# Seven Student Teaming Tips and Tools

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During each STEM lesson students will work together in teams. Setting students up for successful teaming will not only help the activities go smoother; it will increase the learning value for students.  Successful teamwork requires that students understand the value and purpose of the teamwork, develop a sense of being part of a team, have the skills to collaborate effectively, and be responsible and accountable for their work. This teaming manual provides some tips and tools to help you establish successful student teams.  Please take note of these initial three tips to get your teaming venture off to a smooth start:

- Teams should be set up and ready to go before each module begins.

- Teaming works best if it is an ongoing component of your classroom practice so that students have multiple opportunities to develop the needed skills.

- Additional teaming tips and applications will be provided within the context of each module.

## Step 1:  Organize and plan for teamwork

- *Decide on team sizes that will maximize project success*.  Suggested team sizes are included in each EYE module and generally vary in number from four to six, depending on the nature of the module. Consider the module suggestions along with classroom realities and arrange team numbers so that each student will have at least one assigned job and be responsible for at least one part of the final project.

- *Decide which students will be on each team.* Before each lesson, notice what student skills will be needed to complete the tasks successfully.  Look at the job descriptions (roles) listed for each module and place students on each team who can successfully fill those roles.

- *Be sure students have the prerequisite skills they need for doing the required tasks*. During the STEM lessons activities team members may be measuring, weighing, constructing, recording data, and so on.  See that students are able to accomplish those tasks successfully.  For example they may need to weigh items using triple beam balances, or to correctly measure liquids using a graduated cylinder. These skills should

be taught prior to implementing the lesson.

- *Be sure the needed materials are available, organized, and set up for easy access*. Having the room and materials prepared in advance will keep teams moving more smoothly throughout the module or activity implementation. Explain to team members what procedures they will use to gather, return, and/or dispose of materials as they work.

## Step 2: Introduce a teamwork rationale (*Why* are we working in teams?)

- *Help students consider the value in working together*. The more information you can share with students about the value of teamwork, the better.  To help them with this concept, ask them to think of some examples of people working in teams. (Athletes, lawyers, medical staff, NASA, and engineers, for example.) Ask students think about what might happen if football players practiced individually but never practiced as a team before a game.  How would the game turn out?

## Step 3: Establish a purpose for the teams' work (*What* is our purpose?)

- *Clarify the function of the student "engineering" teams*. Professional engineers work together to develop solutions because they each bring a different set of skills and expertise to a project.  Student engineers also need each other's expertise to make decisions and complete the projects in the EYE modules. Keep in mind that student teams will need a clearly defined identity and function. You might prepare name cards or badges to identify students as "Student Engineers."

- *Define the goal and outcomes for the teamwork*. Students work together more successfully and learn more when they have a clear goal and outcomes for their teamwork.  Each STEM lesson should define the engineering goal for student teams.

- *Verify that students understand the lesson's purpose ask them to explain to you what their team is expected to accomplish.* Allow time for them to ask questions and clarify expected outcomes they don't understand.

## Step 4: Establish teamwork procedures (*How* will we do the work?)

- *Provide clear directions for the team's work*. Make it clear to students what they should work on as a team, what they should do individually or in pairs, how long you expect their team tasks to take, and what specific procedures they should use to accomplish that.  Often, a handout with a checklist of procedures will keep teams on track. For example, if they are using a specific method for testing a prototype they designed, a checklist of steps to follow can make the testing procedure go more smoothly.

## Step 5:  Develop teamwork skills

- *Guide teams in setting norms*.  Teams work better when students on a team have a common understanding of what they value in one another as team members.  Ask each team to tell the team members what behaviors they value in other team members. Ask one team member to make a list of behaviors team members agree to abide by during their STEM project. To generate more buy-in and compliance, each team should set their own norms.

- *Giving students experience with interaction skills through multiple teaming experiences will build more successful teamwork during STEM lesson activities*.  Some ideal interaction skills for effective teamwork include those listed in the "Super Smart Team Skills" handout at the end of this document.  You might use this as a checklist to keep track of what your students seem to do well and areas where they need guidance. This is designed for students to use to analyze their own social skills as a team.

- *Use self-assessments to help students improve teamwork skills*. Self-assessments can help students understand how team members might ideally work together. The "Team Member Self Evaluation" and "Teamwork Skills Assessment" handouts at the end of this document serve as a tool for you, and for team self-assessments of their work.  The "Super Smart Team Skills" can also serve as a team self-evaluation. Students can do these assessments as individuals or as a whole team. Remember that the purpose of these assessments is to help students to identify areas where their personal skills should improve and their team should run more smoothly, and to decide on ways to address these. To ensure honesty and transparency, avoid using the self-assessments for grading.

## Step 6:  Monitor teamwork

- *Regularly monitor teams and provide productive feedback.* Walk around the room to check on each team's progress. Limit the time you spend with each team so that you can observe and assist all teams. If a team needs you to spend more time with them, try to get them to a point where they can work alone for a few minutes while you check in with other teams. Then return to that team and help them with the next step. If you find that several teams are struggling with the same problem, pull the teams together for a few minutes to clarify the issue before returning to their teamwork. Use the "Super Smart Team Skills" handout to help you identify behaviors you are seeing in teams as well as behaviors you would like to see.

## Step 7:  Check teamwork progress

- *Regularly collect student feedback on how effectively groups are working*.  When walking around you might make a note of such things as
    - What kinds of team member interactions went well today?
    - What skills have team members mastered well?
    - How engaged are team members in doing the work?

- *Leave enough time at the end of class to debrief.*  Give team members the opportunity to reflect on the quality of their contributions to the team, address their team strengths, and identify opportunities for improvement. As much as possible, give students individual feedback on the quality of their contributions to the group.

## Super Smart Team Skills

*Directions to students: Below you will see some ways that super smart team members work together. Use this as a checklist to keep track of what you, as a team, seem to do well and areas where your team may need more guidance.*

Directions: Discuss these skills as a team.  How well does your team do these? Beside each skill, place a checkmark in the appropriate box.

| Super Smart Team Skills | We do this well now | We need to do this better |
|---|---|---|
| 1.  We follow the directions. | | |
| 2.  We ask for clarification when needed. | | |
| 3.  We stay on task. | | |
| 4.  We remain with our team at all times. | | |
| 5.  We all participate in discussions and activities. | | |
| 6.  We listen carefully to what others say. | | |
| 7.  We share responsibilities equally, and each of us does our job. | | |
| 8.  We keep our voices down and speak quietly. | | |
| 9.  We call each other by name. | | |
| 10. We accept differences in one another. | | |
| 11. We maintain positive attitudes. | | |
| 12. We each show respect for other team members. | | |
| 13. We cooperate with one another. | | |
| 14. We praise and support one another | | |
| 15. We are good sports. | | |
| 16. We ignore distractions. | | |
| 17. We all interact with everyone on the team. | | |
| 18. We use self control while working on the project. | | |

Adapted from *Cooperative Learning in Math* by Judy Duke

# Team Member Self-evaluation

*To the student*:  Think about yourself as a "team player." Look back at your role on the team and fill out answers for this form. Share with your teacher and with fellow team members if you like.
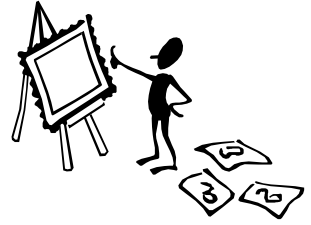
**What were you supposed to do?**_____

_____

**What did you do well?**_____

_____

_____

**What would you do differently if you had the chance to do the activity again?**

_____

_____

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## Team Evaluation

*To team members: Discuss these answers together and write down what team members decide as a group.  Use another page or the back of this page if needed.*

**1. How would you describe your group's teamwork?**

**2. What do you like best about your team?**

**3. What do you like least about your team?**

**4.  How do you think your team can improve?**

# Teamwork Skills Assessment

*To the teacher:* Use this list to observe how well a team is working together You might then share your findings with students to see if they agree, and to plan with them how to make needed changes.
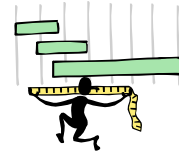
**Team**_____

| Skill | Indicators | Comments |
|---|---|---|
| **1. Listening:** | *The students in this team listen to each other's ideas.* You will observe the students "piggy-backing" (or building) off each other's ideas. | |
| **2. Questioning:** | *The students in this team question each other.* You will observe the students interacting, discussing, and posing questions to all members of the team. | |
| **3. Discussing:** | *The students in this team hold positive discussions.* You will observe the students exchanging, defending, and rethinking ideas. | |
| **4. Respecting:** | *The students in this team respect the opinions of others.* You will observe the students encouraging and supporting the ideas and efforts of others. | |
| **5. Helping:** | *The students in this team help each other.* You will observe the students offering assistance to each other. | |
| **6. Sharing:** | *The students in this team share.* You will observe the students offering ideas and reporting their findings to each other. | |
| **7. Participating** | *All students in this team participate.* You will observe each student contributing to the project. | |

Source: http://www.bham.wednet.edu/studentgal/onlineresearch/oldonline/mod8team.htm