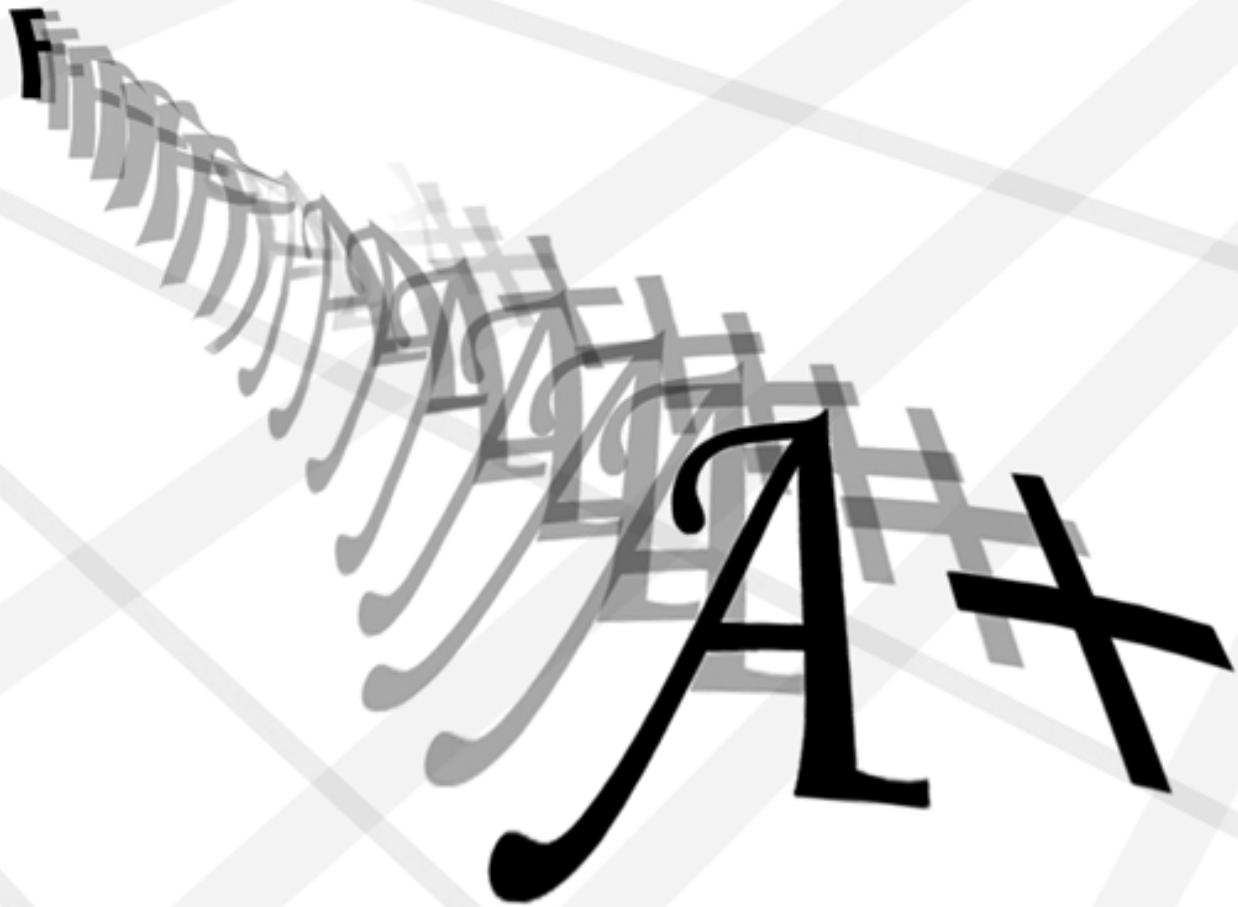


*Storming to **Performing**:*



A**X**

*The **Evolution** of a Good PLTL Group*

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Introduction

Welcome to PLTL peer leading. Peer leaders are an essential component of our PLTL program. Without peer leaders, there is no P in PLTL.

What is a peer leader? At this point, you might be thinking of the peer leader primarily as a tutor. Keep in mind, however, that a tutor is one who imparts knowledge.¹ A peer leader, on the other hand, teaches students the skills they need to become independent learners. While you are a *peer*, or “person of equal standing” in relation to the members of your group, you are also their *leader*, or the person who guides and inspires them in their learning.²

This book, written by last year’s SAM peer leaders, will start you on your journey to becoming a peer leader. As its title implies, no one is born knowing how to be a peer leader. Your evolution into a peer leader began when you participated in a PLTL group; it will continue as you participate in the SAM and PAM courses, and reflect on your own and others’ peer-leading experiences. Just as with evolution, peer leading is a developmental process, and there are bumps along the way. The transition will not always feel smooth. This book is divided into sections that describe the five major steps you will encounter throughout the semester.

The first step is the first PLTL session, discussed in “Making Your First Time Magical.” The first time you meet with your PLTL group is the most important, because it sets the tone for the rest of the semester. My two suggestions are to be “extra” prepared for this session and to create an agenda. Last year’s leaders have presented many great tips. Read them and enjoy.

One of the goals of PLTL is to teach students how to solve problems – how to take a problem, find the relevant information, integrate that information to determine a solution, and then evaluate the solution to see if it makes sense. You will learn different strategies that your group can use to solve the PLTL problems and to become effective problem-solvers. These strategies will require the use of different learning styles, increase participation by the entire group, and prompt discussion of the concepts used in the

¹The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company. Published by Houghton Mifflin Company.

² WordNet® 2.1, © 2005, Princeton University.

problems. In the “Strategerizing Strategic Strategies” section, peer leaders discuss their experiences in using the various strategies. The following ideas stand out: you should modify each strategy to better fit your own group, and you should use multiple strategies even if one specific method seemingly fits your group the best. Be adventurous!

Remember, no one is born a peer leader. What can you do when you need to lead your group, yet you are still learning to be an effective peer leader? The third section of this book says it all: “Fake It Till You Make it!” The underlying guideline: your preparation for the weekly PLTL session, concern for your students, and self-confidence will keep your group working while you are figuring out your role as a leader.

PLTL is all about team work. As a member of a PLTL group, you probably did not realize what your peer leader was doing to make your group into a team. The peer leader is the magician behind the scenes helping each group become a community of learners. The techniques in the fourth section, “Putting the T in PLTL,” will help you build your team.

Okay, so you are getting this peer-leading position down. It is the middle of the semester, and you are really busy with your course work. The thought comes to you that you could coast on some of the PLTL sessions, and no one would know. Think again—your group will notice the difference. How do you keep yourself excited about the sessions in the midst of the semester? This year’s SAM peer leaders come to the rescue in “Pumpin’ Up for PLTL.”

I hope you enjoy this book. It is filled with wonderful hints about peer leading. When you become a peer leader, you join a community. I look forward to welcoming you to the PLTL peer-leader community and working with you this coming fall.

Regards,

R. Frey

How to Have a Great First Time
Life Lessons from Alon Brodie

It is difficult to gauge the importance of your first PLTL session, looking back on it, and even more difficult to do so in the middle of it. There is no doubt, however, that it's your most important session (which session could be more important?), and thus, considerable attention should be paid to everything that I say below – even if it has **nothing** to do with your first session of PLTL.

First, be entirely prepared to answer any questions about the given material for the first section. This general concept should ideally apply to each session, but it bears its greatest weight on the first session, since a PLTL student, believing his/her PLTL leader to be incompetent, will very likely explain most of that PLTL leader's future actions in terms of this incompetence. That is, he/she may interpret your refusal to provide direct answers, which is characteristic of any seasoned PLTL leader, as your inability to do so. If you are unsure of the topic at hand, you should ask other leaders any questions you may have, and study those notes or books from previous courses that apply. Do not leave anything unanswered in this case.

Second, be straightforward to the students about what your role is in PLTL. Explain to them that you are not a professor, tutor, or answer key, but rather, a peer. This, of course, is the essence of one fourth of the acronymic name of this program. This will probably be difficult for them to comprehend, as they may have registered for the program with expectations that you have just shattered before their eyes on the very first day. You must clarify for them that you will serve as a guide to accelerate and solidify their own learning, which could, ideally, take place without you.

Third, when you go to Bear's Den and you order a burrito, ask that barbecue sauce be put in it. This combination works wonders. (This was part of the information not relevant to PLTL, referred to above, but I felt it was important enough for any student to know.)

Make sure that you establish a base for rapport with your students. This does not entail becoming their best friends over the course of a single session (or even over the duration of the semester), but rather that you encourage them to feel comfortable around you. In essence, this further expresses to the students that you are neither a professor nor

a tutor, and helps them see you, the PLTL leader, as a venue through which they learn, rather than as an authority controlling them. Stress the fact that you want to help them. This was not difficult for me, because I really do extract a great deal of pleasure in helping people do math. If this is not the case with you, pretend that it is, and pretend *well*.

Also, be sure to try the Johnny Bosco sticks with marinara sauce on the side. They go very well with pasta.

Furthermore, act in such a way during your first PLTL that indicates to the students that you are, in fact, committed to their learning. This entails not letting them give up on problems after only a little time has been spent, and helping them through their work with minimal direct assistance. Overstepping your bounds as a PLTL leader is never a good thing, but it could prove disastrous if done on the first meeting.

Finally, do not get the pizza, as it will only disappoint you.

Finding the Right Balance

By Harrison Gammon

The first session of PLTL can affect the way a PLTL group performs for the entire semester. The leader is in charge of creating a positive and friendly environment, while simultaneously maintaining an academic atmosphere. The balance between these two competing environments is one of the most difficult duties of a new leader. The first impression that the leader gives the students can greatly affect how the leader is perceived throughout the term. It is challenging for a new leader to be effective especially when group members do not respect the leader. Thus, it is of great importance for the leader to establish a respectful environment in the first session. The most important choices for a new leader are related to establishing rules that the group must follow. These rules lay a foundation for the way the group will function for the entire semester. It is important for a new leader to establish the way in which group members should interact. Students must be respectful of each other and a PLTL leader must emphasize, immediately, the importance of student respect. Students must also be informed of their duty to attend each session and be on time. A PLTL group will fall apart if students do not have consistent attendance. Therefore, the leader must stress the commitment students are making to the group and make students feel accountable.

While the development of rules and guidelines for a new PLTL group are important, there is another key element that a leader must account for during the first session. A PLTL group will fail if students do not feel comfortable to interact and contribute to the group. This comfort level that students should feel in a PLTL group is affected greatly by the leader's performance in the first session. While a new leader is trying to establish rules and guidelines, the leader must be careful to avoid scaring new students. The new leader needs to remember that the session is also the first for the students and they will often be timid. Thus, if the leader develops an environment too heavily focused on rules students may feel intimidated. In this situation, students will not see the leader as a "peer leader" but rather an authority figure. So, the new leader should try to connect to the students and create a friendly accord with the students. There are several ways to achieve a friendly environment. Perhaps the most significant thing a leader can do is ask students about their weekends and school. Many leaders find that an

icebreaker is an effective way to start the session and encourage participation among students. Throughout the first session do not be surprised if students seem hesitant to participate but continue to encourage students. As the semester progresses, students will become more comfortable if the leader continues to create a comfortable environment for the students.

At this point a prospective leader might feel intimidated by the importance of the first session. However, an effective balance between the rules and friendly environment can be achieved. The best way to achieve this balance is to be clear with students about rules at the beginning of the session. It is important to be clear about rules but the key is not to get stuck on the rules. The leader should remember that for PLTL to be effective the leader must be seen as a peer rather than an authoritative figure. After the students receive the rules of the session a leader is able to focus more on encouraging participation from students. However, for rules to be effective the leader should continue to enforce the rules discussed in the first session. The balance between enforcing the rules of PLTL and being a friend to the students may need to change during the semester. Each group is different and progresses in a different manner but if a leader remains aware of this important balance every group can be effective.

Your First Time: Breaking the Ice
by Bohoon Lee

I presume that if you're reading this, you are now a PLTL leader and your first week with your first group of peers is approaching. You're probably feeling either excited, nervous, or some variation of both of those emotions. It is perfectly normal to feel that way going into a new experience and it is exactly how I felt. What will my group be like? Will they like me? What if my group doesn't like each other? How should I break the ice? Won't it be awkward? These were just a few of the questions that went through my mind as I prepared for my own first session. I got to my assigned room extra early, set my marker and eraser at the board, and scattered some candy across the table. As I sat there for the next few minutes waiting for the members to start arriving, the same questions ran through my mind. It was most likely a side effect of the uncertainty I was feeling, in terms of not knowing what to expect.

The first session, essentially, is a time for you to introduce PLTL as a learning method and yourself as the administrator for the group. The most important ingredient in making a PLTL group is the students. It's hard to know what to expect in terms of what the people will be like in your group. Each group has its own unique individual personalities that combine to make unique group "personalities." The first session is very critical to the beginning of building those personalities which essentially become the group dynamics. As in most situations, the first session should start off with introductions. The best part is that most of the PLTL members will be freshman, so they are usually very open to meeting new people and making new friends. Usually a silly icebreaker does the trick and helps to lighten the mood. This gives the group members some time to get comfortable.

I also found that it was very important to establish in a clear-cut manner, the rules of PLTL during the first session. This will only take a few minutes but will prove to be very effective in that it serves as a guide of the general mannerisms of PLTL. Even one member lacking an understanding of the simple rules can disrupt the group dynamics. Even if it doesn't seem like a big deal, going over the general ideas and "philosophy of PLTL" won't hurt.

As you prepare for your first session, don't feel too nervous or anxious. Everything falls into place more smoothly than you might expect. You can also consider bringing them some candy the first week or so; they like it. I also encourage you to continue reading through this book. PLTL is such a varying experience and I'm sure that the rest of the contributors to this book have their own helpful advice to give. Hopefully, by the end, some of your questions will have been answered and your worries eased. Lastly, just relax and try to have fun.

Tips for the First Day
by Joshua Lykes

So, your first PLTL session is drawing nearer. You've been excited for the past couple of weeks, but you've also been a little nervous. What if they don't like you? What if you don't like them? Well, it is true that not every PLTL leader has an excellent experience during their first semester, but you can still do a lot of things to make sure that you get off on the right foot.

One of the keys to a successful first day is to be prepared. Since it will be the first time, you might fear the unknown, so it will be good to know exactly what you will be doing and when. Once you find out information about your PLTL group and location, you should think about doing a little reconnaissance. For instance, you could go visit your PLTL room before the first session to get a feeling for what it will be like. Pay attention to the size of the room and how the tables and chairs are arranged. Though these are only small details, knowing exactly how things will be situated might make you more comfortable.

Also, there are usually more things that you have to go over during the first session than in any other session (for instance, talking about the PLTL philosophy and any rules that you might want to set up for your group), so it may be a good idea to take notes on the things that you have to cover. You may even want to go in a few minutes before your session and put a short agenda on the board so that both you and your group will know what is going on. A little preparation can go a long way, and when you reach the inevitable small bump in the road during the first session, you will be able to get right back on track because you already know exactly what you have to do next.

One thing that you will probably be hearing a lot about is ice breakers. Perhaps you are thinking of going with the simple "go around in a circle and tell one cool thing about yourself" ice breaker. Or, maybe you want something that is a little off the wall, like playing a game of hangman or some other nontraditional ice breaker. You may even want something really extreme like the game where you pass around a roll of toilet paper, tell everyone to take as many squares as they think they use in a day, and then make them tell one interesting thing about themselves for each square that they took (recommended

only for the VERY adventurous PLTL leader). In any case, it is probably good to get your groups to interact with each other outside of the context of the problem sets.

Remember, a lot of your group members will walk into PLTL not knowing exactly what to expect. Some might think that they signed up for tutoring or for you to teach them everything that they need to know for the class. It is important to let them know what they actually got into by signing up for PLTL: the ultimate goal is for them to be able to work together to solve these problems, not to be hand-fed everything from someone else.

First Day Fundamentals

by Kathleen O'Malley

The first day of PLTL is very important because it is your opportunity to set the tone for your PLTL group and begin to establish a positive working environment for your group. Meeting the eight members of your group for the first time can be intimidating; I remember being really nervous and wanting my group to leave the first meeting excited about PLTL and what they could get out of it and eager to come back next week. Despite the natural anxiety and slight apprehension that can occur before your first PLTL session, it is really easy to have a wonderful first session and leave your first meeting feeling accomplished and excited for the next one.

One of the most fundamental ways to ensure a successful first session is to be prepared. Going into your first PLTL session it might help to come a few minutes early to make sure the room is set up nicely and familiarize yourself in your surroundings. It would be helpful to come prepared with an outline for the session so you don't forget anything you wanted to say or do and you might want to send an e-mail reminding your group members of your first meeting together and what they might need to bring. I came prepared for the first session with paper for each group member to write their name on and several ideas for icebreakers. It is important to create a friendly atmosphere and try to establish a good rapport with the group. The first session is your opportunity to explain to your group members the PLTL philosophy. Each member of your group will gain more from their PLTL experience and appreciate the time they spent if they have a clear understanding of the objectives of PLTL and how these aims are achieved. The first PLTL session is also where you can establish the rules for your group and begin to foster that positive, cooperative learning environment.

It is important during the first session to make your group members comfortable and put them at ease. Your students might be more reserved or withdrawn during the first session because they probably will not know you or anyone else in the group. Striking up fun and friendly conversation about topics other than Calculus or Chemistry would probably be wise. The first session will be your first opportunity to see the very beginnings of your group dynamics. Keeping an eye out for any particularly shy students or someone who might trend towards the more dominating side of the spectrum will

guide you in future sessions as your grows and develops. There is a lot of expectation going into the first session and it can be nerve-wracking but a prepared and friendly leader can help make the first session a success.

In addition to all your preparedness and guidelines for establishing what PLTL means for your group during the semester, it is important to try to remember to have fun. Your group will appreciate a leader with a sense of humor who always seems ready to offer an encouraging smile. Cultivating an environment of fun and friendly studying will make each session go by faster, bring your group closer together, and help ensure a successful PLTL semester. Come to the first meeting prepared, organized, and excited to begin PLTL and your enthusiasm will spread to your group. The first session is the beginning of a semester long experience that is very gratifying. The first PLTL meeting is just a start and you can always improve and grow throughout the semester as your group comes together. Take the first meeting to organize your group, establish a positive work environment, and maintain an upbeat attitude; this will aid you during the rest of the meetings as you learn to become a better PLTL leader and your group develops over the semester.

How to Survive the First-Day Jitters
by YeonJung Park

A year ago I too was sitting in the same seat, thinking those same thoughts, and being way too nervous about the first PLTL session. I wanted the session to be flawless. Little did I know that there was no such thing. Sure PLTL sessions run smoothly enough but without those unexpected twists and turns the sessions are nothing more than solving additional problems for two hours. When the first session quickly arrived, I tried to remember what my past PLTL leaders did and wanted my sessions to be just as wonderful. I wanted my group to be there all the time, to be friends with one another and to feel comfortable around one another so that they were able to freely discuss any sorts of problems. Yeah, I expected a lot and I feel that my expectations were met because I came into the PLTL experience with a positive outlook. Students in PLTL want additional help in their respective studies and a group dynamic is what makes PLTL. But forming these group dynamics is the hard part. Don't expect that all your students will be eager to come to PLTL just like you are. Their attitude towards PLTL is similar to your very own experiences. Keep that in mind.

But, that is enough of the forewarnings. For the first session, I got there fifteen minutes early and with my recently purchased dry-erase markers wrote out the outline of the session. I was like a five year old on Christmas Eve (I know I'm a dork). I went over the problem set the night before, brought snacks and put together a small ice breaker. I know, another ice breaker. By now, we're all sick of them but it really does make things a lot easier. Most of all, ice breakers allow you to interact with them prior to working through the problems. You can know their names and know random facts about them. For my ice breaker, I had each of the group members pick out from a bag of skittles. Each color corresponded to a certain fact that they had to reveal to me and to the others. They then had to go around the room and repeat the interesting fact and name of all the people who went before them. It broke the nervous tension in the room right away and allowed the students to feel comfortable with one another.

Everyone loves free food and a PLTL group is not an exception to this. Although I am not in anyway encouraging you to allocate your meal points to your PLTL group, I tell you that it does in fact ease the tension in the room and it makes them forget that they

are stuck in the same room for two hours working on problem after problem. At the beginning of the first session, I had them write down their names and their favorite candy on an index card. I then tried to alternate the snack options so I could make sure that I brought in a snack that each person liked. People like it when they know that you spent time in preparing for the session. You come prepared and in return the students will see that and feel that they too should come prepared. The leader is not a leader without the group and the group too needs the leader to function at its optimum level.

Be excited about the semester that lies ahead of you and when things are slow remember again why you wanted this position in the first place. Your peers look up to you as someone who has done well in the class but foremost a person they can come to when they need help. Be friendly and don't uphold the status quo of PLTL leader as an authority figure in all matters but as someone who will be able to lead and give them good snacks once in a while! Most of all please enjoy your first leading experience because you will also come out of it learning more about yourself.

The Do's and Don'ts of Day One

by Andrew Pazandak

The first session of PLTL is the most important, plain and simple. It sets the tone and pace at which your group will run for the rest of the semester. Remember, first impressions last, and there will be many impressions being made on this day. Therefore, the forming of a successful PLTL group depends greatly on your ability to make the right decisions from the very beginning. Nervous yet? Don't be. With the correct preparation and mindset you should breeze through your first session with ease. Simply follow the following advice and prepare accordingly.

Don't wait until the day of your first session to find your room, even if you know exactly where it is. Go the day before and scout it out. You may think it tedious to do so, but I saved myself a lot of trouble when I found out my room was two chairs short of what I needed. However, even if you do check your room the day before hand, make sure to arrive to your session early. Not only does this give you a chance to deal with any last-minute emergencies, but, if you're lucky, you'll get a chance to make some small talk with your earlier students. While you wait for the rest of your group to arrive make sure to write your name and contact information on the white board. As each student walks in greet them individually, making sure to introduce yourself.

Once your entire group has arrived and is seated, you need a way to break the ice. I believe that the easiest way to do this was to bring snacks, although food isn't necessary. You should introduce yourself again, this time to the entire group, and then ask each student to introduce him or herself. This would be a great time to use an ice breaker, either one that your PAM teacher suggested or one of your own. Some people strongly suggest you play as many as two or three icebreakers, but in my opinion you really need to decide how many you play based on the mood of your group. The more sociable they seem, the fewer icebreakers you need.

Once you deem that your students are somewhat comfortable with each other, start your session. I strongly suggest you do this with the PLTL philosophy sheet. In specific, make sure you explain exactly what your role is as a PLTL facilitator. Several of my students questioned exactly why answers aren't provided for the PLTL problem sets, so have an answer ready. Once everyone understands what PLTL means you should set

down your rules for the rest of the semester. There are many different ways to do this, you could open up the rules for discussion, or set them yourself, but make sure they cover when the session starts, working ahead on problems, and interrupting other students. Once you're done, get excited cause you're finally ready to work on the problem set!

To start off you probably want to have your students put the equations they're going to use up on the board. Next have a student read the problem, then explain the method by which you want the group to solve it: round robin, small groups, etc... Make sure you lay down (and enforce!) the rules for each problem-solving method. If you let your group turn round robin into one large group in the first session, you're going to have a hard time stopping them from doing it in your other sessions. Remember, you're the leader and they are the students. You may not be allowed to lecture or provide answers, but you are in charge of how the group is facilitated. In most cases this shouldn't be much of a problem, as in the beginning most students will view you little differently than a full-time professor. Just have confidence in yourself and you'll be surprised at how easily you slip into the role of a PLTL leader.

A Few Quick Tips for Your First Day on the Job
by Hillary Roth

As I look back to each PLTL session of this semester, as with nearly everything in life, I know that there are some things I would have done differently, and that there are others that I would not change at all. Today, I'd like to discuss the ideal way I think my first session should have progressed; while doing so, I'll mention some of the later semester pitfalls my first day mistakes caused.

Have a Game Plan

Just as I prepare study outlines for every test I take, I should have been more diligent and prepared an outline of “what to do” in my first PLTL session. I should have known that the jitters I experience while taking an exam would come back in the same force when I entered Lien Seminar Room B to meet my students for the first time. Erratic thoughts flew through my mind—what would be my impression on them, and would they get along? Would they evolve into the quintessential PLTL team? A little “cheat sheet” of sorts would have been helpful in those first few moments to get me grounded in the situation and to refresh my memory with the important topics I needed to cover in the first day.

Now, I'm sure you are wondering...what are these “important topics” that I reference?

1. **The Rules!** While everyone should work at his or her own pace, it is important for everyone in the group to realize that the reason they are at PLTL is to be part of a TEAM, and must wait for their teammates to finish before continuing on to the next problem. Other rules to set might include respecting other group members, and that ALL group members must give input and give their thoughts during the PLTL session, regardless of how small that input might be.
2. **Icebreakers!** A solid, tried and true icebreaker is two truths and a lie. A fellow PLTL leader also had a weekly tradition that I wish I had adopted; each week, she had each member reintroduce himself/herself (until everyone had names down) and had each person tell one fact. For example, the first week she had everyone give their favorite TV show, the next week favorite ice cream flavor, and so on. My favorite part of PLTL was getting to know a great new group of people; I also

feel that group discussions would have improved had my group gotten to know each other even more.

3. Learn everyone's name, and use names when calling on students.
4. Most importantly, remember to discuss the PLTL philosophy, and the IMPORTANCE of each member going to class, TA sessions, doing homework, and attending PLTL. I cannot reiterate this point enough.

I had three students drop PLTL because they felt it was "too much." Their downward spiral began to surface early in the semester, as I started to notice their presence at fewer and fewer PLTL sessions. In order to be able to gain from membership in the PLTL program and to give back to a PLTL group, all students must be willing to attend class and keep up with homework. That way, when it comes time to tackle that ever-so-challenging last question, students are able to benefit from a thoughtful, fruitful discussion.

Crack Jokes

I'll admit: I'm not exactly ready to audition to be the latest member of SNL. Still, poking fun (at yourself, not the students) and simply keeping the tone of the session light are easily noticed and readily appreciated by students. I guarantee, very few PLTL students want a completely serious, "all work and no play" PLTL session every week.

Food!

All right, so this is an easy one. I made little "goody bags" of candy for each member of my group; even if goody bags aren't your style, a few munchies go a long way. Food also spurs lots of fun conversation topics.

It's Okay If You're Not Perfect

Students are very forgiving. Always remember, regardless of how your first session goes, there are lots and lots of chances to improve as a leader.

Your First PLTL Session: Creating a Comfortable Environment

by Lauren Smith

Every PLTL leader is nervous about the first session. I spent the week before mine brainstorming icebreakers, thinking of conversation topics, reviewing the problem set, and having occasional nightmares about a disastrous session. It's true that the impression that you initially make on your group is important, so it's a good idea to be prepared. However, there is no reason to freak out about your first session. Your group members are not out to get you – they know that you are just a fellow student looking to help them out and they will appreciate your effort.

One of the great issues that I debated before my first session was whether or not to do an icebreaker. Most people recommended doing something to get conversation started, but I really dreaded the prospect of subjecting seven freshmen to yet another icebreaker when they had just spent a full week sitting through orientation. I ended up telling them that I wouldn't torture them with any more crazy games, and they all laughed appreciatively and said "Thank you!" We ended up talking for a while about home towns, which dorms we lived in, what our majors were and what other classes we were all taking. The fact that this icebreaker-in-disguise was structured more like a conversation than a round-robin problem really set the group at ease.

It's a good idea to set the tone of your first session beforehand by sending an email to all of your students. Make sure you notify them of the time and location of the meeting, and tell them what they need to bring with them. Keep the tone of your email positive, and be concise. Give your group members a way to contact you if they have any questions or problems before the session.

Your group members will feel more comfortable with each other and with you if they feel like PLTL is more of a study group than a class that they have to attend. One way to create this feeling is to start your first session outside of the classroom in a more casual setting. Taking the advice of my freshman-year chemistry PLTL leader, I waited for my group to arrive in the Lien Lobby before entering the assigned classroom with them. We sat out on the couches and chatted for a while, which really set a comfortable, social tone for the first session.

My greatest fear as the first session approached was that when my group wasn't working on chemistry problems, a horrible awkward silence would descend upon the group and I would be unable to shake it off. I spent the afternoon reading the essays of former PLTL leaders, trying to find a list of good conversation topics that I could use to avoid such a situation. By about ten minutes into the session, I realized that my fears were completely unfounded. Don't worry about having nothing to talk about with your group – the students that join a PLTL group are really eager to do well in their class, and they will come equipped with plenty of questions to ask you about the class, the exams, the professor, the homework, and, if they are freshmen, every other detail of college life.

One thing to keep in mind during your first session (and, for that matter, every session after that,) is that two hours is a long time to think about chemistry, math, or physics. While you don't want your group to get too off topic for too long, it's ok to allow casual conversation between problems or to start conversations every thirty minutes or so in order to give everyone a mental break. Any topic of conversation will work - ask your group members how their weekends were, how their other classes are going, if they've seen any good movies lately, or what their favorite crayola crayon color is. It really doesn't matter what you talk about as long as it's interesting enough to draw their attention away from the problem set for about five minutes but not so interesting that they lose focus and can't get back on track.

Overall, the most important thing that you can do for your first session is just be yourself. Be there for your group just like you would for your friends, and they will appreciate you.

First Impressions
by Tim Young

As silence fills the room and eight pairs of eyes focus on you, a sense of nervousness is almost imminent. The first PLTL session is challenging and everything may not go as planned, but it is important to remember that it is not the end of the world. The best thing to do is arrive at the session knowing what you want to do for the session.

The most important thing to keep in mind is that everyone in the room is in a new environment and do not know most of the people around them. Team chemistry is important in sports and it is important in PLTL. If your group gets to know each other, there is a greater chance that they will work better together. As cliché as it sounds, an icebreaker is very important in this situation. I personally did not pay much attention to the importance of icebreakers until I made a group participate in one. Whether you use a typical icebreaker like two truths and a lie, or come up with a new one, it does the job because everyone in the group talks and can hear a little bit about everyone in the group. It also comes to your advantage because you can try to learn everyone's names right away.

The students probably do not know what to expect in the first PLTL session and they also may be unsure of what PLTL is really about. Putting up an agenda, even if it only contains three or four things, will let everyone know what to expect and it will also help you keep on track. Introducing the philosophy of PLTL is important because many of the students probably misunderstand initially how PLTL works. A few of the students who were in my group for the first session did not return afterwards because they do not think PLTL is right for them. Make sure everyone knows that this is not a tutoring or homework help session. Also, it is important to stress to everyone that they should arrive to each session prepared by having worked problems on their own.

After getting everyone acquainted with each other and PLTL, it is time to start working on the problem set. It is important to be patient because everyone will be a little reluctant to work together right off the bat. Use different methods for the first few problems and if you have them work in pairs or small groups, mix up the pairs so that everyone can get used to working with different people. Many of the students will likely be tempted to ask you to help them with the problem or even ask for the answer. There is

always the inevitable question, “Is there an answer key?” Eventually everyone will get used to the idea of not having the security of an answer key and they will work through the problems and have more faith in their solutions. There is a fine line between helping too much or too little and keeping a balance may be difficult. Remember that the first session is a time where everyone is trying to get a sense of what is going on, so if someone is asking a lot of questions, help them reason it out. You do not want to give them the impression that you will not help them at all.

In the end, everyone including you will walk out of the session with a better idea what to expect in the next session. To ensure that future sessions go smoothly, be sure to establish ground rules. Be clear with start times and enforce it. Do not let people who arrive late hold up the rest of the group. Establish some rules regarding how to treat everyone in the group. It will likely not be necessary to go into details about the rules because everyone should be familiar with them, but it is good to remind them that the same expectations apply in PLTL.

All in all, remember that while the first session sets the tone for the rest of the semester, many things change. Even if things do not go as smoothly as you hope, there is always more time for improvement. With time, everyone will hopefully get used to working with each other and the environment will become a bit more relaxed. Remember to have fun because the first PLTL is a unique experience and if you have fun, then there is a better chance that the students will too.

Your First Time
by Mimi Wu

Creating the Atmosphere

Going straight into your first session can sometimes seem a bit overwhelming. Not only are you expected to know what is going on when it comes to general chemistry, but you also have the responsibility to get to know eight new people as well as creating a comfortable environment for your students to work in. Well, just take a deep breath and know that we have all been through the same experience and there actually isn't much to really stress out about. Although this first session might seem a bit intimidating, just remember to relax because this can be key to setting a comfortable environment for your group. Enthusiasm as well as confidence can also help both you and your students feel more at ease in this situation. Along with this, an important aspect of creating the atmosphere for your first session is emphasizing the rules of PLTL so that your students know that although it may be a relaxing environment, it is also structured to help them gain a better understanding for general chemistry. In order to do so, I found it to be beneficial to note the importance of simple things such as arriving on time and making the attempt to understand the material prior to showing up each weekend.

Coming Prepared

All right, so needless to say, if you are going to stress the importance for your students to arrive prepared, then OBVIOUSLY you should do so as well! Having been away from all general chemistry materials for the summer, a very important tip for your first session is just making sure that you have taken the time yourself to refresh your memory on the topics that you are about to lead your group. I was personally a little overwhelmed at the first PAM session when all of the returning leaders breezed through the material like it was nothing, so what personally helped me was simply going through that information on my own in a more leisurely manor. Also, coming prepared doesn't just involve knowing the material but also includes several other considerations. Prior to showing up for your first meeting, it is very helpful to email your students to both introduce yourself as well as reminding them of materials to bring such as a calculator and perhaps a periodic table. Although they may not necessarily need these things the first time, it is good to start them out with the habit of coming with all necessary

materials. Another simple thing to keep in mind is TREATS! Especially for your first encounter with your students, a couple small bags of candy can always lighten up the mood within the group. Not only will your students enjoy these tasty additions, but they can also be used later on as an incentive to get people to volunteer to do certain parts of problems.

Building Rapport

So when you finally arrive on the day of your first session, just remember to try to create almost any and every topic of conversation with your students whether that may be stuff about chemistry or college or even their summer vacation. Most likely your students are going to be a bit quieter this time due to being put into a brand new situation so the more you can talk to them and build the rapport, then the more they will feel comfortable with you and their new environment in the future. Also, feel free to take a little more time trying to get to know your students this first session by doing a simple ice breaker because this problem set tends to be a bit shorter than the ones that come later. Otherwise, just make sure to stay positive, relaxed, as well as confident and your first session will go by in a breeze!

How to make problem solving strategies work: Strategic Strategizing Strategies?
by Meg Dowling

Every Friday afternoon, you walk into the PAM session, collect problem sets for your PLTL group, and solve the problems in small groups. Before beginning, the leader tells you the format in which to solve the problems during your PLTL session, “1. Round Robin; 2. Scribe; 3. and 4. Small Groups; 5. Scribe; 6. Pairs.” You quickly copy this information down. Superficially, it seems so simple. It may not be until after your first couple sessions that you realize how tricky it is to make the problem-solving strategies actually work properly. A few hints, however, may help.

Round Robin is good for problems with lots of small parts that can be covered fairly quickly. When solving problems in this fashion, it is important to have the students go to the board when explaining their portion of the problem. It is really easy to overlook this aspect, especially when the problem only requires picking an answer from a list, such as when working with periodic trends. Making your students write on the board helps solve a major problem that can sometimes arise in a Round Robin situation: going too fast. It is easy to go fast while solving problems Round Robin because some students are quicker than others, and some students like to work ahead. Throughout the session, it is necessary to keep students from working ahead. Switch up the order in Round Robin so the students have no idea when they will be called upon. When a student is finished with their turn, have them pick the next person to continue the Round Robin. Call on a student to explain or recap an answer after it is presented by a different student. If you can show your PLTL members that they always need to stay with the group, the session will flow much smoother.

Scribe works well for complex problems that may require everyone’s input, but are not broken down into enough parts to solve Round Robin. The job of the scribe is to write on the board only what is provided by the rest of the group. The hardest part is ensuring that the scribe listens to others, and does not add their own input, at least without consulting the group. It can be difficult finding a scribe who understands his/her purpose. In your first few sessions, make sure everyone has a chance to scribe in order to give you a chance to see who works best. Then, if you chose that person to scribe for the majority of “scribe problems” in the next couple sessions, and praise his/her efforts, the

rest of the group will get a better understanding of what it means to scribe and your group will move into a more successful stage.

Working in small groups or pairs works best for problems that have parts to be compared and contrasted. All groups can solve the problem in its entirety, but then each group can present and explain a different part. This problem-solving strategy also works well when problems can be solved in multiple ways. If groups use different methods, the students can be presented with multiple approaches and many ways to think. Solving problems in small groups and pairs is important because working with other people to make decisions and clear up confusion is an important skill to learn. It is critical that you make sure that the students are discussing the problems and actually working together. In the first several sessions, my group struggled with this idea, and tended to work individually when put in groups. This was especially the case with a group of three, where one member can work alone while the others consult one another. It is important to work hard to find pairs that work well together. Try pairing students who work at similar paces, so one is not left behind. Try pairing quiet students together, so one is not dominated by the other. Try pairing students with different skill levels, so one can help the other. It is impossible to come up with a fixed recipe for finding successful pairs; each group must be treated on an individual basis. If groups and pairs continue to be too quiet, tell each group that they can only use one writing implement per group. This will force conversation and group interaction, and emphasize the need for students to work together.

Have fun with the problems and keep things interesting and exciting. Don't be afraid to alter the problem-solving strategies to make them work best for your group. The most important thing is to be a good observer—pay attention to the little things—and see what works well for your group. It may take several sessions to see promising results, but you will know when progress has been made.

Making Different Problem-Solving Strategies Work – Small Groups/Pairs
by Daniel Gealy

One of the many important facets of being a good PLTL leader is using different problem-solving strategies to help students learn to approach problems in many different ways. More importantly, a good PLTL leader finds ways to make each of these problem-solving strategies successful in a group environment. Frequently students will need some coaching and guidance, not just on the course material, but also on how to work together effectively as a group.

The small group or pairs method is one of the most useful problem-solving strategies. Working with one or two other people is the most real-world situation that happens in PLTL. It is very important for students to learn how to work with other people effectively, and they will certainly work in pairs for the rest of their college career. PLTL serves as a valuable tool to teach students early in their academic career how to work and approach problems. Making the small-group setting work can help students succeed in many courses for the rest of their college career.

One of the biggest difficulties you will face using the small-group method is actually getting the students to work together. Some students are much more used to working with people than others. Sometimes students will each solve the problem themselves, and then compare answers. A good way to get students to work together is the one-pencil-one-paper method. Each group is only allowed one piece of paper and one pencil. The idea is, to solve the problem the students must work together. This is a good way to force students to work together to solve problems. After enough of being forced to work together, the students should get to where they will share ideas willingly.

Once you have had a few sessions, you will begin to understand each of your students as an individual. Each student has an individual learning style and works better in different situations. Some students naturally grasp the material, whereas other students have a much harder time. You will find that your group displays a wide array of ability levels and comfortableness with the material. When matching students up in a group or pair, you must take into account not only their ability levels, but also their personalities. It is not good to match students of drastically different ability levels if they will not work together on a personal level. At the same time, if you match each ability level, you wind

up with one group finishing long before the other groups, and then sitting around with nothing to do. If possible, it is good to pair a stronger student with a weaker student. If they are each willing to work together, the stronger student will help the weaker one. This does not always work, however. If using the one-pencil-one-paper method, it is best to have the weaker student be the writer, so the other one is forced to explain how to solve the problem. If one group is working much faster than the others, ask them questions about the material. Try to get them working at a little higher level, at least so they will be occupied longer. If one group ends up finishing first, split them up and have them work with other groups.

The more sessions you have, the better feel you will get for how each student learns and how to help them learn best. It will become much easier to make small groups or pairs work. The students will develop over the semester and will work together much better than they did at the beginning.

Making Different Problem-Solving Strategies Work

by Kimberly Jenkins

So, you have been participants in PLTL groups before, and are familiar with the basic problem-solving strategies: round robin, scribe, small groups, and pairs. As you begin to lead, you will notice that some strategies are more effective for your group compared to others, and those that don't work so well can occasionally be modified to fit your specific group. If you divide your group into pairs and the noise level drops, don't give up on the small-groups strategy, just try some new innovations to make it work for your group. During my first couple of sessions, my group members were so quiet and the atmosphere felt like a formal classroom. The biggest thing you cannot do is compare the group you lead to your past PLTL experiences; I knew this uncomfortable silence was no good. Round robin seemed to be working the best because my group members were able to work on their own to solve the problems, but this is not the way PLTL is designed to operate: peer led TEAM learning.

In order to continue using the small groups and pairs strategies, I made some slight adjustments that seemed to really benefit my group. When it was time to work in pairs, I had each group member pick who they wanted to work with. Once this was established, they were not allowed to write anything down for the first minute. They were to discuss the problem among each other and how they were going to go about solving it. This brought about communication compared to the awkward silences we were experiencing before. Then, after the minute was up, they were allowed to start writing. Hearing noise, instead of me breathing, was a great relief.

Another method, which I used more often, can be applied to small groups as well as pairs. Once they are in their groups, choose one person to be the writer. With only one pencil to solve the problem, the group members will have to communicate to with each other in order to establish what steps they want to use and how they are going to go about the problem. I feel my group members really liked this method, only a few grumbles, and they learned to work together much better.

Finally, the last innovative suggestion I have is to bring your groups or pairs to the board. Yes, make every member go up to the board. Have one person in each group have a marker/chalk and one member have a calculator if needed. Without being able to

write down the work in their notebooks, they will have to work together to complete the problem. This method is also useful because you can visually compare different strategies which groups took in order to solve the problem. After the entire group has discussed the problem, allow them to copy the work into their notebooks which they will want to do as soon as they can.

Hopefully these helpful tips can bring about conversation and communication. Don't be nervous to try new strategies, if they work and create a successful session then you have done your job.

Problem-Solving Strategies Essay
by Heather Machkovech

As all of you have already been part of PLTL, you are familiar with the different strategies: pairs, small groups, round robin, and scribe. However, as a leader, you will gain insight into the importance of utilizing all of the strategies in order to help the students develop better problem-solving skills.

Pairs are an excellent opportunity for a shy student to speak up and really participate. I would walk around the table and spend a short time at each group and ask them what their thought process was on the problem, what equation they were starting with, or what concept they were struggling with. By directly addressing a certain student, I felt that it was much easier for them to answer a question posed only in front of one other student as opposed to the whole group. I would start out by asking small leading questions to the pair. Seeing the students work in pairs also gives you clearer depiction of the group dynamics and personalities. You may have to shuffle the groups around a lot the first couple of weeks until you find pairs that work well together. Even when you do find pairs that work well together, make sure to change it up frequently. Inevitably, you will make groups that do not work together, either they do not talk to each other and race to finish the problem or one person dominates the group. As a leader, you can improvise, allow the group to only have one pencil and paper and give it to the least dominant member.

Small groups work in a similar manner, but often groups with three members generate communication errors. While working in small groups, make sure to look for members that are falling behind. I also often found that the small groups or pairs would consult other groups if they were stuck on a problem. This was great, because the students were learning to think and discuss with other students as opposed to asking me for help. At the end of the problem, I would often ask one group to discuss the problem, and another group to discuss other conclusions and clarify concepts. Again, I usually call on specific people and look for facial expressions of understanding or confusion.

Round robin works well for problems that have many parts. Make sure to not just go around the circle during round robin because the students will just work ahead to the part of the problem that they will be called on to do and not pay attention to the other

parts of the problem. In my group, I found that round robin helped my group become more of a working unit. When a student went to the board and was uncertain, he or she was encouraged by the group. They would walk the student through several steps of the problem, and I would hardly have to say anything. Some students were intimidated by having to go to the board, so ask them to do small steps in the beginning, such as write down equations. Eventually the student will gain confidence and feel comfortable working through more of the problem on his/her own.

During scribe, I made sure to call on individual students so that the outgoing students did not dominate the discussion. Sometimes, the dominant students would drown out the other students, so you just have to keep directing questions to specific students. Scribe gives the group more opportunities for the group to strengthen their communication skills. Scribe also includes numerous methods of learning: verbal and written explanations. The scribe has to understand what they are writing on the board, so the rest of the group had to clearly communicate what the steps are for solving the problem.

It might take some time for the students to become accustomed to the group work, but the combination of all the problem-solving strategies results in stronger group dynamics and stronger problem-solving skills.

Making Different PLTL Strategies Work: Problem Solving with Problem Solving
by Aniruddh Patel

As a PLTL leader, not only do you have to competently lead the group as it solves the day's problem set, but also you have to be prepared to solve group-dynamic issues as they arise and try to maintain the smooth functioning of the group throughout the session. It is key that everyone in the group participates so that everyone can learn. In order for you to best serve the students, it is a good idea to gain an idea of each student's learning styles, strengths, and weaknesses. One strategy that served me very well was reconnaissance walking. At the beginning of the semester, whenever the group was working in pairs or small groups, I used to walk around the table and closely look at how each student was going about interpreting and organizing the information on their own paper. This might provide insight into how the students preferentially learn and what you can do if they are struggling. For example, the students that immediately went to pictures and diagrams would probably find the visual learning associated with scribe method more appealing when trying to understand a new, difficult concept.

Pairs and small groups tend to be common strategies that truly test how comfortable your students are with each other. It is natural to expect a quiet beginning, but by the third session, the students should have a reasonable idea about the group philosophy underlying PLTL, and it is essential that you enforce this if you want your group to progress to ideal performance. One strategy that I tried when the students would not talk or work well with each other during these questions is asking them to work on one piece of paper with only one person writing. This may seem like a harsh alternative, but you will only need to use it once or twice before they learn to work together. Although they may not seem too delighted to forgo their independent learning at the time, in the near future, they will come to appreciate the benefits of group-problem solving. Additionally, with these strategies, it is important to walk around the room as they are solving the problems and casually ask some of the students to individually explain their plan of action for the solution. Based on what each pair or small group proposes, you can ask appropriate questions. This allows the students to correct their strategies themselves if they fail to withstand your questioning, or it checks if they really do understand the material if they are on the right path. This personal interaction is important in building

trust and making the students comfortable with you as the leader so that they are not afraid to ask questions and clarify material when they do not understand something in the future. Also, certain groups of students will tend to finish faster than the others, and inquiring about their strategies with open-ended questions to test their understanding will help occupy their time until the other groups are finished so that they do not work ahead in the problem set.

In addition to small groups and pairs, you might also run into problems with the round robin and scribe methods. With scribe, many students are sometimes reluctant to go to the board because they are nervous or because they do not know what to do. In this case, it is good to assure them that the entire group will be directing them and that they will just be writing down the group's suggestions. As for the group's contribution, the best way that scribe worked out in my group was when I overlaid round robin on top of it, with each group member taking turns to suggest a further step in the problem solving. This way, the same one or two people are not the only contributors, and the whole group gets a chance to interact. Additionally, to speed things along, I recommend writing down the solution for the student at the board so that he or she does not have to later waste the rest of the group's time to copy down the work themselves. For the round-robin method, it is important that each student gets a chance to contribute. If the round-robin question does not have enough components, you can ask follow-up questions to the remaining students or let those students answer the next round-robin question first.

Pairs, small groups, scribe, and round robin are the primary methods in a starting PLTL leader's toolkit, and it is crucial to know how to troubleshoot if they do not work properly. It is essential to immediately deal with problems that inhibit discussion and cohesive problem solving. Allowing the students to engage in constructive group study will improve their critical-thinking abilities by working with fellow students, and in the end, they will become more capable and confident problem solvers.

Strategerizing Strategic Strategies: Why We Bother with the Different Methods
by Hillary Superak

One of the defining characteristics that sets PLTL apart from other study groups is the use of different strategies to solve the problems. Before participating in PLTL, most of the students have never been exposed to these different strategies. They may not initially be thrilled about solving problems differently than they are used to, and it will probably take some time for everyone in the group to work together effectively. It is the job of the leader to encourage cooperation among the group members, and there are many ways to facilitate productivity when working with each problem-solving strategy.

For many students, the scribe method is the most unfamiliar problem-solving strategy. It tends to be unpopular because after the problem has been worked out, everyone has to wait while the scribe copies down the problem into his or her own notes. There are a couple of ways to get around this issue. First, choose the scribe to be a student who does not take detailed notes; do not assign this role to a student who carefully copies down every detail. After the problem has been solved, the scribe will be able to copy the solution quickly. Furthermore, if this student has trouble showing enough work, he or she will be forced to write out a complete solution on the board, as dictated by his or her peers. Sometimes writing down the thought processes of the other group members will make the scribe realize that he or she has not been showing a sufficient amount of work on quizzes or exams. Another approach to scribe problems is to have a different scribe for each part of the problem. That way, each scribe will not be at the board for the entire duration of the problem and everyone will be able to copy down the complete solution.

Small-group problems tend to be the most popular among students. In order for this strategy to be effective, the groups need to be mixed up after each small-group problem. If the same students work together each time, they will not be able to see any other methods of solving the problem that the students in other groups may have come up with. They may also become too familiar with each other and start to work independently instead of talking to each other. With small-group problems, it is always a good idea to have the different groups put their solutions up on the board. There is often more than one correct approach to solving a problem: some students are visual learners so they use

graphs or diagrams, while other students prefer to think mathematically and derive their answers from equations. If the entire group is able to see the different ways of solving the same problem, everyone will learn something new. As the leader, it is good to point out that using two different methods to solve the same problem can be a useful way to quickly verify an answer on a quiz or an exam.

Round-robin problems are generally hit or miss. If a problem is difficult to split up into enough parts, it can be frustrating that not everyone has a chance to participate. This problem-solving strategy tends to be the most effective when a problem has at least as many parts as there are group members. If each person gets more than one turn, it can build confidence if a student misses his or her part the first time but gets it right on the next turn after seeing other students work out a few examples. One way to make round-robin problems more effective is to call on students in a random order. The students usually count ahead to see which part of the problem will be assigned to them, so they end up not paying careful attention to the previous parts of the problem. If no one knows who will be called on next, they are more likely to listen and follow along throughout the entire problem.

After a couple of sessions, most students will buy into the different problem-solving strategies and the group will begin to function together as a unit. However, it is important to remember that if a certain strategy just does not work for a group, don't force it! It is a good idea to stick to the strategy assigned to each problem, but the main point of PLTL is for the group to collaborate on the problems and gain a better understanding of the concepts that are presented in lecture. Not every strategy will work for every student since there are so many different learning styles. The best advice for a new leader is to experiment with the different strategies and see what works best for your group.

Using Strategies to the Group's Advantage

By Jonathan Unkart

After a couple sessions being a PLTL leader, I quickly became aware of the importance of utilizing different strategies in PLTL. As a PLTL student, I wanted to solve every problem with the same strategy because I thought I could learn the material better that way. Once you observe your students using the different approaches to solving a problem, you will realize it is important to broaden their learning structure and confidence.

PLTL brings students with many different backgrounds together with the common goal of improving their understanding of the sciences. As leaders, you are presented with a variety of problem-solving approaches to use with the students. You have scribe, round robin, pairs and small groups. Each strategy offers a different approach, but the leader lays the foundation that determines how well the strategies will be utilized. Most students have never been in a PLTL group, so it is critical for the leader to demonstrate the purpose and effectiveness of each approach. I found it important to try each strategy for every type of problem. Whether the question builds a concept map, or is straight plug and chug, it is important to see how the group works using each strategy in any given situation. Once you have an understanding of how your group works with each strategy, you can then structure the different problems around helping your group obtain the most out of PLTL. I have some advice I would like to pass on to the future leaders about each unique strategy.

Scribe is a distinctive problem-solving method that students are generally unfamiliar with. I think it is important for the leader to be the scribe the first time the group solves a problem with the scribe format. One, the leader can show the proper rules for being the scribe. Two, as a leader, you can show your students that you will not provide the correct solution even when you write on the board. Scribe is important as it allows the entire group to work together out loud. I found it beneficial to get every student involved during the first session with this task as it helped build group cohesiveness.

Round robin is another problem-solving method that some students will feel quite uncomfortable with. As a leader I found it important to emphasize that mistakes are very

much welcomed and that students need to learn to respect other students' approaches to solving the problem. I found it helpful to tell students how nervous I felt when I used to go to the board during round-robin format, and that my nerves sometimes interfered with solving the problem. Even if you were not nervous as a student, it still is important to establish that mistakes are a good medium for learning in PLTL.

Pairs and small-group problem solving is generally what most students are familiar with when it comes to working in groups. Generally the shyer students will be more active in the pair's activity, as they feel more adequate working with only one other individual. Sometimes my students would work individually and then consult at the end of a problem. This is a habit you want to break right away, or prevent from happening. As the semester continued, the pair's activity became more and more individualized. At this point, I began making the students solve the problems verbally. They thought this was nonsense, but they soon began to work with their peers and they gained much from this.

Each student and each group will prefer different strategies for solving problems. The key to getting the most out of the group is to make the students feel comfortable with themselves and their peers, and then stretch their learning beyond their comfort zone. Use the group strategies your group does not like as much more often. A successful student can learn material in many different ways, and the different PLTL strategies are designed to help students expand their learning capabilities. Lastly, keep challenging your students. Do not get stuck using the same strategy over and over or becoming quite predictable among your students. Good luck!

Making Problem Solving Methods Work

by Darcy Wilcox

PLTL utilizes four problem-solving methods: scribe, small groups, pairs, and round robin. You may prefer one and your students may work best with another, but only by using all four can you create a great PLTL environment that addresses many learning styles. Don't forget that these are guidelines for you as a leader. It is important to learn the official technique taught in SAM, and then mold that to fit your group's needs. Also, let your group evolve with time. The way you do the different problem-solving techniques in the beginning won't necessarily be the way the group performs them at the end. The maturing of the group will include getting better adapted to the different methods introduced in PLTL.

Probably the best example of this for my group was the method of scribe. I designated myself as scribe for a long time, possibly longer than I should have. However, my group was much quieter than most so I used scribe to pick up the pace, get the quiet people involved by asking them to tell me what to write, and refocus the group by giving a little extra direction. I learned this from experience. Early on in the semester I had a student scribe and it was difficult to make forward progress. It was only when my group knew each other better after the first few sessions that I started asking if anyone would like to be scribe. By the end my group was such a cohesive unit that they hardly relied on me at all, and when they saw that the next problem was scribe they would choose a member within the group by themselves. However, don't expect it to start out this way and offer guidance in the beginning when your group is getting comfortable with the different problem strategies and with each other.

Some problem sets call for a lot of work in groups. It can be tedious if the group just sits in the same seats problem after problem. I helped reduce the monotony by having the groups first work at their seats, then I had some of the students switch seats to mix up the groups for the next problem. Occasionally a problem would lend itself to breaking the students into two groups and sending both small groups up to the board. I would split the board in half, hand each group one white-board marker, and have them complete the problem on the board and copy it down into their notes afterwards. This

forced them to really collaborate as a group and get to know each other instead of working individually on their own papers.

In my session, we had a small table so I could easily monitor the progress of the groups around me. For groups with a bigger table and a bigger room it is usually more effective for the group leader to walk around during group work problems in order to check on how the students are progressing and to gauge which students work faster and which work slower. It is important to find this out early on so in the future you can assign groups that include both prepared and less prepared students.

For round robin, different methods can be used depending on the type of question. Some round-robin questions are more difficult, and so I assigned a problem to each person and then went around and had each member put the answer up on the board. Other problems were easier so it was better to call on students randomly so they didn't work ahead of the group. Different leaders prefer different techniques depending on their group's dynamics.

Some groups have more risk takers while other groups have fewer volunteers. In these unconfident groups, it can take a while to build a strong group with every member participating equally. A little extra guidance will help lead a shy group along. Other leaders have found they can back off quickly and let their group take over. Adjust your technique for problem-solving strategies accordingly, and a shy group can evolve to become self sufficient while a rowdy group can evolve to become more structured.

Fake It 'Til You Make It: Making PLTL Work

by Gal Ben-Josef

Being a PLTL leader can sometimes be a bit overwhelming. You are put in charge of a group of students, and how they learn and how much they learn is up to you. You may be feeling a bit nervous or pressured because you want to make sure that your students have a worthwhile and useful PLTL experience. If your first few sessions are not going as well as you had hoped, don't stress! There are several things that you can do as a leader to improve your sessions to ensure that your students get the most out of PLTL.

As a leader, it is sometimes intimidating to be asked a question that you do not know the answer to. You may worry that your students will question your role as leader or that they will begin to think that PLTL is useless. But before you freak out, remember that there are many ways to avoid looking like you don't know what you're talking about. One of the most important things about PLTL is that the "leader" is not really supposed to lead the group. We are only there to guide the students in case they get stuck and to help them think about concepts in new ways. So if you don't know the answer to a question, there's no problem. You are not the one who should be answering it anyways. So what should you do? One way to handle the situation is to redirect the question towards the rest of the group. This is a good strategy to use even if you do know the answer. Ask the students questions that come up in your mind as you think about the problem. Most importantly, don't be afraid to ask the students questions that you do not know the answer to, and to direct the students to office hours and help sessions. Eventually, the students will stop asking you questions and ask the rest of the group instead.

Another important way to get your group to form a cohesive unit is to make sure that everyone learns each others' names. One way to "fake it" at first is to have the students make name tags and bring them to the first few sessions. This is something that many PLTL leaders recommend because it really works. If you can learn the students' names, and continue to use them during the sessions, the other group members will begin to call each other by name as well. As a result, the students will become more comfortable working together and will function better as a group.

Finally, it is important to experiment with group dynamics to figure out what works best with your students. The students will probably each have their own method of studying and working through problems, and some may work more slowly than others or take longer to understand certain concepts. You should pay attention to each students' needs, and eventually get a sense for which students to pair together or which student to call on for a certain problem. This may take some time to figure out, so make sure to try a variety of problem-solving strategies, group the students in different ways, and approach problems and concepts from multiple viewpoints to see what helps your students most. Another option is to give the students some freedom; let them choose their favorite method to solve a problem, or let them choose their own pairs to work in. In this way, you can slowly work to improve the dynamics in your group.

The most important thing to remember is that you are there to help guide your group and hopefully to help the students better understand the material that they are learning. Things may start out slowly, but do your best to help your students function together, and eventually they will become a good team.

The PLTL Mantra: Fake it 'til You Make It
by Kyle Bukowski

You are sitting in your room stressing over your first session. These are probably some of the questions you are asking yourself at this very moment: “Am I going to be awkward? Am I going to be able to answer their questions? I haven’t looked at this material in a year, and even then I didn’t know it that well?” If you are asking yourself these questions, don’t worry it is completely normal. My best advice going into your first session is: Fake it, ‘til you make it. So easy and so lyrically pleasing, but this little mantra will be your best friend this coming semester.

You will go over the problems in your PAM course and you will be able to review your notes before going into your session, but sometimes this just is not enough to be prepared for all the questions you may be asked. When I say “Fake it, ‘till you make it,” I do not mean to go to all your sessions unprepared. You have been hired to your position because you know your stuff and there are expectations of you. You should always do your best to be on top of the content you will be covering in your sessions, but you need not be an expert. You are a peer leader not a professor.

So you walk into your first session and begin the first problem, your little sheet tells you that this first problem is scribe. Two minutes into the problem, no one is talking or contributing. What do you do? You fake it, ‘til you make it. You ignore the little note on your sheet and tell them to brainstorm in small groups and then reconvene and try to scribe at that point. The biggest thing to remember during these sessions is that you are in control of the group. You are not meant to be a dictator, but when something is not working you have the power to change it. You do not have all the answers right away on how to make your group function. You just have to roll with it and try lots of things out until you find what works.

In that same vein, when you come to a problem when you are not sure of the answer, don’t panic. You always want to be confident in your answers to your students. It is so much better to tell them to go to office hours or help sessions than to tell them the wrong answer. That being said, do not give up right away. I think the best thing to do when you come to a question that you do not the answer to, go through the thought process out loud. Tell them what conclusion you would come to based on the concepts

and your understanding of the material. Remind them that it is not necessarily the right answer, but this process can have a huge impact on your students. Unless they are chemistry studs, they will not get 100% 's on the tests. There will be questions that they do not know completely and they will have to reason out the best answer based on application on the content they do know. If you show them how to do this and how to come to an educated guess, you could be giving them great strategies to use on tests and learning in general.

Just remember: fake it, 'til you make it. You will not have a perfect session your first time, and chances are you never will. Do not give up on being prepared but do not stress out if you do not have the answer to a question right away. The most important thing is to keep your students' confidence and prove to them that you are human. Do not fake an answer but also do not roll over. Sometimes, a mix of confident explanation and insight can be more beneficial to them then just giving them an answer.

Fake It 'til You Make It!

by Brandon Fish

You can't expect to know how to do a job perfectly the first day. PLTL involves a lot of on the job training. Even though I got an A when I took calculus as a freshman, it had been a year since I'd seen the material and there was a different professor teaching. I wasn't sure I'd remember every property and every formula perfectly. What's more, as an engineering major I was taking fewer and fewer math classes as opposed to the other leaders who were math majors and therefore taking more math classes. I was pretty nervous going into the first session. What I've come to realize though, is that you don't need a total mastery of the topic to be a PLTL leader, you just have to stay one step a head of your group.

I give music lessons to grade school kids as well and I'm far from a professional musician. I'm especially weak on flute, I don't play it much, but I'm the only flute teacher in the area so I get quite a few flute students. The thing is though, I can get a sound out – a good sound – which is more than most of my students can do, so I still look like a pro. You have to keep your talents in perspective. Even though by your own standards you may not be the greatest mathematician, chemist, or physicist you know, you still understand concepts your students don't and you passed a class they haven't. Unless you point blank tell them, "I have no idea what I'm doing," they will assume you know all, so never let them see you sweat.

There will be an occasion where one of your group members asks a question you don't know the answer to. It may be that this topic was covered differently when you took the class or that the student is just thinking about it in a unique manner. Whatever the reason, the best strategy is to be honest. Say, "That's a good question, but I don't know the answer." It's okay to not know. This can even be good for your group. It shows them that you don't know everything and that they shouldn't rely on you for answers to all the questions. It also builds your group's trust. It's pretty easy to tell when someone's just making stuff up to look like they know what's going on and your group will see this. If they know you have tendency to pretend you know all the answers, then

when you try to correct them on things you do know they may not really believe you're right. You lose your credibility.

This is also an opportunity to show your group your thought process. You can say, "I don't know if this is right, but here's how I'd approach it." You can analyze the question in smaller parts and open it up to the group. See if they can answer any of the smaller components of the question and if then they can answer the whole question.

PLTL is Peer Led Team Learning so the whole team is going to learn. Your group will learn more about their class material and being independent learners, and you will learn how to be a better team leader.

Fake It 'Til You Make It
by Matt Odenwald

It has been at least a year since you have taken the course you are leading PLTL for. Maybe PAM was not an adequate review for you, and you did not have enough time to review the concepts for the week. Maybe a conflict between students arises that you have no idea how to deal with. Whatever the reason, nearly every PLTL leader is clueless about what to do at one point or another. In my PLTL group, students often asked questions beyond the problem set that I did not know how to answer. It is in these clueless moments that your true ability as a leader is tested.

In order to avoid not having adequate knowledge of the subject material, I recommend reviewing your notes from last year and asking a lot of questions when going over the problem set during PAM. Sometimes, however, this is not enough. In order to be able to facilitate some answers during the session, I brought my notebook and often asked the students to look through their notes at the same point and discuss their notes among themselves. Doing so not only makes the students reread their notes, which helps to review the concepts, but it also forces the students to help each other answer questions.

Sometimes, however, the question is deeper than the subject material discovered in class. It is these types of questions that I frequently found myself fumbling for answers to. It is not a bad thing that you will not be able to answer every question about chemistry; after all, you are not an expert of your subject. You are, however, someone who has done well in the subject you are leading PLTL for-- an expert student in the subject you are leading for. Therefore, instead of constantly attempting to answer deeper questions incorrectly, the best advice I can give you is to be honest with your students. Tell them that they raise a very good question and that you honestly do not know the answer. I have used two methods to facilitate them attaining the correct answer to their question. You can tell them that you will look into it and get back to them, which is effective in attaining the correct answer; however, to me, this method seems to facilitate students avoiding office hours and help sessions. Therefore, my favorite method to deal with not knowing an answer is to tell the student that they raise a very good question, and point them to real experts in the subject by strongly recommending office hours, help sessions, and review sessions. In doing so, you not only help your students to attain the

right answer, but you also assist in helping them to realize the usefulness of their academic resources.

I am sure that there are many other methods to help students attain answers to their questions. Whatever method you chose, I strongly recommend not giving the students answers, even if you do know how to answers their questions. Force them to utilize all of their academic resources. In doing so, you will have truly fulfilled your role as a facilitator toward academic success.

From Faking It to Making It

by Hiten Patel

Here we go. You're in a PLTL session, and boom! You don't know what to do. There are six, seven, or eight students around you, looking to their amazing peer leader for some first-rate facilitating. This kind of situation can come up often and usually when you're not expecting it. You know what you've prepared for ahead of time, but how you handle the sticky situations will ultimately determine how 'first-rate' your facilitating really is. Solution? Just fake it 'til you make it, of course!

So, what do I mean by fake it? It refers to both the transition of taking on the role of a peer leader, as well as specific situations in your groups that might leave you dumbfounded. Early on, you may (and probably will) feel kind of awkward in your new role. Me? A PLTL leader? Yes, you! You have the experience and the skills, but for a while, you may have to...fake it. When I first started being a PLTL leader, I realized quickly that the students are very receptive to you initially. This is when you all set the routine together for the rest of the semester. The receptiveness can drop off after awhile, so take advantage of it and set your role clearly then. Otherwise, the students may expect you to be a tutor and not get into the right group mentality. If all goes well, you won't have to 'fake' for long because you'll start to feel like you've made it. A danger point to look out for is if a student tries to undermine you, which can happen at any time in the semester. I was lucky to have an enthusiastic group, but it's important to stand your ground if this happens and cut it off early.

Okay, so you get everyone off on the right foot following the group philosophy. Good, but how do you know if you've made it as a leader yet? The ideal PLTL session may be one where you can't tell the difference between the leader and the other group members with the group running itself. This ideal situation may be impossible, but it's something to work towards. The group will often get stuck in their problem sets, and handling this is a big responsibility of a PLTL leader. Sometimes this isn't too difficult because you've been following what they've been doing and can point out something they went astray on. Getting them to see where they went wrong usually solves the problem. Other times you need to get them to think differently about the problem to keep moving forward. But what if you have no idea where they need to go? What should you

do when you yourself can't recall how to do the problem? Don't panic. Fake it.

Whether or not you know the material should make no difference in how you facilitate your group. Try to get them to look at it from different angles, write down what they know, look at their notes, and especially discuss it in the group with everyone giving any and all thoughts they might have. They may see something helpful even if you don't.

However, it is definitely not a good idea to pretend like you know the answer when you don't. If it gets to a point where no progress is being made at all, it's okay to tell the group you have no idea what to do on the problem. Reinforce the point that you don't get an answer key, and you could even offer to do the problem with them to show them how you would think about it. In general, it's a good idea to never let them get too comfortable in the idea that you know the answers and will catch them when they mess up. Sometimes letting them mess up can help them understand the concepts better than stopping them at every wrong decision. Questioning them even when they do choose the right path is a good idea to keep them on their toes. If all goes well, your experience with your group will allow you feel the transition from just faking it, to really making it.

Fake It 'Till You Make It
by Bill Scheidler

Let's face it. You're not going to know everything. Plus you're not going to know how to run a PLTL group right off the bat. And the thing is that's okay. This is what is suppose to happen. You gain no mythical knowledge when you cross the threshold between student and leader. So don't worry if you're still learning how to do this well into the semester. Even experienced leaders are still figuring out how this whole thing works. This essay is all about helping you fake it 'till you make it. Basically, it's how to fool the students in your group and maybe even yourself into thinking that you know exactly what you are doing.

First off, because you are a PLTL leader in your prospective subject, you must have done pretty well in it last year. However, this doesn't mean you know everything about everything with your subject. Heck, you've even had at least a summer to let your brain atrophy and forget what seems like your entire subject. I know I was worried that I wasn't going to be able to answer any questions as I relearned the session's concepts in PAM of that week. Being a PLTL leader does not make you the professor or an expert, but your students may view you as such. They will look up to you and to you for help, advice, and even simply as someone who attained success in the subject in which they are currently struggling. When questions are posed to you, don't expect to always know the answer. While seeming like a copout, the best thing to do when asked a question is to pass it on to other members in the group. This is what PLTL is all about, students helping students. You are a leader of discussion, not a tutor or a teacher. With this being said, sometimes no one in the group will know what to do or even where to start. Do not panic; this is where you step in. The only problem is, you're not always going to know how to answer their question. Again, don't panic. The one PLTL excuse you will learn to know and love is "go ask that in office hours/help sessions." While being a great answer to not only get the students the correct information but also to encourage them to seek out additional help, it shouldn't be the first avenue of escape. Asking the students to look through their notes can end up leading to the answer or at least a starting point. Also, simply helping the students think it out can be a very valuable tool. You don't even

need to be correct in the end, but by doing so, you can teach your students a good way to approach any problem in the future.

The next issue is approaching PLTL from an overseer position. Every week in PAM before you go over the problems, you get the strategies for how you are supposed to do these problems in your own groups ranging from round robin to scribe to small groups. The thing to keep in mind is that these are merely suggestions. They are not written in stone and are certainly not the end all be all. While being very useful, some strategies just won't work as well for your group. I know my group struggled with scribe. They just didn't like it. At the same time however, they loved small groups and really meshed well with that strategy. As a result, I found myself assigning more problems as small groups and fewer problems as scribe, and things worked out great. The real lesson I guess to get from this is that you are in control. You are the leader and this is your group. It's up to you as to how to run it. I can guarantee you won't know what to do the first couple of weeks. The only way you can find that out is by trying something new and seeing how it goes. Be confident and relax. Take a deep breath and enjoy yourself. By doing just these few simple things, you can handle any situation and most certainly fake it 'till you make it as a PLTL leader. I know I certainly did.

Fake it til' you Make it

by Neha Tibrewala

I know that I am pretty much the worst liar in the world. If I do try to tell a lie, most people know I am lying just by looking at my face. As a PLTL leader though, I had to polish this skill a little bit. Now, I'm not saying that you should necessarily lie to your group, you just have to find creative ways to avoid the truth.

The first time you ever lead a PLTL group, you may be a little bit nervous, but it is important that you don't show that to the group. Go in there, and pretend like you know exactly what you are doing, even if it is the first time you are leading a session and even if you haven't planned out every minute of the session. You know a lot more about how the session is supposed to run than your group members are, so even if you do mess up, it is likely that they won't even notice. If you lead the group with confidence the first time you go in there, they are more likely to respect you and you are more likely to set a comfortable tone for the rest of the semester.

The next thing that you may need to "fake" is the fact that you actually do have some sort of idea of what the answers to the problems are. On several occasions, mostly in the beginning, the students may look to you and ask, "Is this answer right?" You probably know whether or not you agree with their answer because you have worked the problem yourself a few days before. However, you cannot admit that you know the correct answer. Instead, you can just send the question back to the student that asked it, or to the rest of the group. You can ask them if they think it is right and ask follow up questions to force them to reason it out more for themselves.

Another thing that you may have to fake with regard to answering questions is not let on when you know a method or answer is incorrect. It is very easy to step in and say, "you may want to look at that one again" or "are you sure?" However, often times the group learns more if they recognize their own mistakes, rather than having the leader point it out every time they are wrong. Instead, you can just ask them questions with the hopes that somebody else in the group will pick up on the mistake or the group members that made the mistake will realize what they did wrong.

Another thing you may not be completely honest about is how well you know the actual material. Obviously, as a PLTL leader, you should be more than familiar with the

majority of the subject that you are leading. However, there may be some minor details that you have forgotten since you have taken the course. Again, you can avoid them finding out about this by redirecting questions again. Ask them how it is done in class or tell them to look it up in their notes. If they can't find it in their notes, and you don't know the answer, tell them that you don't know the answer. It is probably not a very good idea to lie to them and give them incorrect information. The whole group, including you, can try to figure it out together. However, if you are at a point where you are stuck and the whole group is confused, you could offer to ask your PAM instructor, and then e-mail all of them about the concept that you were confused about.

Not all of PLTL is about faking it. Most of it actually isn't. It is important that the group leader is aware of the things that are taking place in his or her group as well as be familiar with the material so he or she knows what sorts of questions to ask that will help the students. However, sometimes in order to fully carry out the ideals of a good PLTL group, the leader may have to bend the truth a little bit. And after a while, you may even stop feeling bad about it.

Fake It Until You Make It: The Art of Feigning Confidence

by Betsy Wan

So you've read our tips on how to make the most out of your first session, and followed them to the best of your abilities. Everything went as smoothly as a first session can go, and you breathe a sigh of relief that the dreaded first PLTL is finally over. Don't breathe too easily, however—the hardest is yet to come. Although first impressions were important, your students' opinions of you can also change radically and instantaneously. Their negative first impressions can be overturned if you demonstrate your intelligence and ability to effectively lead a group, but on the other hand, their positive first impressions can quickly sour if you are not capable of making your students happy. That is where we come in. In addition to paying attention during SAM and PAM, there are other strategies that can help you make the most out of the middle sessions, even if you haven't quite mastered the art of being a PLTL leader, of successfully being both a peer and a superior.

The key to getting through the middle sessions is confidence. Although you haven't had enough experience to be a good leader, you want your students to think otherwise. If they are comfortable with your skills as a leader, they will feel free to focus on what's really important—helping each other learn chemistry. Since this all-too-crucial confidence can't possibly come from actually believing that you're a great leader, you have to fake it for a while; this means telling yourself that you're doing a great job, that no matter what, you know your material and are helping your students in one way or another. One of the most injurious mistakes new leaders make, and one that I certainly made, is thinking that the leader is responsible for everything that happens during a PLTL session, for fixing every problem their students have. While you are the leader, you are absolutely not expected to answer all of your students' questions. In fact, you aren't even there to be a tutor; you are there to lead the eight students in answering each other's questions.

Another way you can feign confidence during a PLTL session is to simply act comfortable. If you are a very capable conversationalist and feel that your personal skills are your forte, simply call upon those skills to make casual conversation with your students before sessions start and then gradually transition to your role as a peer leader

during the session. This will make everyone feel at ease, and the students will feel a bond with you that can temporarily pass as or perhaps blossom into confidence in your abilities as a PLTL leader. After all, being a good leader means not only making sure your students walk out of each session having learned something and cleared up their misconceptions about the material, but also successfully straddling that line between being a fellow student and being a pseudo-tutor. Speaking from personal experience, I can say that I really liked and admired my PLTL leader not only because I was confident in his knowledge of chemistry, but also because I felt a personal connection to him and believed that he truly cared about our performance in the class. Thus, even if your leading skills aren't up to par, you can still make a positive impression on your students simply by being your social self.

After you've led enough sessions and attended several SAM classes, you will gradually gain a real confidence in your abilities as a PLTL leader. You will know your students as well as yourself, and then you will be truly successful. Have fun (I know you will), and I wish you the best of luck!

Including the T(eam) Right from the Start

by Alison Goulding

One of the most difficult tasks of a PLTL leader involves introducing a group of chemistry students to a completely new approach to working through problems. Coming in for their first PLTL session, the majority of students have never participated in a PLTL-like environment. Most are very comfortable solving problems on their own, using a traditional pencil and paper and only asking questions when they run into problems. They are most likely accustomed to asking teachers for validation and reassurance, and are probably committed to the idea that the way their teacher shows them to complete a problem is truly the only way. Not only must a new PLTL leader help to transition these students into an entirely new problem-solving atmosphere, where there is no answer key and students are forced to perform activities with strange names like “scribe” and “round robin,” he or she must encourage them to draw upon the strengths of their fellow students in their problem-solving efforts. Forming a PLTL team means ensuring that the students trust each other, but most importantly that they trust the power of a collective group of chemistry minds working together to complete a problem set.

The opening session is a very important place to set the tone for the entire semester. The team starts to form right here, where an unknown group of students comes together for a new problem-solving experience. It is essential that the students begin to feel comfortable right away, and the PLTL leader is instrumental in this process. I found it very helpful to focus on simple aspects of the PLTL session to enhance the familiarity of this new setting right away. Using each student’s name correctly and consistently helps the entire group to learn new names, and to make each student feel accepted and valued from the beginning. Bringing candy or some sort of treat can help to break the ice – everyone can bond and find some sort of commonality over food! A specific icebreaker activity or game is also very important, so that people can form some associations and connections outside of the realm of general chemistry. But the real measure of the PLTL team comes from solving problems. I found my students really bonding together when they began to realize how beneficial their fellow PLTL group-members could be, and how effective they could be in facing a new challenge as a group.

It is very important that each group member is given the opportunity to actively participate and contribute to the overall team effort, regardless of his or her personality or confidence-level. Some students are naturally much more outgoing and enthused about displaying their understanding of the problems and concepts during a PLTL session, while others are content to sit back and observe the surrounding process. Activities like round robin ensure that each member is given the opportunity to contribute to the group effort. Additionally, it is the responsibility of the PLTL leader to pose diverse questions to specific group members throughout each session to make sure that everyone is engaged and on the same page. As the semester continues, it will become obvious that certain students have different strengths, and will be able to help the group progress in different ways.

The first time I really saw my PLTL group come together to solve a problem as a team was an extremely satisfying experience. One student posed a question concerning a concept that had been introduced in class. It turned out that many other students were also confused about this idea, and no one initially had a confident response to her inquiry. I encouraged them to look back in their notes and discuss the concept together, and the entire group responded enthusiastically. Some students referenced class notes, others looked in their textbooks, and a couple of students started creating a diagram on the whiteboard. While everyone at first hesitantly looked at me for the answer, they ultimately engaged in a true group effort to clarify this idea. When faced with such a collective problem, everyone participated actively in its resolution and made sure that each group member was satisfied with the ultimate answer. I think that such an experience is essential for the PLTL group to really understand the benefits of group problem solving. This experience provided my group with greatly improved confidence in approaching new problems; I saw their focus shift from seeking my validation to looking to the rest of the group for assurance and problem-solving support. In order to have such a positive team experience, it was necessary to establish a comfortable PLTL atmosphere right from the start, and to trust that, with a little bit of encouragement, the students would all come to see the importance of team problem solving.

Come Together
by Lauren Hillemann

Your students enter the room, and each one looks, acts, even *smells* different. They all come from different backgrounds, regions, and religions. Your group is fragmented, and there isn't a thing you can do about it.

Wrong. That's what's so great about PLTL. The program brings together a variety of students that have one thing in common—a desire to learn a certain course's material. And that is exactly where you'll want to start at the first meeting.

In the beginning, it's best to start with casual conversation. This may seem cliché, but the more intimate details the students share, the more they begin to trust the group. Class, hometown, major, even sharing a really bizarre fact about themselves can get the students to open up to each other.

So, as you progress throughout the semester, you'll find that some independent students often prefer to work alone. You put them in a pair, but they do all the work and just give the answer to their partner. How is this student ever going to cooperate with the group? Often, such a student prides him or herself in getting the answer correct, so if you encourage the students to *help* each other, instead of *telling* each other the answer, they may begin to take on some responsibility as a sort of leader within the group. Make sure you spell out how important it is that everyone keeps at the same pace.

How can everyone work together when some students are confused, some are bored, and some have already finished the problem? Make it fun! I'm not talking about bringing cookies. I'm talking about incorporating stories or the students' names into the problems to make it a little more interesting. Require that they give their answers in terms of the problem *you* have set up, with their own names. This can keep everyone interested.

And how to satiate the ones who have already finished with the ones who are confused? Call on the students who are confused, and if they don't understand, have the students who worked ahead explain things or become the leader. The more involved everyone is, the better team you will have.

And finally there's the sometimes awesome and sometimes dreaded "Scribe" technique, where all of the students work together as a whole to tell one student how to write down the problem. Usually, almost always, there is one student who tends to take

over the group and give all the answers. This certainly isn't what we would consider "working together." One of the best ways to solve this problem is to have the "dominant" student become the scribe, so they aren't allowed to say *anything*, unless everyone is really stuck on a problem.

Another great way to deal with the dominant student is the "Round Robin" technique, where you call on individual students to give intermediate answers or steps, so some are forced to attempt the problem and others are forced to shut up. Sometimes it's the only way to get everyone really participating.

This may seem intimidating, but very little is needed to get a great group going. As long as you stay excited, passionate, friendly, and funny, everyone will be so at ease the group will just come together.

Building a Team – Putting the T in PLTL
by Vivek Kulkarni

A lot of students come to PLTL for the first time expecting to be taught by their leaders. Worse than that, many first-time PLTL leaders arrive at their first sessions expecting to teach their students. As a first-time PLTL leader, you have to learn that you are **not** a teacher, but rather a member of a learning team. You are in charge of creating the team dynamic and ensuring its growth and development over the course of the semester.

Consider any notably successful team; what central characteristics does it have? Each team member is valued for his or her own contributions and the whole team benefits by the diverse array of knowledge and skills put forth by its members. No one is fully responsible for the team's results, but likewise everyone is partially responsible. Most importantly, the members of the team must work together in such a way as to effectively combine their individual strengths, and in doing so, compensate for their individual shortcomings.

A PLTL group should be conducted no differently. Each member of the group brings his or her own skills to the table. While this is certainly true for the students, it is also the responsibility of the leader to bring a particular skill to the table: being able to effectively combine talents and drive the group in the right direction. For example, in my calculus group, one student could quickly and easily set up a problem in the most efficient way, but often had problems executing the actual integrals. Another student had difficulty in converting word problems into integrals, but he could integrate like he was being paid to do so. Whenever we worked in pairs, I made sure to put these two together; in this way, each benefited greatly from the skills of the other, which mutually compensated for their weaknesses.

While this can be a good start, building an effective PLTL team cannot simply be done by pairing people with opposing strengths. As a leader, you must also strive to foster a sense of team unity and brotherhood. Encourage the students to call each other by name, making sure to do so yourself. Engage them in some unifying activities that relate to subject matter, such as round robin and scribe. As puerile as this sounds, bring in food and share it with everyone to cultivate a sense of family. Through all these

methods, slowly but surely your students will begin to grow together into a cohesive unit that functions much as a team, combining their strengths to overcome their weaknesses.

You might wonder – “What good will this do? We’re not going to play in the NBA playoffs; we’re not going to have Thanksgiving dinner together...why bother?” It may not seem like it initially, but if you start instilling a sense of brotherhood and team unity in your students from the beginning, they will become more comfortable with each other (and you) faster, allowing for easier learning. Also, with time, they will learn each other’s styles – weaknesses, strengths, preferences, etc. – and with this knowledge they can more effectively work together to learn whatever is set before them.

Building a PLTL Group

by Colin Orr

Building a productive PLTL team is a challenging but very rewarding undertaking. Eight people will come to PLTL with unique agendas, personalities, strengths, and weaknesses. As the group's facilitator, it is your responsibility to help a group of individuals work together to become a performing PLTL group. The best way to help develop the group dynamics is to have everyone feel comfortable with one another, and create a relaxed atmosphere. Take time to develop the group dynamic by discussing things beside chemistry.

The first session is critical to creating an efficient group dynamic. Many of the students will be nervous or anxious, and if you are able to address these concerns early in the semester the students will be more likely to participate actively in PLTL. Bring treats to the first session, and dedicate time to introducing yourself, and allow time for members of the group to introduce themselves and talk among one another. I found it extremely helpful to have the members explain why they decided to participate in PLTL so that the entire group was on the same page in terms of group expectations.

The first session must always be kept in perspective. The group may have been nervous during the first session, and it may take a few sessions before the real personality of the group comes out. Regardless of how well or poorly the first session went, it is important to realize that the group is an evolving entity varying week to week and around exam schedules. Due to this, it is important to monitor how the group is interacting weekly and brainstorm techniques to help the group become more efficient. To help develop a supportive atmosphere in the group, don't be afraid to say hi to members of your group outside of PLTL this will help create a feeling of community. Tests and exams can add a dimension of tension within the group. Everyone can benefit from the group if they allowed the group to help them.

Encourage the group to review chemistry outside of PLTL together. Have the group arrange certain days in which they will attend a study sessions together, or get together to review the more challenging concepts in chemistry. Remember that the ultimate goal of the PLTL is to help students become independent learners.

Peer-Led-TEAM-Learning: The Real Deal
by Samantha Schneider

After one semester of being a peer leader, it has become apparent that the team is the frosting that holds this gingerbread house together. Over the semester, my group evolved from seven individuals into one working machine and the best part is that as the evolution continued we got out earlier and earlier! So now the real question is...how do you make your group come together to keep your gingerbread house from smashing to pieces?

It may sound lame, but one of the best ways to create a well functioning group is to simply become their friends. By forming this type of relationship with your students, they begin to feel more comfortable around you and around the other members of the group. I started every session by talking with everyone as a group about their weeks, their weekend adventures, and even just advice about what classes to take or how to study for exams. These short and trivial conversations at the beginning of each session really help the students to feel at home among their fellow chemists and thus more apt to participate regularly. And, I don't only chat with them at the beginning of the session. If they seem to be getting antsy, overwhelmed, frustrated, or whatever, I take some time between problems to chat with them again and remind them that there is life outside of homework, school and non-stop studying. After these short interval conversations, my group seems to be a little bit more revived and is back in the spirit of problem-solving maniacs.

Furthermore, you want your students to enjoy giving up two hours of their weekend to do chemistry homework. One incentive that sounds cliché but works surprisingly well is the idea of snacks. For the first month and a half of PLTL, I regularly brought my group different kinds of candy. While this is not the most creative snack (especially since it came from Bear's Mart), the chocolate on the table provided not only another topic of conversation, but a source of an energy boost when doing the problems can start to get overwhelming and long for the students.

On a more serious note, to continue to effectively build your team of chemists, you must vary your problem-solving styles and the groups. You want all members of the group to feel comfortable talking with and working with every other chemist there, so

you must move them around. They will protest, that's for sure, but it is crucial that everyone get to know and get comfortable working with all other members of the group not just the students they sit next to each week. And, you must vary the problem-solving styles to force everyone to work together in new ways. By wading their way through problem after problem in new groups and in new styles, students that regularly work well together may be challenged in new ways forcing them to expand their chemistry-based relationship (plus, doing small groups every since time gets pretty boring for you and for them).

While each of these methods to team building has their own value, it is important to combine them to best fit your group. Each group is different and will benefit from different combinations and applications of these techniques. For my group, employing all three methods regularly really helped my group to come together well and to work together well to make my gingerbread house the best freaking place to live on the entire PLTL block!!

Building a Team
by Varun Sundaram

Having a good team dynamic is arguably the most important aspect in running your PLTL group. A good team will make your job easier, and it is in your best interest to start building that team early on in the semester. Sometimes you can be lucky enough to get a group that works well together right at the beginning, but more often than not you will have to work on your group dynamics.

The most likely problem you might encounter is a group where the members are too shy around one another. In this scenario, it is important that you make the environment as friendly as possible so that students do not have trouble speaking up. During your first session be sure to spend time getting to know the students and allowing the students to get to know you as well as each other. Start out with some team-building exercises, or ask them to share their interests. Though this is a good start, you will need to work on keeping the environment friendly throughout the year. Try and show up early to your session, and if any students come in early, use this as an opportunity to get to know them better outside of PLTL. Don't be afraid to converse with them during the session, if there is time to spare. Sometimes the students need a little break in the work; this could be just asking them about how their semester is going or maybe giving a little pep talk after they have a bad quiz or a bad test. There are many ways to make the environment friendly and welcoming to the students, so use whichever works best with your group or just improvise.

Once the students feel comfortable with each other, another problem may arise. This happens when the students get to the "norming" phase, and the students feel so comfortable with one another that they tend to neglect getting work done. This stage can be hard to deal with because you don't want the students to stop talking to one another, and you don't want them to feel like PLTL is all about finishing work. Instead I recommend allowing them to talk sometimes and other times just bringing the conversation back to chemistry with "so the next problem..." or "can you go up to the board and start us off on this next problem?" It should not be too hard to get the group back on topic, but if you are having trouble I suggest being more authoritative with how you get them back on topic, but hopefully it won't come to that.

Once you have a team dynamic, the other problems your group had seem to disappear. An overpowering student will be less likely to control the group when he or she has a good relationship with it. Just like a more shy student will participate a lot more than he or she would have when the group dynamics weren't great. It also helps to take care of those awkward silences which tend to arise when nobody wants to participate. Once you have your team, running your session will be easy.

Building a Team
by Michelle Tedja

The purpose of a PLTL study group is to teach students how to solve problems critically within a group. Although some students might prefer to study alone, studying in a group is more advantageous because it encourages students to examine whether they truly understand the concepts presented in lectures. A study group also allows its members to benefit from each other's strengths as well as assist each other in their weaknesses. Each individual in a PLTL group has his or her own unique combination of strengths and weaknesses. As leaders, we have the opportunity to discover those strengths and weaknesses and harness their learning skills in order to create an efficient group that can cooperate to solve problems. Each member can contribute his or her own particular strength to the overall progress of the group.

Through careful observation of group dynamics during the first few sessions, PLTL leaders get a sense of what type of learning style suits each member the best, whether it is concept maps or hands-on activities like using toothpicks and marshmallows to visualize the three-dimensional orientation of molecules. In addition, leaders can rapidly determine which students are more likely to participate in the discussion and which ones prefer to just listen. Leaders must also be able to recognize which students really understand a specific concept and which ones are struggling. These observations will serve as the basis for how to mold your team.

When the group is presented with a new problem, begin on a positive note by asking the student with the best understanding of the concept in question to point the group in the right direction. This tactic will not only build confidence in that student's abilities, but it will also show the other group members that the problem is not as impossible as it might initially seem, which has the potential to make the students more eager to solve the problem. Sometimes, the students that best understand the concepts are the quieter ones. By providing words of encouragement, you can make the students feel more comfortable around each other and more willing to contribute to the discussion. Although the quieter students might not have enough confidence to contribute as much to the group, you, as a leader, can push them to express their ideas by letting them know that

they are not inferior in any way. By calling on the quiet students, you also prevent the more outspoken students from dominating the team.

Eventually, the members of the group will become comfortable with bouncing ideas off of each other, and they will begin to sense these same strengths that you have identified. Although they will eventually learn to act upon these strengths independently, you are a critical part of the team because they need you to identify these strengths in the beginning and to help create the team.

Putting the “T” Back in PLTL
by Ross Zeitlin

When I walked into my first session, one of my main concerns was about how the students would interact with one another. Would they be a group which talked too much? Would they be too reserved and rely on me to facilitate group discussion? Or would they be the ideal group which was able to find the balance between team work and independence from the leader? As I walked into the classroom, the first thing I noticed was the way in which the students were seated—completely spread out from one another around the room. Although it was the first session, I realized that the students were in fact quite reserved and as a result, worked independently instead of as a group.

As the weeks progressed, I decided to have the students sit closer to one another. Whenever they were in close proximity, I noticed that they were each forced to talk to each other and felt less isolated from the group. Creating a comfortable environment for the students is essential to increasing teamwork and therefore, this simple change resulted in them becoming more comfortable with the group. A little sarcasm and humor also relaxed the environment, and makes for a better atmosphere for working and discussion.

When the students would still work independently, I made them put all of their writing utensils down and forced them to discuss how they would tackle the problems. This technique forced discussion among each group member, increasing the level of teamwork as well as the level of group cohesion.

However, increasing the level of teamwork also involves having the students become less independent of the leader and more dependent on the abilities of the group. In the beginning of the semester, I stressed the idea that they must work by themselves and not rely on me. By the end of the semester, the students were directing most of the questions toward each other, rather than me. Whenever questions are directed to me, I always respond with the typical PLTL question, “Well, what do you think?” and bring back the question to them. Forcing them to rely on one another for answers increases the level of teamwork and communication, and by the end of the semester, most questions were automatically directed toward each other.

Even with the quietest and most independently working students, a cohesive group with a high level of teamwork can be formed. The process does not just take one

session, but with different techniques, such as all pencils down but one, and a positive small environment, the students will eventually come together as a working unit.

Prepare to Get Pumped for PLTL

by Nick Asakawa

You're half way done with the semester and so far PLTL has been going smoothly. Your group is coming together and is starting to work well with little input from you. You are no longer an instructor but an observer who merely adds to the conversation occasionally. However, even though this all sounds just the way PLTL should be going, it quickly becomes difficult to get excited about coming to PLTL. Maybe you were out partying last night and you can barely keep your eyes open. Maybe you have three midterms next week and two hours for PLTL is going to kill your studying time. Whatever the case is, just a few tricks can help you get pumped and stay focused during PLTL.

As the semester progresses, leaders frequently have problems becoming motivated to come to PLTL. Typically, in the beginning of the semester, your motivation was the satisfaction of helping students learn chemistry. But as the students start to rely on each other, you lose your teaching position and your motivation. However, there are still ways to get that motivation back. First, you could try to prepare for PLTL. Usually, during the PAM session on Fridays, you will be able to spot questions that will be challenging or even overwhelming for some of your students to attempt. For these questions, try preparing an explanation of the concept that is both simple and effective. Remember, not just one explanation will work because you have to cater to everyone's learning styles. Another good idea is to prepare questions that will lead them in the right direction in places where students could easily get stuck. Both of these methods will help you stay engaged in the session and in turn, keep you motivated.

Another problem that can occur is when you are teaching multiple sessions in one week. Suppose you did the PAM problem set on Friday, covered for your friend's shift on Saturday, and still have to teach your own on Sunday. By then, the problem set probably seems like mind-aching crap that you've already seen twice before (because you have). However, what I have found to be useful to keep engaged during the session is to analyze obstacles that came up in the Saturday session and to think of ways of overcoming them in the Sunday session. That way, obstacles don't occur twice, your

session runs more smoothly, and you are better able and more engaged in helping the students.

Finally, the worst problem that occurs with nearly all leaders is when you have a whole row of midterms the next week and the Sunday PLTL session is really getting in the way of studying for them. First of all, these problems should be identified ahead of time – that way you can set aside two hours on Saturday to study because you know you'll have PLTL on Sunday. If you are way behind on studying, the temptation may arise to study during PLTL. Don't! You have a duty to the students and you would be wasting their time otherwise. Remember, PLTL is both your class and your job.

Prepare to Get Pumped for PLTL!

by Sharon Chang

Over the summer, you were probably so excited to be a PLTL leader. After all, you could proudly tell your parents and friends that you would soon be a respected mentor, leading hordes of callow freshmen. However, it is now the middle of the semester, exams in difficult classes are piling up, and you are not quite as enthused as you had once been to attend those SAM and PAM sessions and to lead your own PLTL group.

As a first-year PLTL leader, I found myself in this situation in late October. At the beginning of the semester, I could not wait to go to every SAM and PAM session and see what new things I could learn about the secret world of PLTL. Finding out about all of the different learning types fascinated me to no end. Ideally, I would lead PLTL sessions when I could focus on reviewing my General Chemistry knowledge and not have to worry so much about my own classes. However, once my own schoolwork and extracurricular activities got really hectic, I found myself far from eagerly anticipating the five hours I would have to dedicate to PLTL every week.

However, I am lucky enough to have a really great group, and every time I interact with these students in our session on Sunday, I quickly remember why I wanted to be a PLTL leader in the first place. In every group, the majority of the students will likely be genuinely kind and caring people who just want to improve their chemistry skills. I found that focusing on the fact that I am a PLTL leader primarily to aid these great students and to make their introductory science courses just a little easier really helped get me motivated to do my best for my PLTL group at all times.

Furthermore, after a month or so, I quickly got more comfortable interacting with the students in my group, and I began to be more of a friend to these students than some distant, unapproachable mentor. Whenever I saw the students in my group on campus or the South 40, I made it a point to say hi to them and chat with them for a while. This way, our PLTL sessions were far less awkward and quiet. I found it so much easier to look forward to PLTL when I thought of the session as working with friends as opposed to just random freshmen. Because there are not too many people in the world who enjoy working science problems for two hours straight just for its intrinsic learning value,

creating a fun and more social atmosphere helps a lot to get your students and yourself pumped to attend PLTL.

Another way to get your students to look forward to your PLTL session is pure bribery. I always bring some sort of candy or snack to PLTL and if they like nothing else about the session, the students can at least leave with satisfied stomachs. Also, whenever a particularly difficult problem set arose, I would send an email to all of my group members warning them to come prepared and to do their homework sets ahead of time. Clearly, this is not good motivation for the students, so in emails like these, I always add that I am going to bring particularly good snacks to the session, so the students can at least get a little excited prior to beginning the PLTL-session fun.

Although the time necessary to dedicate to leading a PLTL session in the first semester can get a little difficult to manage once classes and extracurricular activities kick into high gear, it is still possible to have fun at every single session. I found that maintaining an enthusiastic attitude goes a long way in helping both you and your group members have a good time during PLTL.

Getting Pumped for PLTL

By Ramana Gorrepati

After you get through the insecurity and questions of the first session, you begin to wonder how you're going to survive the remaining fourteen. After all, they are just as important as the first session is. The thing to remember is that the students are just like you and me and must constantly have their interest in PLTL renewed each and every week. A PLTL leader must be able to keep interest and maintain a positive atmosphere. If you can't or choose not to, then you tend to lose students as the weeks go on and by the end you may be the only one showing up to your own PLTL session and then you won't get paid. So regardless of however much you may want that, it isn't what you're aiming for as a PLTL leader.

If you remember one thing from this whole essay, then remember this: MIX IT UP. This is one thing you need to do as a PLTL leader to garner continued interest. If you remember back to your own experiences in a PLTL group, then you understand how hard it would be to go through the same routine every week. So the thing to do is keep the students "on their toes" and make them unsure of what might happen this week. But on the other hand, there is a something to be said for having some consistency. You want to have a good group dynamic and have good teamwork skills so that as the semester progresses your group gets better working together. So having students come to expect a consistency in participation and problem solving is good. It is your job to find a happy median that incorporates both. That will depend on your creativity and the characteristic of your group. Each group will have different needs and will respond to different tactics.

What you're probably looking for is specific things to try. I can only make suggestions and can't guarantee that any of my suggestions will work for your particular group. It's better to try things that you come up with on your own based on what personalities you have in your group. Be creative. You're the one that has to take initiative so your effort and thought are critical. If you can't come up with anything, here are a few suggestions. The first is to give them food. Before you go to your session, spend a few points at Bear Mart and get them a thing or two. Everyone responds to food, which is why this approach is so effective, nevertheless you shouldn't give them food every week. Then they come to expect it and the effect is diminished. The second thing to

try is mess around with the atmosphere/ambient in the room by opening windows, etc. The third thing is to vary how you interact with the students. You can either be very active or say very little. You should try both and vary week to week. Going along with this is how you monitor your students. You can walk around the room or sit at the table with them. Again you should try both at some point in the semester. The next thing you could try is to switch the order of the problems, keep them guessing so they can't work ahead either. The next and most important thing that is needed is you just talking about everyday life with them. Remember that most of your students will be freshman and they don't know much about campus life and you're the perfect person to tell them. So spend some time at the beginning and talk about whatever. Or better yet, what can work is to give your students a break midway through the session. It gives them a time to stretch and makes them more efficient through the rest of the problem set. Plus they don't get as bogged down and won't whine as much. Take them to the common room and watch some TV or whatever. Just be sure to interact with them at all times. This is by far the most important thing to remember. They will only participate as much as you encourage it and display yourself.

So the important things to remember from all of this is to make each session like a new experience for the students and also make sure you interact and communicate with them and not just about class material but about other stuff as well. And just think of unique ways to mix things up. If you follow these suggestions or come up with your own, I'm sure your group will run more smoothly even as the semester begins winding down.

On Enthusiasm and a Leader's Responsibility to Maintain It

by Kalika Haswell

In my experience, each semester can be appreciated as the sum of four distinct parts. There is the beginning of the semester (when students still foster that tender hope that *this* may be that perfect semester), there is the anxiety-riddled midterm stretch (when many students' eager ambitions for that ever-elusive A are neatly squelched and subsequently forgotten), there is the coma-inducing final period (the time we are all too familiar with and needn't discuss here), and finally, there are the relatively tranquil days which lie between these other three terms. Every PLTL leader knows that each of these periods provokes a different attitude among their students, and every PLTL leader ought to be able to adjust their methods of facilitation in order to accommodate each of these different attitudes. Specifically, how can a leader retain the eager "A" ambition the students bring into the class at the beginning throughout the course of the semester?

Now, of course, the students in each PLTL group spend the majority of the time they allot to the course outside of the actual PLTL session, so much of the responsibility for the students' lasting enthusiasm at least seems to lie outside the leader's reach. However, I believe that even the short two-hour period of which each session consists is disproportionately influential in shaping the students' attitudes toward the class. How then can a leader exploit this opportunity and allow it to express its greatest potential? The answer, I believe, is patently obvious.

There are several methods a leader can and should employ to maximize the enthusiasm of the students in his group. A first basic principle is that, unless influenced by some outside enthusiasm, it is difficult for any student to acquire or maintain his or her own enthusiasm. For the students in a PLTL group, this outside enthusiasm must naturally come from the leader. It is the leader's responsibility, then, to always appear genuinely excited about the material the group is working on, and to represent even the most difficult material as an enjoyable and surmountable challenge.

A second method a leader may employ is to demonstrate to the students that they need not fear losing their life (metaphorically speaking) to the material. That is, a leader should allow and even encourage (to some extent) discussion that does not necessarily pertain directly to the material. In such a relaxed environment, the students'

subconscious attitudes toward the material will be affected in a positive way, which will later aid in their studies outside of PLTL. Furthermore, this sort of interaction will encourage the students to communicate comfortably with each other, perhaps even to the extent of discussing material outside of class.

Third, a leader will undoubtedly find it advantageous to vary which methods of problem-solving the students employ. With a little thought and ingenuity, a leader can doubtlessly discover interesting variations on the suggested methods, and the students will likely both enjoy using the new problem-solving methods and appreciate the effort the leader put into formulating such methods.

Last, but certainly not least, I have found that an appeal to the stomach will never go amiss. A completely relaxing environment is difficult to achieve without the aid of food, but difficult to not achieve with a variety of fruits, candies, and crunchy chips or crackers strewn about the work surface. I personally recommend cheese (the universal favorite), chocolate (scientifically proved to raise endorphin levels!), and Bertie Bott's Every Flavor Beans (lots of laughs, and hey, no one will be able to resist vomit-flavored jelly beans!).

Keeping PLTL Fun and Exciting

by Julia Latash

Most people wouldn't be very excited about the prospect of spending two hours of nearly every weekend doing chemistry problems. The students in your group won't be any different. Many will not be sure what to expect from PLTL the first time they arrive for a session, so the first session is really important, not just to convince them that doing more problems will be beneficial, but also to convince them that they can enjoy themselves during those two hours.

I'm a more reserved person, so I took care to be extra-friendly and welcoming during the first several sessions. I brought food, asked the students in my group about what classes they were taking and what clubs they had joined. On the first day, we all did an ice-breaker (two truths and a lie), and I made sure that at the beginning of all the sessions for the first month-and-a-half, that we all went around the room, saying our names and some fact, like favorite food or favorite TV show. As the semester went on, I noticed that the one-time strangers in my group had become friends. As a result, they seemed to enjoy coming each week. This not only made them more excited to be in PLTL and more eager to come every week, it also translated to the problem-solving that occurred in each session. It's imperative for the group members to know each other and feel comfortable around one another – if they don't they won't feel comfortable making mistakes in front of one another which is an important part of learning how to do the various problems. On the first day, we all decided that no one would be ridiculed if he or she made a mistake, and in establishing an academically safe environment, students were more inclined to participate during the session.

Keeping students interested and engaged becomes harder as the semester progresses. There's a period of self-doubt or self-questioning that appears after the first exam, while the sessions before and after the exams will be panicked and subdued, respectively. It's during those times that the foundations that were established during the first few sessions are really important. To ensure that the enthusiasm remained, I continued to bring food and would give the students in my group the first ten or so minutes of the session to talk about anything they wanted. In this way, they got to know each other in a non-academic context as well, which once again reinforced their growing

friendships. I'd also let the students talk for a bit about half-way through the session. It's very difficult to stay focused on a problem set for two hours, so breaking up the monotony of the work is an effective way to both ground students and a way keep them involved and excited.

Ultimately, however, you as the leader staying excited and engaged even as the group needs you less and less – your own enthusiasm – is the key component in maintaining a positive, fun atmosphere. It's really important to have a positive attitude when you come to the session every week, because if you don't, the students will pick up on that and won't be excited either. Taking time and asking them how their weeks were, how an exam or paper went, or even saying “thanks for coming” at the end of sessions are all ways of showing them that you care about them and are glad to see them. It's important to keep in mind that the rules that were set during the first session apply to the leader as well: pay attention when people talk and don't talk while they do, essentially respect the group members. By being an active contributor to a welcoming learning environment and by being enthusiastic about the material or interactions with the students, you'll be able to convey excitement that is contagious. You'll be able to demonstrate that it's possible to get pumped for PLTL!

Prepare to Get Pumped for PLTL

by Intelly Lee

Everyone always says that the first time is always the most difficult, and they're probably right. As good leaders and good students, though, all of you will probably enter your first session well prepared and eager to begin. But what about the weeks after, when the novelty of facilitating PLTL sessions wears out and your hours of free time slowly start to disappear under a pile of school work? Chances are you may start to feel a bit complacent with your group as you gain more experience—a few corners cut here, small details left out there, one or two misquoted equations. It will become all too easy to think of each session as just another normal commitment rather than the weekly highlight of your educational and social life. So, how do you maintain that initial level of dedication and commitment week from week? How can you “get pumped for PLTL” even in the face of packed schedules and other stressful exams?

The most important way to stay pumped for PLTL is to remember back to your own enjoyable experiences with PLTL and communicate that sense of enthusiasm to your own students. Enthusiasm is always contagious, even if it involves messy integrals, gravitational fields or particles-in-a-box. Despite the occasional tedium of lectures or finishing problem sets, I'm sure there were many times when you sincerely enjoyed the topics being covered and learning critical ideas and concepts. Think back to your own experiences and try to instill that same sense of enjoyment in your group. I've found that one easy way to do this is to try to find real-world applications of whatever topics are being addressed that week, by browsing through the academic literature or finding interesting articles in your spare time. For example, when the chemistry course was discussing the photoelectric effect, I found a very interesting article about researchers using the photoelectric effect to measure pollutant concentrations in automobile emissions. When the chemistry lectures moved on to combined LEM and MOT theory, I talked to my students about real-world applications of conjugated systems, such as why beta-carotene in carrots appears orange. By bringing in this outside material, you can hopefully make the problem set and the discussion of topics much more interesting.

Another crucial aspect to staying excited and prepared for your weekly sessions is to foster healthy student-to-student relations with your group. It always helps to spend

time before and after each session talking to your students about subjects outside the problem set, such as their plans for the weekend, how their semester is going, what future classes they'll take, or even really desperate topics like their opinions on the weather. As long as the discussion is kept respectful and appropriate, you can also try discussing academic life on campus. I'm not quite sure why this is, but many students seem to derive some sort of pleasure from gossiping about their professors. Also, always try to greet your students whenever you see them around on campus, even if they (or you) are normally quite shy and reserved. By improving these relations and actually getting to know your students, you can help to ease the general atmosphere of the group and make each week something to look forward to.

Finally, it always helps to provide some kind of incentive for your students to come to each session. Many in the past have suggested the implementation of home-made baked goods every week, such as cookies or other treats. Unfortunately, I have contributed about as much to the art of baking as Truman Capote has to sumo wrestling, so I'm afraid you're on your own there. One incentive that my students seem to particularly value, however, is having access to old study material from previous years. I usually post the quiz answer keys from last year and old sample exam questions on Telesis to help my students, and they all seem to appreciate it. By keeping all these suggestions in mind and staying pumped for PLTL, you can help make all of your sessions amazing and unforgettable, instead of just your first time.