# Project Planning • Team Building

## First Team Meeting

*Your first team meeting sets the tone for your entire project. Here are some guidelines to help it be the great start you're looking for...*

Meet people properly. It all starts with the introduction. Be positive; show that you are genuinely interested in meeting your new teammate. You don't get a second chance to make a first impression.

### Find things you have in common
You can always find things in common; you go to the same school, have the same classes, and maybe are from the same neighborhood. In the real world people use things like sports, movies, songs, etc. at the very least you have the weather. This is why cities take pride in their professional sports teams. They are socially galvanizing forces that cut across boundaries of race and wealth.

### Make meeting conditions good
Make sure you have a large surface to write on, make sure the room is quiet and comfortable, and that there aren't a lot of other distractions.

### Everyone can contribute
This can be difficult! Even if you don't agree and think what your team member is saying is foolish, be patient. Cutting someone off is rude, and is certainly not worth whatever small time gain you might make. Don't finish someone else's sentences for him or her; they can do it for themselves. And remember: talking louder or faster doesn't make your idea any better.

### Phrase alternatives as questions
Instead of "I think we should do A, not B," try
"What if we did A, instead of B?" That allows people to offer comments, rather than defend one choice.

### Write things down
Have someone take notes that document the meeting. Be sure to include everyone's ideas.

### Find good things to say about other peoples ideas
You may not agree with ideas that are presented, but it is important to not shoot some else's idea down without finding something positive about the idea. Find the "silver lining" in their idea and then present your concerns. Do not embarrass your teammates.

### Be honest but not harsh
Talk with your group members if there's a problem, and talk with your teacher if you think you need help. One of the points of this course is to learn to work together. Be forgiving when people make mistakes, but don't be afraid to raise the issues when they come up.

### Avoid conflict at all costs
When stress occurs and tempers flare, take a short break. Clear your heads, apologize, and take another stab at it. Apologize for upsetting your peers, even if you think someone else was primarily at fault; the goal is to work together, not start a legal battle over whose transgressions were worse. It takes two to have an argument, so be the peacemaker.

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# Ground Rules

When many people have to work together it can sometimes get confusing. But by establishing simple ground rules, you can make sure that every person's input gets heard, and that no one gets left out. Consider these while you're making up your ground rules:

**Listen!**  Good team members listen carefully to each other and incorporate all good ideas. Even if the idea isn't yours, it can still help your team succeed, and this is to everyone's advantage. In meetings, if everyone shares with the entire group rather than just one other member, it can save a lot of time!

**Take responsibility.**  All members of the team need to understand and be responsible for their own tasks. Verify that everyone has been working on their task, and share problems and ideas to help each other. Just because someone else on your team is not working on your task does not mean that they may not have a solution.

**Keep track.**  Select a Project Manager who will be in charge of keeping track of everyone's responsibilities and what is needed next to complete the project. The Project Manager isn't in charge of making all the decisions, just making sure everyone is doing their part.

**Come to a consensus.**  Before you move ahead, make sure team members are committed to the idea. Make sure that any reservations or disagreements are voiced and listened to. If a disagreement continues, resort to a democratic vote.

**Stay organized.**  At the beginning of the meetings, have everyone who wants to discuss or share something write down a quick sentence about it and hand it to the Project Manager. Then, you can move from topic to topic without forgetting about anything important. Keep all of your team's notes in one place – you may need them later!

**Get your terminology right.**  It can save a lot of time and confusion if you are all on the same page when you're talking about things, especially parts of a robot. Decide on terms for things early on.

Now, come up with at least 3 rules for your team meetings. List them below.

**Rule #1** _____

**Rule #2** _____

**Rule #3** _____

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## Team Building

For the rest of your life, most of you will be working as members of a team. Whether you are working for a multinational company, you own your own business, or you are simply a member of a robotics team, you will work with multiple personalities with a variety of skill sets. It is important for everyone to learn how to work as a member of a team.

Generally, students think they are very good "team players" when they are assigned a team project. If they reflect on their first team experience, they realize that being a team member is much harder than they thought. Finally they begin to realize what it takes to become good team members and start developing the appropriate skills so that they can move the team in a positive direction. Some common mistakes:

### My idea is the best one… everyone should follow me
Good team members listen carefully to each other and incorporate all good ideas. This ensures that everyone on the team "buys in" and will want to work together to succeed.

### Responsibilities are too general
All members of the team need to understand and be responsible for their own tasks. Many times team members are unsure who is responsible for what. The key to a successful project is good communications that include regular meetings where team members can present progress reports on their part of the project with the rest of the team.

### Teams lose track of who has what responsibility
It is important that the team selects an organized Project Manager. All responsibilities are interdependent. If one group doesn't complete their work, the whole team suffers. Ultimately, the project must be completed on time. Teams need to divide the larger task into manageable pieces and complete the subtasks on time as well. Many subtasks need to be completed in a specific order before the final project is completed. Someone on the team needs to be responsible for each subtask. Tools to manage projects can be found in the "Time Management" section of the Robotics Educator.

### Lack of communication
One team member may send other members off to accomplish a task that is already being done by another team member. This often leads to wasted work. Students will often work very hard and long on a task that is not in line with the larger project. If team members do not meet often and communicate, they may find themselves working at odds with each other. Communication is key to an effective project. The Project Manager is ultimately responsible for team communications.

### Team Set-up
Girls vs. Boys
High achievers vs. low achievers
Team dynamics are important. Give thought to how your teams are setup.

Begin with small teams at first; once team members are comfortable taking responsibility and organizing tasks, the group size can grow.

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## Robotics Teams

When teams build robots it requires people with multiple skill sets. Teams are made up of project managers, scientists, engineers, programmers, technicians, purchase agents, sales persons, administrators, machinists, marketing specialists, writers, and web designers. These professionals blend their unique talents to work together to design, build, program, troubleshoot, publicize, and market their robot project. Organization and communications are two hallmarks of all successful projects.

Team building is a critical skill for all students to develop. At Carnegie Mellon when people build robots their skill sets cross from one team to the next. All members from one part of the team need to know what other team members are doing. You couldn't build a very good robot if the programmers were not in direct communications with the engineers and mechanics. The important concept for students to remember is that although they may be assigned to work on one team, they need to communicate with, support, and possibly to work for members from other parts of the team. This is a difficult concept for students to understand.

When you begin team building it is a good idea to begin with small teams until you develop the skills to work as a large team. We will start with three groups: the project manager, programmers & engineers, and documentation & communications. Your team may add members or reorganize your team as you see fit as long as your teacher approves.

### The Project Manager
All teams need to have a leader; we will call this person the project manager.
The project manager needs to lead team discussions, help organize responsibilities, and manage resources. If one part of the team is behind, the project manager may assign extra team resources that enable them to catch up. The project manager position may be the hardest job in the group. This person
has to be able to convince others to put their egos aside for the good of the
team and to work toward completing team goals.

### Programmers & Engineers
You will note that these two groups are combined. The reason that they are combined is that one group cannot design their part of the robot without collaborating with the other. If you are designing a robot with light sensors to track a line and a gripper to pick something up it is important that both the programmers and engineers (builders) talk so that they are able to integrate these two systems.

### Documentation & Communications
All successful companies market their ideas. The documentation team will be responsible to gather all information from all teams and keep it in order. The documentation team will be responsible for developing presentation materials, posting web pages, researching topics, and writing technical reports.