes collecting stats on other teams as they play qualification matches. Things like number of gears collected, penalties, speed and efficiency, etc.

Scouting is an important part of the competitions we attend. Team members (regardless of their position on the team), parents, mentors, and supporting fans may all be asked to pitch in and help collect match data from the stands.

17.0 Student Leadership

There are lots of opportunities for students to gain leadership skills on the Kinetic Knights. From leading an individual project to leading an entire sub-team, there's something for everyone. Some of these opportunities happen organically while some are more formal, elected positions.

The leadership of the Kinetic Knights is and will continue to be a cooperative effort between mentors and student leaders. We are always reviewing and modifying our leadership roles and processes as we strive to find the right fit for our team.

18.0 Social Media, Photos, Publications

Being active on social media helps our team attract sponsors, recruit new members, interact with other teams, and keep family and friends up to date on our team progress. We pride ourselves on having a strong social media presence. This means we take a lot of photos! All team members will be required to sign a Media Release document at the beginning of each year. Team photos may also show up in printed materials such as brochures and fliers, or on our website or blog. If this is an issue for you or your family please speak to a mentor.

Here is a list of our team's social media pages. Bookmark and share our links, follow the team, and join in the fun!

Website: <http://www.kineticknights.org/>

Facebook: <https://www.facebook.com/team781>

Twitter: <https://twitter.com/frc781>

YouTube: <https://www.youtube.com/user/kineticknights>

Instagram: <https://www.instagram.com/kineticknights>

To maintain the team's high standards of quality and imagery, the marketing team lead and mentor overseeing fundraising (Business mentor) must approve any documents or media pertaining to the team prior to their release. This includes grant applications, award submissions, publicity materials, news articles, pictures, videos, and posts to social media that could be perceived as representing the team overall. This helps ensure we have a consistent message.

When posting about the Kinetic Knights on your own personal social media pages, team members and parents are expected to conduct themselves with Gracious Professionalism. When you speak as a member of the Kinetic Knights, you're expected to speak respectfully. No member of the Kinetic Knights, adult or student alike, is permitted to post threatening, harassing, illegal, obscene, defamatory, slanderous, or hostile posts towards any individual or entity, nor to share information that violates the privacy of another person. Again, this is about playing Fair and playing Safe.

19.0 Health Policy

Medical Forms and Emergency Response

Each team member is responsible for completing the Kinetic Knights Medical and Release Form prior to attending our meetings. Full disclosure of issues affecting your participation or interactions with the rest of the team is required and important to your safety and the well-being of the team. In the event of an emergency, forms are consulted and the mentors will follow the team's Emergency Response Plan.

Please be sure to return your Medical & Release Form on or before the first meeting attended.

Health / Illness Guidelines

We work in close quarters and it's easy for germs to get passed around, let's Play Safe. In the past, FRC teams have had illness take down the whole team, putting them several days behind schedule during Build Season. Please be respectful of others and stay home if you are sick. Students who come to robotics sick may be sent home or asked to wear a mask. If a student or adult has had any of the following symptoms within 24 hours he/she should not come to meetings:

- Fever
- Vomiting
- Diarrhea
- A communicable disease (e.g. chicken pox, Covid-19)

The Lead Mentor should be notified when you or anyone in your family has a communicable disease other than a cold so others can be aware and alert to symptoms.

Illness & Emergency Response Plan

If a student becomes ill or injured at a team meeting or event and is unable to contact a parent, a designated adult will call a parent or the emergency contact listed on the student's Medical Forms so he/she can be picked up. Please ensure that this form is kept up to date with any changes.

Even if students are not able to make a scheduled meeting, they are encouraged to work on anything they can at home.

20.0 Non-Discrimination Policy

Kinetic Knights does not discriminate on the basis of race, color, national or ethnic origin, religion, disability, sex, sexual orientation, gender identity and expression. In extreme cases, a Kinetic Knights lead mentors may discuss in confidence with the student who is considering joining and their parents to determine if the Kinetic Knights is able to support the student, their interest, and their capability. Our primary consideration is the safety of our team members.

Appendix A. Dress Code

Workshop Dress Code

The Workshop Dress Code is important for physical safety while working in robot construction areas. It applies to everyone in the shop and work area – parents included. Students who are not dressed appropriately for participation will be asked to return home to change before they can participate.

- Eye Protection – Safety glasses must be worn at all times while in the Kinetic Knights workshop. The team provides safety glasses, though you may want your own personal pair.
- Long Pants – Jeans are recommended
- Closed Toe Shoes – Tennis shoes or boots preferred. No crocs or sandals.
- Long Hair Pulled Back and Secured – Long hair can easily be caught in spinning power tools. Nobody wants to be scalped!
- Additional Protection As Required – Team members may be required to wear gloves, face masks, or ear protection during certain tasks. These will all be provided by the team.
- Family Friendly Attire – Clothes must not have profanity or vulgar statements.
- Consider Wearing Older Clothes – You might get dirty!

Public Event Dress Code

Public events include fundraisers, demonstrations, recruiting and outreach activities, and competitions. When we are at these public events we wear:

- Team Shirt – this will be provided by the team
- Long Pants - Jeans or khaki pants
- Closed toe shoes – Tennis shoes or boots

Other as deemed necessary or appropriate by the mentors.

Appendix B. Safety Rules

A student Safety Captain will be designated each year. This Safety Captain will be responsible for making sure that everyone follows proper safety procedures. Please be aware of these safety rules:

- Act in a responsible manner at all times in the building and construction areas. Students must consider it their duty to protect themselves and their peers from accidents and unsafe behaviour. Horseplay and goofing around are not tolerated.
- Wear eye protection at all times when working with hand or power tools or working anywhere near someone who is using hand or power tools.
- Tie back long hair, remove dangling jewelry, secure loose clothing, and wear shoes with closed toes in the construction areas.
- Never use a power tool without direct mentor, or Kinetic Knights approved supervision.
- Students will be respectful of the Safety Captain and mentors, and adhere to any reasonable requests they make.
- Parts being machined need to be well-secured with a vise or clamps.
- No student should ever operate a machine when another student is standing too close to it.
- Do not distract or startle the operator of any machine. Wait until he/she is finished using the equipment.
- Always use the correct tool for the job being done.
- Batteries on the robot should always be disconnected during maintenance or repair.
- When the robot is running, everyone in the area should have an elevated sense of caution and someone must be ready to power off the robot, especially when testing autonomous modes. The magic words to stop the robot are “STOP!” or “HOLD!”
- All tools are to be treated with care.
- Know where a first aid kit is located and what should be done in an emergency. Report all injuries to the Safety Captain.
- Immediately report any unsafe condition or activity to a mentor. If a power tool malfunctions or breaks, report it to a mentor immediately.
- Electrical devices must never be powered by daisy-chaining cords or power strips.
- Any and all unsafe behaviour will receive one warning. After one warning, if the behaviour continues, appropriate disciplinary measures will be taken.

All team members may be required to help work on the robot in some capacity. This necessitates a working knowledge of tools that are used in the shop. All students are required to complete their Safety Passport for those tools in which they expect to use. The Safety Passport is viewed as a learning tool, and all team members will be allowed to practice as many times as needed until they pass and feel confident in their abilities. This can be facilitated by completing a test project as provided by the mentors. Regardless of how particular students participate on the team, they must be familiar with all of the tools and machinery in the shop. Team 781 will indeed encourage every student to gain a working amount of knowledge of tools, their usage, and manufacturing techniques.

Kinetic Knights Special Thanks

The Kinetic Knights unashamedly plagiarized all the best parts in this handbook from many other role model FRC Teams and organizations. We would like to send out a BIG THANKS to:

Team 1816 The Green Machine Team 4643 Thunderbird Robotics Team 3528 UpNext

Team 4293 Team Komodo Team 1538 The Holy Cows Team 624 Cryptonite

Team 4499 Highlanders Robotics Team 2177 Robettes

Team 1511 Rolling Thunder

Team 1923 The Midnight Inventors Team 254 The Cheesy Poofs

Team 3928 Team Neutrino Team 1111 Power Hawks

Earth Native Wilderness School

Team 6377 Howdy Bots

ATTACHMENTS

Please note that all forms must be completed as-is. We will not accept 'redlined' or edited forms.

The following forms must be completed and signed to participate with the Kinetic Knights:

- Handbook Acknowledgement
- Member Application
- Liability Waiver
- Tool Safety Agreement
- Media Release
- Travel Release
- Medical Release

In addition, members will be required to register online with FIRST and complete the FIRST waiver. Links and information will be provided once you have joined the team.

Handbook Revision History

v2018-1.1 – Initial Release

v2022-1.1 – Amended to reflect minor changes