

# ALL THE SINGLE BONDS

A Guide to Gen Chem PLTL





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## Introduction

Beyoncé, Beyoncé, Beyoncé...who are you and how do you fit into the philosophy of PLTL and peer mentoring? As SAM students over the years have found out, I am not a pop-culture follower, so my knowledge of Beyoncé was quite lacking. Even my go-to person, my older son Walter, does not follow her, so I was in bad shape. Where does one go for knowledge when one knows nothing about a subject – why, the internet, of course. Thank goodness for Wikipedia and other sources of pop culture.

What did I find out about Beyoncé? She is very amazing for her age; she has accomplished more at her age than many do in a lifetime. This worried me for quite a while. That is not what PLTL, peer mentoring, or General Chemistry is about - being the best of the best. It is not about having to accomplish beyond what most people do. PLTL, peer mentoring, and General Chemistry are all about working together to have each person reach his or her potential. They are about learning new ideas and skills, about trying and growing from one's mistakes, about having a growth mindset, and about learning to embrace the unknown and the uncertainty of science and life.

Then I read more closely about Beyoncé and her life. And I found out that she embraces many ideas that we embrace in PLTL, peer mentoring, and General chemistry. Below are the key ideas from *Beyoncé's life* that we can see reflected in this year's SAM essays.

**1. Be willing to try ideas and activities outside your comfort zone; be creative and take risks.**

Beyoncé has tried an amazing variety of positions: singer, songwriter, actor, manager, business person, and philanthropist, to name a few. She is highly successful; however, we should look carefully at her story. She started as a singer, but has moved into areas outside her initial expertise. Even within her singing expertise, she has been willing to expand her abilities by singing genres beyond her initial genre of R&B. She also creatively mixes genres to produce new sounds. For example, J. Rosen (style critic of *The New York Times*) wrote that Beyoncé's style combines hip hop, as well as more traditional styles of balladry, gospel, and falsetto (Rosen, 2014). She replaced her father as manager and left her initial group to go solo, which showed her ability and desire to move well outside her comfort zone and expand her abilities.

Similarly, the philosophies of General Chemistry, PLTL, and peer mentoring are to teach and encourage students to move outside of their comfort zones to learn process (professional) skills, work with others on complex problems, admit when you are unsure of something, ask questions, and embrace the ideas of struggle and desirable difficulties. All of these skills teach students to learn how to solve complex problems and think more critically about chemistry. By stretching one's self and each other, all of us learn more than if we had stayed within our known boundaries and expertise.

**2. Be patient with your learning, practice new skills and be resilient, and always strive to understand ideas more deeply.**

Beyoncé is a case study in practice, resilience, hard work, and patience with learning something new. We know that she has moved herself into a variety of new areas, always challenging herself with new ideas. What is not obvious from the news headlines are her work ethic and willingness to practice consistently to improve her skills. While her singing was a success, Beyoncé moved forward by continuing to work on her singing and writing, while expanding into new areas. Beyoncé has what is called a growth mindset; no matter where you start, you can always learn and improve.

In PLTL, peer mentoring, General Chemistry, and college in general, one needs to have a growth mindset to be successful. Having a growth mindset encourages one to be resilient especially in the face of difficulty; encourages one to think about the process and not just the final outcome, and encourages one to understand that learning and developing new skills are complex and often take time. Students should come regularly to PLTL and peer-mentoring sessions to continually practice and improve their skills to reach their potential in General Chemistry. In addition, students should work on having a growth mindset in all areas of academics and life.

### 3. Collaborate with others.

It might seem that Beyoncé is a one-person team, but in looking into the details of her life and work, Beyoncé is an example of collaboration. She started her career with her cousin and classmates, she works with her husband, and she collaborates with her mother on a line of clothing. Even her solo albums are made through collaboration where she and her producers share ideas and melodies while making the records (Moss, 2014).

Similarly, PLTL and peer-mentoring students collaborate to learn how to problem solve and discuss concepts in chemistry. As a group, PLTL and peer-mentoring students understand the concepts more deeply and learn how to solve more complex problems than if they only studied alone.

### 4. Coaches are important for success.

Beyoncé has much talent, but she has been coached and mentored throughout her career. Starting with her parents, then being mentored by producers as she expanded her move into other genres of music. Peer leaders are essential for the success of PLTL and peer mentoring. Peer leaders are coaches, not teachers, to the PLTL and peer-mentoring students. They facilitate, encourage, question, set high standards and support students to reach those standards. They help their group members become independent scholars and the group to become a working group independent of the leader.

In addition, new peer leaders are mentored by the more experienced leaders. Through this book and the weekly Friday meetings, the more experienced peer leaders share their insights and best practices to you (the new peer leaders) as you work through the problem sets. Having the peer leaders meeting in groups every week encourages the sharing of knowledge and ideas between all leaders resulting in the transference of best practices (from the more experienced leaders) as well as an infusion of new ideas for leading (from the new leaders). This combination leads to the constant improvement and growth of the PLTL and peer-mentoring programs.

This book contains insights about effective peer leading that SAM students gained during their first semester as peer leaders. The remainder of this introduction will give you a taste of these insights, which the SAM students want to convey to you, the new peer leaders.

The first PLTL or peer-mentoring group meeting is exciting and can be somewhat intimidating. In the first section *“If I were a Peer Leader,”* the leaders write advice about having confidence and belief in yourself as a leader. **Ryon Arrington** gives excellent counsel for all leaders and teachers, “Do not be afraid to say that you don’t know the answer...It actually makes you connect more with your students.... be honest with them” **Evan Garden** gives an excellent tip on preparation and its role in confidence, “...I gained a lot of confidence in my sessions by preparing well for my first session. By going over some of

my notes from last year as well as some old PLTL/problem set problems, I realized just how much of the material I had inherently remembered, which made me a lot less nervous for my first session.” **Abhinav Srinath** agreed, “While it may seem to be a daunting task to remember all the different topics of general chemistry, reviewing these topics in the PAM class will help it all come right back to you.”

The leaders had many logistical tips for a great first session. **Christina Wang** speaks for many of us, “If you’re like me and you might forget an important detail when saying the instructions, write out your script for the ice breakers beforehand, and maybe even include what you want to say when going through the PLTL philosophy and collaborative learning strategies.” In addition to logistics, **Abhinav Srinath** reminds us, “...I told the students about how I studied for the course and how I struggled initially...When you talk about the PLTL philosophy, therefore, they will understand the importance of each method...” **Rebecca Weiss** encapsulates what all peer leaders think, “My first semester as a PLTL leader was both challenging and rewarding...As you help your students deepen their understanding of Chemistry, you too will grow and gain new facilitation and leadership skills.”

In the second section, “*Dominant Student is the Gen Chem Version of a Diva*,” leaders discuss handling different personalities to make your group run smoothly and ensure equal participation. **Taylor Banks** reminds us of the commonalities between peer mentoring and peer leading, “If you are a Peer Mentor instead of a PLTL leader, know that the PLTL strategies can be effective for you too” **Erin (Yehli) Jo** brings the purpose of PLTL [and peer mentoring] to the forefront, “...you may be nervous about whether you will make it through the packet. However,... keep in mind that the purpose of the Chemistry PLTL group is less about getting the right answers...more about positive group dynamic and the ability to gain confidence through group learning and support.” **Michael Xi** succinctly describes the essence of the PLTL and peer mentor, “The reason we, as [peer] leaders, act as facilitators and not as lecturers is because we encourage the exploration and understanding of concepts, rather than the force-feeding of blunt knowledge.”

To create an effective community, **Bobby Kahlon** gives the following hints, “Getting to know your students personally in the 10 minutes after the hour provides a huge payoff in terms of group dynamics...PLTL becomes less of a studious class and more of a collaborative group of students who get along and want to help one another.” **Katie Moeder** discusses how one can keep attention throughout the entire session, “...break in the middle of the session so that they can socialize. Strike an agreement with them that if they focus on Chemistry while in the [session] then halfway through they’ll have a break to discuss the other things on their minds.” Similarly **Rishi Patel** discusses the importance of a break, “...important to have some moments that are not spent staring at the problem set or the blackboard to create a more open environment that the students will enjoy spending two hours in.”

The third section, *I Woke Up Like This*, describes the mid-semester slump and gives advice both how to rejuvenate your students and to give yourself a pep talk as a leader!

The following leaders give advice about helping your students work through the mid-semester slump. **Noah Eby** urges us, “...remind students that the material only becomes more complicated as the semester goes on, that cramming for exams will hurt them in the long run, and that PLTL is only effective if the whole group is prepared to participate....be compassionate in understanding how stressed they are as first-semester freshmen.” **Allison Rhodes** gives us backbone, “...they may try to get you to give them extra assistance...Keep up your standards, stick to the collaborative learning strategies, and encourage your students to prepare and live up to their potential.” **Sam Schell** reminds us that change is good, “By this point the students might be getting bored of PLTL,....switch up seating, bring snacks, or



allow the students a brief period to socialize to ensure that they are engaged when they are working on the problem set.”

Advice for leaders! All of the leaders caution that we as leaders also can fall into this mid-semester slump. **Savannah Est** stresses, “...your students watch you much closer than you’d think...If you come to [your session] unprepared and looking like you just woke up, your students are going to know...You need to be modeling good behavior, because as a leader, ...your actions will be scrutinized, whether you realize it or not.” **Collin Nadarajah** suggests, “...it would be a great deal of help if you prepared more questions to help guide your group during this period...The “probing questions” get people talking as well as helping deepen their understanding of the concepts, a win-win scenario.” **Sarah Turecamo** encourages, “My sessions started to get a little repetitive and tedious during the middle of the semester so I tried to spice it up through a few different methods.”

**The fourth session, *Crazy in Love with Collaborative Learning Strategies from Psychology*, all the leaders stressed** that one should continue to use collaborative-learning strategies, but be flexible in how one uses these strategies to ensure that there is equal participation throughout the session. I love the title by **Soumya Gogia**, “Diamonds may be a girl’s best friend, but collaborative learning strategies are the next best thing”

**Matt Jotte** netted out the idea behind both PLTL and Peer Mentoring, “PLTL is all about team learning...There are no “individual” styled problems in PLTL because one of the main goals is for students to gain additional problem-solving skills by seeing how their peers approach the problems.”

The leaders in this section gave many tips about how to modify the strategies and how to facilitate them. For example, **Will Freeman** suggests, “...I decided to have each contributor write his or her step on the board and then toss the marker to someone else, popcorn style. This forced everyone to keep their heads up and engaged because no one wanted to get smacked in the head by a flying dry-erase marker.” **Jeffrey Rosenthal** discusses pairs, “While the students work on the problem, walk around the room and approach each pair....I would recommend remaining out of your seat until each pair is nearly finished and then bringing everyone together.” **Christina Tsai** advises, “Remember that for all these strategies, all the work should be clearly written and explained on the board at all times.”

**Soumya Gogia** reminds us, “...these strategies are an essential component of PLTL....Not only is it important to follow the collaborative-learning strategies assigned to each problem, but also to explain their importance to your students.” **Julia Xie** emphasizes “Collaborative-learning strategies if used properly maximize the benefits of group work.”

**In the fifth and last section, *Irreplaceable*, the peer leaders discuss** the importance of mentoring your students about all aspects of college. They all stressed to encourage a growth mindset and how one can grow not only throughout the course, but college in general.

**Isabelle (Izzy) Carbone** gives advice for all peer leaders (PLTL and Peer mentor), “As a Peer Mentor, you have the opportunity to teach your students effective study techniques, to give them advice about how to not just succeed, but thrive in science classes, and also to encourage each of them to have a growth mindset.” **Pooja Jairam** reminds us, “It is essential to discuss this growth mindset early on in the semester as well as at later points throughout the semester.” **Itzel Lopez-Hinojosa** suggests, “...hearing from you that you got a poor quiz grade, did below the A cut off or even the mean on the first



exam, then it brings them hope that they can also achieve what you did...make sure to talk about how your mindset affected you and the things you changed.”

**Samir Kaveeshwar** notes, “it is important to be a PLTL leader not just for General Chemistry, but also for college life in general.....discuss their transition, offer advice, provide motivational speeches...outside of class,—see how they’re doing.” **Daisy Ogede** proposes, “...before and after a midterm exam, I would designate five minutes to offer my students some study tips that have helped me in the course...this showed the students that they can use their leaders and classmates as a support system.”

**Samantha Kelly** advocates, “....It is important that your students learn...everyone can improve relative to his or her own starting point....Einstein once said, ‘Education is not the learning of facts but the training of the mind to think.’ Problem solving sessions and peer mentoring sessions are not meant to just be a way to access more problems to practice for the class. These sessions are meant to teach your students how to problem solve and how to begin to think for themselves.”

I always learn much about the PLTL and peer mentoring approaches every year when I read the SAM student essays. It is such an honor to work with all of the peer leaders. I hope that you enjoy learning about collaboration, mentoring, and being creative from your colleagues in this peer-leader community. As you travel through this first semester of peer leading, I encourage you to form a cohesive peer-leader unit that will encourage you to have a growth mindset about peer leading. I also urge each of you to become a contributing member of the broader peer-leader community at Washington University. I look forward to working with you, Dr. Lutes, Dr. Szeinberg, Dr. Luo, and Dr. Daschbach in the PLTL and peer-mentoring programs during this coming semester.

*Regina Frey*

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## **Preparing for the First Session**

**By Ryon LaMont Arrington**

Before I begin, CONGRATULATIONS on being chosen to become a Peer Leader! I am excited for you guys as I reflect on my experiences as a first year leader. It can be one awesome experience, if you make it, which I KNOW you will, but that's pretty small talk, so let's talk about the first session.

### **The Nerves**

Let's face it, it happens to all of us. What if my students don't like me? What if I can't answer their questions? What if I'm not as qualified as my professors believed me to be? Before you start asking yourself those questions, rest assured that you are very much qualified for the position that you have been chosen for. There's no doubt about that. If you can't answer the questions that the students pose, don't fret. No one can answer every question that is asked of them. Do not be afraid to say that you don't know the answer. Let's internalize that last statement—do not be afraid to say you don't know. It doesn't make you a bad leader. It actually makes you connect more with your students. For you to be honest with them and say you don't know make you a relatable leader, and that is very important!

### **The First Session**

I bet you have heard this before, but you don't have to go straight into the packet—talk to the students. Ask them about how their days are, or what their favorite TV show. You don't have to talk about Chemistry the entire time. With that in mind, icebreakers are ESSENTIAL! My favorite icebreaker was to ask them their names, where they are from, and what their favorite ice cream flavor was. You can definitely be more creative than I was, but that's just an example of an icebreaker.

Also, be sure to go over the PLTL Philosophy with them in detail. My group and I read it popcorn style to make sure that each student understood what PLTL is about as well as what the role of the leader is.

In closing, make sure to create as many single bonds with your students as you can, and, possibly, you will overlap some of your interests and make the bond that much stronger. Go forth and prosper!

**Irreplaceable****By Evan Garden**

First, I believe some congratulations are in order, so: Congratulations on being accepted to be a peer leader! I'm sure it was definitely a long process to get to this point, involving what I can only imagine was a grueling 2 semesters of Gen Chem that you clearly excelled in, in addition to many hours spent in lectures, PLTL/peer mentoring sessions, office hours, etc. Nevertheless, despite all this success, you may or may not be worried for your first session, asking yourself questions like "What if I don't remember the material?" "What if my kids don't like me?" "What if my kids don't talk at all?" "What if this was all one huge mistake?!?!?" Here are some tips that will hopefully help you answer these questions and go into your first session with confidence

First, let me reassure you that this was no mistake; no one succeeds in Gen Chem by accident, but rather thanks to hard work and a good grasp of the information covered in the class. So before your first session, it's super important to remember that you are completely deserving of this position as a peer leader. If you aren't 100% confident in yourself, how can you expect your students to do the same? For me, I gained a lot of confidence in my sessions by preparing well for my first session. By going over some of my notes from last year as well as some old PLTL/problem set problems, I realized just how much of the material I had inherently remembered, which made me a lot less nervous for my first session. I can assure you that the information will come back to you like second nature.

As for handling the actual session, I can't lie that it will be a bit awkward at first, with ~6-8 new people (including you) who haven't met before being expected to work together as a group. However, as a peer leader it's your responsibility to cultivate a comfortable and constructive work environment from day one. I would definitely encourage you to do a few icebreaker games before you start your first session, just to make sure everyone gets to know each other. Try your best to remember everyone's name and call him or her by it when you're talking to them, as it really can help strengthen the mentor-mentee relationship quickly. Also, bringing some snacks for your students on your first day can't hurt either.

After you go through your introductions and reading the group expectations, the final piece of advice I would have is to just be yourself and be relaxed. At the end of the day, even though you're a peer leader, you're also just another Wash U student. You're not expected to know all the answers or be able to teach the entire class, but rather to act as a resource for these students to help guide them

through Gen Chem. Stay relaxed, stay confident, have fun, and remember that as a peer leader, you're irreplaceable.

**If I were a PLTL Leader... Even just for a Day....****By Abhinav Srinath**

First of all, congrats on being chosen as a Peer Leader! Get pumped for an awesome semester of much learning by both you and the students. While it may seem to be a daunting task to remember all the different topics of general chemistry, reviewing these topics in the PAM class will help it all come right back to you. For your first day, make sure to make a quick checklist so that you remember your markers, eraser, snacks, napkins, and especially THE PACKETS. Your first session may be the most nerve-racking, but just keep in mind that with each subsequent session, you will feel more and more comfortable as a mentor.

First of all, make sure to email your students a few days before the session in order to first show your interest as a mentor, but also to indicate to your students the location of your session and what to bring to the session. Remember, most of your students are freshmen and are extremely nervous about college in general, so this email will help to alleviate some of the stress they are feeling.

One of the most important parts of the first day is the icebreaker. When the students walk in, being anxious and probably not knowing anyone in the session, there will be a great divide in where they sit. It is your job to lighten the atmosphere and make them all comfortable with you and each other (it may be best to move the students around so that they all sit in a confined rectangle). Then it's time for the icebreaker! Play some sort of game with the students that is both entertaining and also allows the students to get to know one another. Make sure that you play too—they knowing you is as important as them knowing one another.

Another important task for the first day is setting the rules that will be implemented the rest of the semester (this also involves going over the PLTL philosophy). It is important to set up your relationship with your students and not be too friendly or too harsh with them, as you want to have a successful semester (and since you may have some students older and even possibly older than you it may be a little difficult to set up this relationship). Also, many students are not used to the idea of not receiving answers from the leader, and therefore, especially at the beginning, they will try to obtain the answers from you at all costs. One way they may try this is by asking questions to you or directing their answer to you, but it is your job to make sure that the students are actually discussing with one another, rather than with you, as this is supposed to be a discussion-lead team study, rather than having you teach the group directly.

As you go throughout the semester, you may also see that cell phones will become a large problem, as the students may lose focus and shift focus to their phones. It is important to also set a rule that cell phones cannot be used during the session because it ends up wasting time when you are required to catch that student up to the rest of the group.

Now you may see that there is a lot that needs to get done in the first session. Especially when you tell them about not receiving answers, the students may be disheartened, and may feel that there is no point to PLTL. What I did in that situation was explain to the students what PLTL meant to me as a student, and I used the sessions to gather a deeper understanding of the material. Also I told the students about how I studied for the course and how I struggled initially. This makes you more relatable to the students and in the end will cause there to be a stronger peer leader-mentee relationship. When you talk about the PLTL philosophy, therefore, they will understand the importance of each method (small group, pairs, round robin, and scribe) and will implement without any argument.

I hope you are now comfortable with leading your first session and I wish you all good luck! All you need is to show maturity and confidence in order to be a successful PLTL leader.

## How to Be the Beyoncé of PLTL

By Shreya Srivastava



### The First Impression

Being the Beyoncé of PLTL requires making a good first impression. The first PLTL session can be quite daunting, but making a good first impression is vital for a great PLTL group for the rest of the semester. The first PLTL meeting is a good time to establish a fun and friendly environment for the group, so that each week after, the students are excited to come to PLTL. Of course, food is always a great way to get students excited about PLTL, but it is also helpful to conduct some icebreakers. Icebreakers allow the students to get to know each other and connect with each other. Typically students tend to groan at the idea of doing an icebreaker, but the key is to provide an icebreaker that is interactive and more like a game. For example, you could use an icebreaker that requires students to get up and move around in the room in order to interact with each other.

### Confidence is Key

A large part of Beyoncé's success is due to her ability to be confident on and off stage. As a PLTL leader, you should also have self-confidence! You have worked hard to get here (Congratulations!) and it is now your job to help new General Chemistry students to also achieve success. Your PLTL students are more likely to be engaged and prepared to gain from PLTL if you are confident in your abilities.

### Maintaining a Fan Base

Beyoncé is so well known and loved by her fans because of her consistent success and terrific music. Make sure to establish a key set of group rules with your students during the first session and continue to follow these rules throughout the semester. Additionally, ensure that the environment of the group stays positive and exciting as you progress through the semester.



Off the Stage

Even when she's not performing, Beyoncé is a great inspiration for many aspiring artists. Your job as a PLTL leader does not only concern teaching your students about General Chemistry, but also about adjusting to college life. Most of your students will be new freshman and they may be a little nervous about how to become accustomed to college. You can be their mentor concerning topics such as good places to eat and how to balance academics and extracurricular activities.

Enjoy the Concert!

The best part about being a PLTL leader is connecting with your students and seeing them be just as excited about PLTL as you are! By establishing the right group dynamic, leading your PLTL group can be the highlight of your weekend, so make sure to have some fun!

**Partner Lemme Upgrade U****By Christina Wang**

Congratulations diva- you were selected to be a member of the flawless posse of Queen D (aka Dr. Daschbach). At this point, you probably feel like you run the world. And you do...if you consider your PLTL group to be your world, as you should. Queen D is never wrong, so if she chose you that means you have what it takes to command a part of her empire, with or without my help. But my job as a senior member of Queen D's posse is to upgrade u. So here's the advice I can offer you so that you shine as a rookie in our crew.

The first session with your PLTL group is critical- it can establish you and the philosophy you represent as flawless in the minds of your students, or it can put a partition up between you and them. Most of your students will be freshmen, and the first PLTL leader they have will probably become their role model. You'll be their role model for PLTL- every PLTL leader they have from then on will be compared to you. But you'll also be their role model for life at Wash. U. I know so many people who went through PLTL and adored their first leader like a miniature Queen D- so much that they wanted to join their club, Greek organization, and even the PLTL posse. You have a huge opportunity to influence your students' experience at Wash. U. for the better, so trust me when I say you want to make them think you woke up like this.

Nothing can set a warm and welcoming atmosphere like snacks can. Use some meal points to get snacks for the first session. Before the session, also make a sign-up sheet for the rest of the semester so your students can take turns bringing snacks. Let them know that you'll email whoever is signed up each week as a reminder. Snacks may seem like an unnecessary part of a PLTL session, but I've learned

from experience that a tasty treat will give your students energy and turn their red light into a green light.

Something irreplaceable: ice breakers. You'll have plenty of time during the first session to do a couple ice breakers, and this is a key opportunity to spark pleasant relationships in your group. Plan your ice breakers way ahead of time- I had an ice breaker in mind as soon as I found out I got into the PLTL posse since I wanted to try the genius ice breaker my first PLTL leader used. If you're like me and you might forget an important detail when saying the instructions, write out your script for the ice breakers beforehand, and maybe even include what you want to say when going through the PLTL philosophy and collaborative learning strategies. If your group seems to enjoy the ice breakers, consider continuing to do ice breakers for the first couple of sessions. It might be enough to keep them coming back- one of my students actually expressed a little disappointment the week that we stopped doing icebreakers.

Everybody loves it when people say their name, so make a point of calling on your students by name. Study your roster before the first session to become familiar with them- maybe even do some stalking on FACES or social media to match a name with a face. Definitely have your students make name tags/plates when they arrive for the first session so that they can also easily learn each other's names. I've found that using large notecards works well, since they're thick enough to stand up or can be folded to hang off desks. You can also collect the name tags at the end of the session and lay them out to assign seats at the next couple sessions. You should have your students' names memorized after the first session, but those name tags will be a nice reminder for you and your group.

If things go well, you should come out of the first session drunk in love with your group and looking forward to a whole semester with them. I really hope my advice helps your students see your halo and helps you feel comfortable in your new position of power. You and I both know that you can run the world, so go out there and show your group how flawless you really are. Go get 'em diva- time to make Queen D proud.

### A Flawless First Session

By Rebecca Weiss



Your first session as a peer leader is coming soon! Get excited! While it's perfectly normal to be a bit nervous for your first day, remember that you were chosen to do this job because you are qualified and capable. My first semester as a PLTL leader was both challenging and rewarding, and I learned so much from this experience. As you help your students deepen their understanding of Chemistry, you too will grow and gain new facilitation and leadership skills. Practically speaking, I would like to share some tips to help you run a flawless first session.

The way you act on the first day will set your group's expectations for the rest of the semester. Make sure to take the time to go through the PLTL Philosophy to make sure that all students understand the way sessions will be run. Sometimes, students don't automatically understand why we're not allowed to tell them the answers to problems, so I suggest that you explain to them why the PLTL strategy benefits them as students. It is also important to establish a set of rules for everyone to follow so that all students can benefit from their time spent in PLTL. Some rules may include punctuality and forbidding cell phones, but your list of rules is up to you and your group.

Another important thing to keep in mind on the first day is that your students probably don't know each other, and they are mostly freshmen who may have never participated in this type of group work. It is up to you to create a warm, welcoming environment so that your students feel comfortable participating. Chemistry is hard for a lot of students, so they need to know that PLTL is a safe place where mistakes can help them learn, and where nobody will judge each other. There are many ways to maintain positive vibes, and you can always mediate the tone of the room by being enthusiastic, friendly and respectful. Another great way to make PLTL an enjoyable experience for everyone is to bring snacks. Cookies are always a crowd pleaser, but be sure to avoid foods with nuts in case anyone is allergic. Also,

remember to prepare a fun icebreaker that will get everyone talking so that they can get to know each other. I used “Two Truths and a Lie” for my first day, but there are many choices. It is important for students to learn each other’s names, and for you to learn the names of your students, so have everyone make name signs.

In terms of preparation, make sure you have everything ready to go in your backpack in advance so that you don’t scramble to find your packets and whiteboard markers 10 minutes before your session. Also, use your time well in PAM to familiarize yourself with this week’s problem set. Finally, remember to arrive to your room early to set up the tables and wait for your students to arrive.

With these tips and the others in this book, you should be all set to lead a fantastic first session. Good luck and enjoy your first semester as a peer leader!

### **Good Group Dynamics: Constructive Interference**

**By Taylor Banks**

So by now, after hosting a few of your sessions, your group has probably reached some sort of equilibrium. People may finally be comfortable enough with you and with each other to discuss problems with confidence and function in pairs and small groups. However, with this new level of comfort comes a slight danger. Students will begin to form their own opinion about group dynamics and may fall into hardened “group personalities.” You may already recognize some of these—the dominant student, the shy student, and the ever-vexing underprepared “I don’t know” student. However, never fear! There are many strategies you can use to ensure that your group always performs at its best.

The dominant student or “diva” is likely the easiest to recognize. The dominant student is the kid who jumps to answer every question, takes over discussion during Small Group and allows little participation from other students. He/she may have a bit of a “know-it-all attitude” that brings down group morale and leaves others feeling restless. The biggest tool you have to use against this type of student is Scribe. At the beginning of a PLTL session, you can arbitrarily assign a Scribe instead of having students volunteer. By choosing the dominant student as Scribe, you give less talkative students a chance to participate and test their knowledge. You can also level the playing fields by using Round Robin. During Round Robin, everyone is mandated to speak, so if you are careful to limit what each student can contribute, the dominant student can seem less overbearing.

In the exact opposite direction is the shy student—the student who offers minimal discussion during Pairs and Small Group, and who seems to jump at the opportunity to be Scribe. This student is one you must watch carefully, because while many shy students know the material and are just hesitant to speak, sometimes silence can be a sign of confusion about concepts or unpreparedness. In order to gauge your student’s understanding, the best thing to do is encourage them to share what they know. Round Robin, again, would be a useful strategy. Just make sure to remind students that all information contributed to a problem, no matter how small, is useful!

You may notice that controlling the dominant student and the quiet student may get more difficult during Pairs or Small Group. In this case, the best thing to do is pair the dominant students and the quiet students separately. Pairing two quiet students will force participation, because the students know inevitably that someone must speak to present their answer, and they may be more comfortable discussing with someone less overbearing. Pairing two dominant students can be beneficial as it forces each student to yield somewhat to the other.

If you are a Peer Mentor instead of a PLTL leader, know that the PLTL strategies can be effective for you too. While many Peer Mentoring sessions work as large groups, you can use a sort of “open Scribe” in which various students go up to the board and offer partial solutions to problems or where students guide the group towards an answer. In addition, you can identify the strengths of your students (some people may be very good with manipulating equations, others with interpreting diagrams, etc.) and encourage those students to share their strategies with the group during problems. This makes sure the group is getting the strongest contributions from everyone, and helps to minimize individual weaknesses over time.

Inevitably, you will run into group personalities that conflict, and sometimes it may feel like nothing is working. But just remember that the collaborative learning strategies are there to help you, and that all groups must go through difficult times to reach their greatest potential!



**All the students, speak up!****By Erin (Yehli) Jo**

Congratulations to finishing the first couple sessions of many sessions you will lead as a Chemistry PLTL leader. As you begin to know your students more and more, you will begin to notice the students who have answers—right or wrong—to every question, and the other few students who never talk. Because it is your first couple times leading the sessions, you may be nervous about whether you will make it through the packet. However, as tempting as it may be to just breeze through the packet with the help of the “dominant” students, it is important to keep in mind that the purpose of the Chemistry PLTL group is less about getting the right answers to the questions in the weekly packets, but more about positive group dynamic and the ability to gain confidence through group learning and support.

It is essential to address the issues of some students always talking and others maintaining their silence early on in the semester. There are two directions in which you can go about fixing these problems. The first is to suppress the dominant students. The easiest way, that many peer leaders have found useful, is to volunteer them to be scribes in the most discreet, and friendliest way as possible. This way, it will prevent them from contributing anything to that specific problem, forcing the quieter students to speak. Another way is to mention something along the lines of, “Hey guys, does someone other than [insert name of dominant student] have anything to contribute to this question?” This approach, although direct, may work very well if it is carried out in an inoffensive manner.

The second way is to make the quieter students speak up. You can do this from the very first sessions by enforcing the idea that it is okay if you are wrong, and that any idea or suggestion is welcome and most likely helpful. If this doesn’t work, you could always talk to the quieter students after class. Although sending out an email may do the trick, I personally find it better if you communicate with the person face to face. In addition, you can make sure everyone participates, especially in a long problem, by asking each person a probing question or even a direct short question.

Another problem with dominant students occurs when the students work in pairs or small groups. You may think that pairing the quiet and shy students with dominant students is always a good idea so that they can well complement each other. However, the problem lies in the fact that most of the time, the dominant students will do all the work and end up teaching the quiet/shy students. Thus, it may be helpful to switch to pairing the dominant student with another dominant student and a quiet

student with another quiet one. This way, everyone will be forced to contribute and dominant students will hopefully gain more knowledge from working with other dominant students.

The most important thing to keep in mind when dealing with these issues is to be patient. This problem will not go away as soon as you address it and try to fix it. Sometimes, it is a matter of dealing with a variety of personality traits and you just have to lead the students to sacrifice and contribute simultaneously to a greater group effort. Also, although shy students may be at first unwilling to talk, through positive environment and group enforcement, they will speak up. Believe in yourself and the students in your group!

**Me, Myself, and My PLTL Group****By Bobby Kahlon**

Group Dynamics make a huge impact on how your students interact with one another and within their groups. These will determine how comfortable your students are with you, how focused they are, and most importantly how collaborative they are.

Right when your students come into the room, it's important that they are in a comfortable yet focused environment. As students file in, asking about their day, how their weekend is going, or even there past week in chemistry. Getting to know your students personally in the 10 minutes after the hour provides a huge payoff in terms of group dynamics. Everyone is much more comfortable and organic; it helps students actually enjoy the next two hours of chemistry. When students can relate to one another about an event of The First 40 or even discuss their different impressions of their freshmen floor, PLTL becomes less of a studious class and more of a collaborative group of students who get along and want to help one another.

Group dynamics can also be enhanced by using a mainstay of many PLTL groups: the almighty snack schedule. It gives students the opportunity to express themselves to the group and contribute their own personal touch each week. Having a designated student willing to bring snacks for the group each week instills a sense of dedication and respect for PLTL as well. Depending on the food, a great strategy that keeps things exciting during PLTL is creating competition and using the snacks as prizes. For instance, if a student brings starbursts and the strategy is pairs, the group that finishes first gets 4 starburst, the group that finishes second gets 3, the group that finishes third gets 2, and the last groups to finish all get one. Fun strategies like this will keep your group on their toes and engaged.

When it comes to students who are difficult to work with or do not speak very much, putting them with other students who are more mellow and also do not speak as much is a good strategy to get the group all working together. By doing this, students who do not talk very much are forced to in order

to get their ideas across. By building confidence in students to speak up and share, the group can have more contributors and serve the functions of PLTL better.

Students who are overly dominant and talkative can be quelled through group strategies as well. Often times, the entire group recognizes how over dominant a student can be. Imposing a strict limit on how much they can talk can send a clear-cut message that they must let other students contribute to the group whilst allowing everyone to get their chance to express themselves. Also, making an overly dominant student the silent scribe can give them an opportunity to contribute to the group without giving away all the answers.

Overall, it is important to make sure every student is involved in your PLTL group. The more contributors and perspectives you have in a group, the more likely everyone is going to be able to understand the chemistry concepts. A fun and lively group makes the 2 hours much more bearable for students while engaging them in their social lives helps you relate to them better as a peer. With a great group dynamic, students will be more willing to participate, investigate concepts, and personalize their PLTL group to suit what they need to understand the topics.

**“Tell Me Somethin”****By Katie Moeder**

Congratulations on successfully completing your first few sessions of PLTL! This time in the semester is a particularly challenging point because the group dynamics, whether good or bad, are starting to become very apparent. Whether it's an extremely shy student or a dominant one, every PLTL group has some problems. As a PLTL leader, it's our job to make the group dynamics as positive as possible.

Most likely your students have slowly warmed up to each other and started to become friends. Although a cohesive group is every PLTL leader's dream, sometimes this can backfire. For my group, it came about halfway through the PLTL sessions, and they began to lose all productivity because they were too focused on chatting about their other classes and exams. One way to counteract this problem is to make sure that when you enter your PLTL space, you are as enthusiastic as possible about chemistry. If your spirits are up regarding chemistry, then so will your students'. Keeping the environment as positive as possible will allow your students the chance to be excited to work on chemistry, and will hopefully direct them away from socializing. If this doesn't work, another option I found is to allow a break in the middle of the session so that they can socialize. Strike an agreement with them that if they focus on Chemistry while in the PLTL session then halfway through they'll have a break to discuss the other things on their minds. I found this worked especially well if I waited to give my students their snacks until the break, because there is something about snacks that makes people lose focus.

Furthermore, every PLTL group has their dominant student. Hopefully, if you're lucky, then you only have one. The trick that worked best in my sessions was to nominate the dominant student to be scribe. This way the other students are allowed to have an open discussion without the conversation being controlled by the dominant student. The problem with my dominant student being scribe was that he would give hints to the students or just write whatever he wanted and ignore the group discussion all together. If this happens, be sure to reiterate that the scribe of the group is supposed to stay quiet and not contribute anything to the discussion. Their sole purpose is to write on the board. After enough reminders, your dominant student will begin to properly fill the role of scribe.

Because I had two dominant students in my PLTL, the scribe technique only worked every once in a while. I quickly learned that even if one of my dominant students was at the board, the other would jump in and control the discussion. If this happens to you then don't be afraid to jump in and call on

other people to talk in the group instead of letting the dominant student say everything that comes to their mind. Even if this isn't the case for you, still don't be afraid to call on people who are contributing less than others or who may be more shy. It's important to build the confidence of all of your students, especially the ones who stay more quiet. Aside from calling on students to contribute in the group, make sure that you speak to students who you have concerns with after the session. Although this is nerve-racking for both you and the student being asked to stay after session, it is the most surefire way to prevent problems from arising in the future. In the case of my problem with both dominant students, we came up with a signal for when they were contributing too much that I could use at any time during the session. This kept me from interrupting the session and allowed the other students to contribute.

Overall, the PLTL dynamic should be positive and encouraging. All students should feel welcome to contribute and their ideas should be well received by the group. If you take care to limit your dominant student's contributions as well as push your quiet students to contribute, then your session should run smoothly. Good luck with the rest of your sessions!

**Say My Name, Say My Name****By Rishi Patel**

By now the semester is probably in full swing. The students have all kinds of responsibilities they did not have in high school, they have just realized that they should be going to help sessions, and they are always preparing for the next midterm. The students are busy. Even two hours for PLTL become a chore. This is when the group dynamic can falter. A dominant student tries to take over to speed things up and others remain quiet and go along with it because everyone wants to leave early if they can. This is the time that you as the leader can try to make the session a little bit more fun and exciting for your students and encourage a friendly and positive group dynamic to control dominant students and foster participation from everyone.

First things first, I would make sure that the students know each other's names. You know by now that mentoring is not always just about the material but about working together as a group. And it can be surprising this far into the semester, but some people may still not know everyone's names. This adds a little bit of anonymity between students in the group, which can either lead to students being uncharacteristically dominant or quiet in the session. But overall, if everyone knows everyone's names, the general mood of the session will be more positive and discussion will improve. I would suggest another small icebreaker to test the students' knowledge of names in the group before your next session.

Next, I would encourage taking a break from in the middle of the session to talk about things that are not chemistry. A lot of the students have a lot in common since they are taking chemistry at WashU, but they are also very different. Try to tap into those differences to allow the group to recognize the diversity in their group. I know it sounds like I am just giving you suggestions about how to distract from chemistry in your session, but it is important to have some moments that are not spent staring at the problem set or the blackboard to create a more open environment that the students will enjoy spending two hours in. Then again, you should always modulate to the needs of your group, if it is a long



and difficult set, it would be advantageous to minimize breaks to get through the material with meaningful discussion.

All of these suggestions culminate to create a more lively and friendly micro community in your session. And they will double to serve as a means to foster equal participation. Imagine, when you study with a group of friends, you probably try to limit your dominance if you know the material to help others get a word out and you feel more comfortable to speak up if you are confused about the material. Try to create the same type of community in your mentoring session. Good learning will follow! Good luck!

**Don't Put a Ring on It****By Michael Xi**

It's different seeing things from the leader point of view, isn't it? Now that you're not as focused on the problems in the packet as much, you notice more and more things about the PLTL group. One of the most noticeable things tends to be the presence of a dominant student. You probably remember the type from last year; the one who always does the problem sets beforehand, has gotten all the reading down, and has fifteen pages of notes from last week alone. As a leader, you will tend to appreciate this student, as he or she will be the one to explain things to the others while you stand like a statue, holding back approving nods when they're right, and the occasionally shake of the head when they're wrong.

Dominant students are in every group, and they are not something you, as a PLTL leader, should like or dislike. Though they will pull the group up in many times of trouble, you cannot sit there complacently and let them do all the work. The reason we, as PLTL leaders, act as facilitators and not as lecturers is because we encourage the exploration and understanding of concepts, rather than the force-feeding of blunt knowledge. And while it is good to have an "ohhh" moment caused by the explanation of the straight-A student in your group, one has to be careful not to have the rest of the group only weakly attempting the packet and waiting for the strong student to explain and get the answers.

Therefore, no matter how tempting it may be to let the strong student lead the group, you cannot give the metaphorical ring (bad metaphor, I know) to any single student. You are there to promote the learning and discovery of each student there, and, to that end, you cannot allow the conversation to become single-sided. You might want to avoid having the strong student's group explain the more difficult problems, and you could specifically direct the probing questions at other students. As

you are a leader, feel free to gently urge the strong student to hold their thoughts for a little, to allow others to converse more freely.

However, it's not just about silencing the strongest so that everyone may learn and find out concepts equally. As a PLTL leader, you have great power at your fingertips, and you must harness the strong student's will and knowledge to the greatest benefit of the group. If you forget this and neglect him or her, you might find your group down a person. Making the strong student scribe is often a good move, especially if you can make scribe amusing. The strongest students typically also have the strongest grasp of the material's basic principles, and thus, asking them to explain those concepts as they are used in the simpler problems and having them put and explain equations up on the board will allow them to participate in but not necessarily dominate the group.

No matter how the rest of your group is, there will almost always be a dominant student somewhere there. Your job is to ensure this group will remain a PLTL group with the dominant student participating, not the dominant student with a group following him. While not an easy feat, you are a leader, and you must fearlessly maneuver the group and the problems to ensure that everyone is discovering and developing their understandings without simply skimming the surface of the concepts. You have the power, and you have the potential! Now go out and lead!

### Is My PLTL Group Haunted?

By Noah Eby



As the hour of your PLTL session strikes, your students begin to straggle in one by one, weighed down by overloaded backpacks and emanating exhaustion. The nervous excitement of the first couple weeks has worn off, and your students are now in survival mode. They have exams next week, a Writing I paper due tomorrow, and they haven't even started their WebWork. Chemistry has dropped to the bottom of their priority list, right below getting some sleep.

While it may seem like your once-productive PLTL group has been cursed, do not be afraid! The mid-semester slump is completely normal, and you are fully capable of battling this malaise. As your students become overwhelmed with exams, papers, and activities, several problems may arise in your PLTL group. You may see a drop in attendance, students arriving unprepared without lecture notes or without having attempted the problem set, and a general lack of motivation to complete the PLTL problems. Even your most active and proficient students may fall victim to the mid-semester slump, making your PLTL sessions grind to an unproductive halt.

As a peer leader, it is your job to help your students through the mid-semester slump, and there are many simple steps you can take to do so. First, a friendly reminder email the day before your session can encourage students to attend, especially if you entice them with a special snack. If a student misses a session, follow up with them by email to make sure they are okay and to encourage them to come to future sessions. This will remind them that you care about them individually and are invested in their success, which will make them more likely to want to come to PLTL in the future. Additionally, you can emphasize the importance of staying on top of the material by combining scare tactics with empathy. On the one hand, remind students that the material only becomes more complicated as the semester goes on, that cramming for exams will hurt them in the long run, and that PLTL is only effective if the whole group is prepared to participate. On the other hand, be compassionate in understanding how

stressed they are as first-semester freshmen. Tell them about your experiences in Gen Chem and what strategies helped you succeed in the course, and reassure them that you were once in their shoes and that they, too, will survive.

To keep your group energized, try mixing up the weekly routine. You can start each session with a different icebreaker activity, or take a five-minute social break in the middle of the session to give students a chance to recoup their energy before completing the packet. Snacks are also a great way to keep your students motivated, especially if you wait until the middle of the session to pass them out. Essentially, don't be afraid to spend a few minutes chatting or playing a game if it helps your students stay energized – it is better to have a motivated group working for a little less time than an exhausted group working the entire time.

While you help your students get out of the mid-semester slump, it is equally important that you do not fall victim to the slump. Your students rely on you to come prepared to PLTL, and they *will* notice if you are unprepared. It is important to use the time in PAM wisely, and to review the interrogative assignment before each session so that you are prepared with probing questions. Finally, don't underestimate the power of enthusiasm: if you come to PLTL smiling, peppy, and excited about chemistry, your students will catch on!

Be confident that you have all the skills and materials that you need to pull yourself and your students through the mid-semester slump, and while it may be a challenge, it will be well worth it in the end. Good luck!

**Say No to the Slump****By Savannah Est**

Ah yes. It's that time of year. The weather has started getting colder (and then sometimes weirdly warmer but then colder again), and you have started to grow tired of the enormous amount of work and pressure that is your daily life as a Wash U student. You have three midterms, a paper, and a research project due next week, and the last thing you want to do is put on an enthusiastic face for PLTL this weekend. Deep down, you love facilitating every week and your group is awesome, but this time you are just not having it. You are tempted to coast by doing the minimum without really preparing for the material and letting the students take care of things this week. My advice to you: **DON'T DO IT**. That little voice that says it's okay to slack off this week? Don't listen to it. Because you know what? Each of your students is hearing that same voice, and if you give in, it sets the example to your students that you can just give up when things get stressful.

One of the most overlooked parts of being a PLTL leader is that your students watch you much closer than you'd think, and even little things that you think they won't notice make lasting impressions. They're going to ask you study tips and life tips as well as questions about chemistry, so if you want them to listen to you, you need to live out what you're saying by example. If you come to PLTL unprepared and looking like you just woke up, your students are going to know, and I can guarantee your session won't be flawless. You need to be modeling good behavior, because as a leader, and especially a peer leader, your actions will be scrutinized, whether you realize it or not. During the mid-semester slump, your students are going to be tempted to skip class, and maybe even PLTL (gasp!). When they ask you if you ever skipped class, don't lie to them, but make sure they know it's not a beneficial habit. Likewise, just telling them not to do certain things or to do other things isn't really all

that helpful. You need to be explaining to them WHY skipping class puts you behind, and WHY it's not a good idea to put Gen Chem on the backburner when you have midterms in other classes. When your students hear you explain the logic behind the choices you're advising them to make, they will be much more likely to choose the right thing.

Your job as the PLTL leader is to not only be prepared to lead chemistry sessions, but to be refreshing and enthusiastic even when you don't want to, including during the mid-semester slump. In fact, during the mid-semester slump, you will probably need to be EXTRA enthusiastic to compensate for the low spirits of the whole group. A good way to do this is by bringing baked goods or a snack that week. I know, I know... you've probably heard it over and over again that bringing food helps your PLTL environment, but trust me—snacks are the real deal. Nothing says "I want to be here and I care about you" more than bringing something delicious that they can eat that you took the time out of your busy schedule to prepare. What's that? You say you don't have time because of the multiple exams/papers/Nobel Prize in Medicine you have to complete all by midnight on Thursday? Well, an easy snack to bring that gets students excited and takes almost zero time on your part is hot chocolate. All you need is to get some hot chocolate packets (Paws n' Go anyone?) and a hot water heater. Send an email out to your students earlier that week that both encourages them to keep up with the Gen Chem material and asks them to bring a mug to the next PLTL session. Don't tell them why! This will get your students excited for the surprise, which will not only lift their spirits, but will also motivate them during the mid-semester slump to be prepared for PLTL. Also, it will encourage them to keep reading your emails, which can be a great source of encouragement and accountability for the students later on. If you establish the precedent that your emails are important and keep sending them, this can be very beneficial as the semester progresses, because again, it shows that you value PLTL and each of your students enough to be thinking of them throughout the week. If you make sure your students know how much you value PLTL, you won't be surprised when they follow your example start valuing it just as much if not more than you do.

Finally, even though I've given you some suggestions on how to combat the mid-semester slump, it's still going to be difficult to put on that cheery attitude and put in the effort to be prepared for your session. Being a PLTL leader requires work, but the good news is that they didn't just pick any old chemistry student to be a PLTL leader—they picked YOU! You clearly have what it takes to be a great leader, so do yourself a favor and don't let yourself slump. Straighten up and get out there!



**School's Got Me Looking Like This****By Collin Nadarajah**

It's surprising how quick that feeling hits you: one day you're easily going through your classes, then the next day all you can manage to do is to hit the play button on Netflix. The mid-semester slump affects us all, no matter how resistant to it you think you are. After all, we need a lot of rest and relaxation after the "fun" of midterms week is over. You must remember that as a PLTL leader, your students will be going through these same feelings, perhaps even more strongly since this will be their first semester in college. However, there is a way to push through this haze and have a successful PLTL session.

The key starts with you as a PLTL leader. Your students will be very smart and incredibly perceptive. They will key in onto any perceived lack of motivation on your part, so don't give them a reason for them to do that. No matter how tired you feel, you must not let that show during the session. Stay upbeat and interested in your students and the material; don't just go through the motions, lazily going through the packet and not caring about what your students say or ask. You must be prepared just like every other week, which means paying extra special attention during the weekly PAM sessions. Even though these classes are on a Friday and you would like to be doing anything but that, it is your responsibility to be ready for the upcoming PLTL session. In fact, it would be a great deal of help if you prepared more questions to help guide your group during this period. Odds are your group, or what's left of your group at this time, will be fairly tightlipped and tired, so these questions will help facilitate discussion and make them more willing to talk. The worst thing that can happen is the dreaded extended periods of silence when people awkwardly hide their faces waiting for someone else to answer. The "probing questions" get people talking as well as helping deepen their understanding of the concepts, a win-win scenario.

On a more positive note, another way to help your students get over the mid-semester slump is to send out an encouraging email. They may be going through a tough time with all the exams and papers and the other rigorous demands of college life. Simply say that what they're feeling is normal and that they are at this school because they've shown they can handle the pressure. They certainly are smart enough and they just need to be reminded of it. Also, it helps to bring snacks to these sessions, because who doesn't love free food? It helps to have one member a week bring snacks so you can pass around a sign-up sheet at the beginning of the semester for all the future PLTL sessions. Another thing that my group liked was I'd bring snacks after particularly stressful periods, such as the first midterm exam or mid-semester. Simply bringing cookies, even pre-packaged ones, makes everyone's days a little bit better, which certainly helps the PLTL session run more smoothly.

Though the mid-semester slump seems daunting, it can be overcome. It may not be the most fun time to be a PLTL leader, but it is necessary to help your students through this challenging time. Keeping a positive attitude is essential and being prepared is key. If you take heed of these suggestions as well as any of the others that you will hear, you will have a very successful PLTL session. I wish you all the best in the coming semester.

**“Haunted”: The Perils of the Mid-Semester Slump****By Allison Rhodes**

Midway into the semester, you may notice that your PLTL sessions have started to be “haunted.” Less of your students show up to sessions, and the ones that do are like zombies: less prepared, less enthusiastic versions of their former selves. Low attendance and lack of preparedness and positive energy can greatly damage the vibe of the group. This can prevent the session from running smoothly and hinder learning. However, do not fret! As a former General Chemistry student yourself, you can anticipate this mid-semester slump, and with some minor preparations, you can help your PLTL students through this low-energy period.

The first thing to remember is that you must be a good role model for your PLTL students. As a student yourself, you may also have a full schedule with academics, extracurricular activities, and jobs. Preparing for your PLTL session may not be your highest priority as the semester progresses and midterms begin. However, as the mentor for the session, you must remain enthusiastic and well prepared; if your students sense that you do not value the sessions or are not prepared, they will not prepare either. You must set a good example, keep your attitude positive, and make sure to be organized and prepared. Organization can go a long way in assuring your students that the sessions will continue as scheduled, regardless of the energy level. In addition, as your students lose their enthusiasm and come to sessions unprepared, they may try to get you to give them extra assistance. Do not give in to your students, but direct them to their notes, and remind them how much easier it will be in the next session if they come prepared. This may seem harsh, but it will serve your students better in the long run. Keep up your standards, stick to the collaborative learning strategies, and encourage your students to prepare and live up to their potential.

However, one way to switch up the mood in an energy-low session is to change up the way that you run sessions. As PLTL starts becoming a routine part of your weekend and your students’, they may not put in as much effort as they did in the beginning, when the session was a novelty. To switch it up, you could try bringing a different snack to the session, or presenting the snack partway through the session at a low-energy point. Keeping your students well-fed will keep them happy and motivated. You can also modify the way you run the sessions by allowing your students a little bit more leeway with socializing. Your students are likely very stressed out at this point in the semester, and allowing them to talk to each other will let them see that they are not alone in their struggles with academics. In addition, because you are an older student who has been through General Chemistry before, your students will

look to you as a mentor. You should feel free to give the students advice about chemistry, but also about classes in general and about freshman year. Making your session exciting and reassuring your students will help to keep them excited about General Chemistry.

Finally, besides these in-session efforts, you can also contact your students outside of the session to remind them about class. Sending a friendly reminder email a day or two before the session is a good way to keep your students up-to-date and to keep things consistent. In addition, you can send individual emails to students who are not attending session. Individual emails are more personalized and show that you care about each student and that you are concerned about their lack of attendance.

You are not ever completely in control of your group dynamics, but by approaching the mid-semester slump with a positive attitude, lots of enthusiasm, and good preparation, you can help lead your group through to better days!

## Countdown to the End of the Semester

By Sam Schell



First of all, congratulations on reaching the middle of the semester! By now you no doubt know your group members fairly well, and have been working on obtaining the best group dynamics possible. It might seem like everything is going perfectly, but be prepared for that to change, because you have now entered the dreaded mid-semester slump. Fear not, for there are two easy ways to make it through this trying time. The first is to focus on your students and encouraging them even more than before (if that is possible), and the second is focusing on yourself and your preparation for the sessions. As long as you are prepared for the beast that is the mid-semester slump, there is no reason why you should not be able to defeat it.

Your group members have gotten through the first Chemistry test and have found out what it is like to take a class and an exam in college for the first time. Along with this, they have also no doubt found out that all Chemistry lectures are recorded and put online, so in their minds missing a class here and there is no big deal. Many students will miss a lecture or two and plan to watch it later before their PLTL sessions, but then have too much other work and come to PLTL unprepared. When this happens, it is important for you to make it clear you are aware of it and for you to encourage everyone to go to lectures. After all, PLTL is a time to reinforce and solidify concepts learned in lecture, and those who do not attend lectures cannot solidify what they do not yet have. However when you talk about the need to go to lectures, it is important that you do not come across as a scolding adult, but rather as a student who has been in their shoes and learned of the importance of going to lecture by making the same mistake. A mixture of sternness and encouragement is necessary to give your students the best opportunity to succeed, as is always the case when walking the fine line between peer and mentor.

The students aren't the only ones who have a lot of work during the middle of the semester, you do too. However, PLTL is a commitment that you made at the beginning of the year, and you cannot

slack off from your duties. During this time it is even more important that you prepare adequately for your sessions since you might have to deal with unprepared students, and if you are not prepared then your session will devolve into something ugly. I would suggest reading through the packet another time after PAM and going through the probing questions and deciding which ones to ask and when to ask them. This will ensure that your session will run as smoothly as possible. Furthermore do not be stuck in your ways, if something needs to change in your session, change it. By this point the students might be getting bored of PLTL, they have already made friends and do not need to make any more good first impressions, so if you need to you can switch up seating, bring snacks, or allow the students a brief period to socialize to ensure that they are engaged when they are working on the problem set. You are the leader of your session and there is not one right way to lead a session, so experiment with changes you think might work well.

Finally, do not be worried about the changes that you will see in your group and do not be afraid to use your authority to nip anything negative in the bud. Although you may want to be that cool PLTL leader, occasionally using your authority is the best way to help your students on their journey through Chemistry.

**Who needs a degree when you're schoolin' life? The Mid-semester Slump****By Sarah Turecamo**

It's that time of the semester; everyone is sick, the work seems never ending, and attendance to class and PLTL seems to be more optional. Unfortunately, the mid-semester slump is a seemingly unavoidable phenomenon that has the potential to dampen your group's dynamic and work ethic that you have created in the last few sessions. Fortunately, as Beyoncé reminds us, your persuasion can build a nation, or at least it can save your group from slumping too hard.

The most important thing you can do to help your students avoid the mid-semester slump is to hold them accountable for their own work and learning. Although you have spent the past couple of weeks establishing a good group dynamic and creating a positive, fun environment, it is important to remember that you are still the leader. As the leader, you must enforce the rules that you established at the beginning of the semester, including coming prepared to each session. It may be tempting to let the rules slide for a session or two, but if you let students show up without watching lectures or trying the homework once, they will quickly fall into that habit. It's easier to cut your students some slack when it comes to preparedness, but you should remind them (and yourself) that PLTL is a team effort and when one member of the team falls through, it affects everyone. As a mentor, you should offer some of your own advice about how to maintain motivation throughout the semester and what you did to keep up. Also, don't be afraid to motivate them by offering up a horror story about your friend who fell 10 lectures behind and had to watch them all before the exam (we all know it happens).

Since you are their leader, your students will look up to you. Like queen Bey, you should use your power to inspire others and lead by example. Although we run this world as PLTL leaders, it is still possible for us to fall into the mid-semester slump. Although your students may have reached a point where they are able to run the session almost entirely by themselves, you still need to stay engaged with the material and come prepared to every session. The group will feed off of your energy, so if you seem tired or unprepared, your students will reflect that attitude through the session. I found it helpful to prepare my probing questions during PAM with the other mentors to make sure I had plenty of questions to ask. Also, to keep myself motivated to be the best leader I could, I reminded myself why I chose to be a leader in the first place and tried to bring my enthusiasm for PLTL and gen chem to each session.

My sessions started to get a little repetitive and tedious during the middle of the semester so I tried to spice it up through a few different methods. Although it may seem small, changing up who your

students work with in small groups can provide a lot of new energy to the group. Also, you can modify a problem solving strategy to do something new, such as using a talking stick for round robin or switching scribes throughout a problem. Of course, food helps the energy problem too, especially if it's something sugary.

Don't be afraid to address the slump issue head on and send motivational emails to your group before each session to ensure that they come to each session prepared with lecture notes and enthusiasm. As you push through the mid-semester slump, remember that your group can be as *\*flawless\** as Beyoncé, with encouragement and motivation from each other and from you.



**Crazy in Love with Collaborative Learning Strategies from Psychology****By Will Freeman**

As the year begins to trek on, you may find yourself wishing you didn't have to use the group strategies that seem to appear in random fashion throughout the packet. It can be quite time consuming to set up your group differently for every question of the packet and you may find yourself wishing that you could just leave your kids to hash out the problems among themselves in any way they see fit. However, while this style of management may be easiest for you, and allows your Queen Bey to shine, it doesn't give any of your other performers a chance to shine. The collaborative learning strategies have been matched to each problem to give all of the individuals a chance to learn, so don't ignore them.

Now, while it may seem like I don't appreciate group work, the opposite is true. Group work is essential to learning many of the PLTL problems, whether it be large, small or partner group work. However, these groups must be managed effectively to ensure everyone has an equal chance to learn from each problem. At the beginning of the semester, I would begin group work by randomly pairing students throughout the classroom but I soon found that this could be problematic. Often I would wind up pairing one of my very strong students with one of my weaker or quieter students. These groups often turn into one-sided conversations as the strong student works through every part of the problem and doesn't let the other student contribute much, if anything, to the solution. You can easily remedy this problem however, by pairing your strongest students together and your weaker students together. It would go against the nature of your dominant students to let someone else finish a whole problem, and the awkward silence between weaker students will get them all contributing small pieces toward the answer.

The situation gets more interesting when you have everyone come together for scribe. In my group I always had trouble finding someone to volunteer, and when someone did, it was always the same person. Then my dominant students would throw everything they knew into the problem and leave the rest of the kids behind. I finally figured out that the best way to fix this problem was to call on a scribe every time, more often on my dominant students. When the dominant student is at the board and can't speak, your weaker students will have an easier time of answering. If you have more than one strong student in your group, then think about switching up who's writing at the board in the middle of the problem. This works especially well to involve weaker students because the dominant student at the board has to come back and copy what they just wrote on the board while the new dominant

student has been silenced. You may still have to call on someone to get the problem running, but usually once one kid pipes up, others will as well.

For a lot of leaders, round robin tends to be the hardest strategy to facilitate, but I found that in my group it was very similar to scribe, with the main problems being lack of participation, and over reliance on a dominant student. With the strategy calling for no one in particular to contribute some arbitrary measure of information to the solution, it can be very easy for your group to silently shut down and let the dominant students bounce back and forth until the problem has been solved. I also found it didn't work well to have an established rotation for contributions, such as moving in a circle around the table. For my group, this just meant that they could contribute one small factor to the problem, and then they would have a whole rotation to solve the problem alone on their own packets. They weren't learning anything new this way, they were just moving through the problem. To keep this from happening, I decided to have each contributor write his or her step on the board and then toss the marker to someone else, popcorn style. This forced everyone to keep their heads up and engaged because no one wanted to get smacked in the head by a flying dry-erase marker. It also helped all my kids to see how the solution to the problem was growing up on the board.

With all these subtle changes in mind, it might be easy to get overwhelmed. You might be thinking, "Incorporating all of these strategies at random was hard enough! Now I have to micromanage every single one of them?" Try not to worry too much about them though, because the changes don't have to come immediately. You have to take time to evaluate your group and find out what works best. Every group of students has a different dynamic that needs different accommodations. Just don't be afraid to adapt the collaborative strategies to your session in order to ensure everyone has an equal opportunity to contribute, and you'll find that your session tends to run itself in the end.

**Diamonds may be a girl's best friend,  
but collaborative learning strategies are the next best thing**

**By Soumya Gogia**

If ever there were a moment that a leader actually had to use the maximum waiting time for students to answer a question, it followed “would anybody like to volunteer as scribe?” If you’re lucky, you may get a bit of nervous laughter in response. As you might remember, most PLTL students have a bit of a love/hate (leaning towards hate/hate) relationship with the collaborative learning strategies: pairs, round robin, scribe, small groups, and large group. However, these strategies are an essential component of PLTL and its philosophy of participation and group interaction. Not only is it important to follow the collaborative learning strategies assigned to each problem, but also to explain their importance to your students and be able to adapt them to a group’s particular learning style. While these strategies may cause your students to pout and complain, hopefully with time and some careful crafting of the strategies to meet their learning needs, they’ll learn that “nothing’s perfect, but it’s worth it” after fighting through their tears.

As with most things PLTL, one of the most important ways to get your students on board with the collaborative learning strategies is to set up expectations in regards to the use of these strategies from the very first session (and to continue upholding these expectations throughout the semester). Your students are much more likely to follow the strategy of pairs or small group if they understand the strengths and purpose of each strategy rather than if they assume you have chosen the strategy on a whim. As the PLTL philosophy is also introduced on the first day, this is a good time to have your group make connections between the structured approaches they will be using for the rest of the semester with the PLTL philosophy as a whole, and reinforce the expectation that they will participate, contribute, and cooperate to the group’s learning as a whole.

That being said, there are often times in which students are unwilling to cooperate with the strategies and as a consequence, the overall goals of PLTL group learning. Scribe, as mentioned before, can be quite difficult when students are unwilling to volunteer for the job or when the students up at the board often attempt to solve the problem themselves. Some ways to combat these issues are to offer to take notes for whoever will be scribing so they don’t feel like they’re missing out on getting the notes, and by encouraging your scribe to take on the role of a “kindergartner” so that the other students are also prompted to be thorough in their explanations. With round robin, it’s important to emphasize that students need only share a small amount of information and to ask other people to contribute if

only a couple students are going back and forth with a discussion. In pairs, it's important to mix things up between dominant and shier students; perhaps by deliberately assigning pairs certain times and by making it random other times (for example, ask them to pick a number 1-10 and group students whose numbers were closest together). In large group, it's also important to make sure that this strategy doesn't devolve into small group, with only some members participating.

Your students may initially encounter all of these struggles with the collaborative learning strategies, but hopefully with time will grow to understand and appreciate them. To expand their learning and challenge them to work together, it is really important to apply the strategies despite the tension and discomfort, and hopefully adapt them in a way that makes your group more likely to embrace them. Who knows? With time, your students may grow to love the collaborative learning strategies enough to even put a ring on them.

**Choosing a Scribe: You've Been VolunTold****By Matt Jotte**

Although as leaders we grow to become Crazy in Love with Collaborative Learning Strategies, the students in your group will most likely not see eye-to-eye with you. If you're in the same position I was, you're fresh out of your own PLTL group and maybe aren't a huge fan of the learning strategies. But keep in mind that they exist for a reason – they really do help facilitate the session. I found that humor made it easier to incorporate the strategies, as a positive group atmosphere made the students much less resistant to them.

At this point the semester may be far underway, but hopefully in the first session you emphasized the point of sticking to the recommended strategies throughout the problem set. PLTL is all about team learning, which is why the strategies are oriented around teams. There are no "individual" styled problems in PLTL because one of the main goals is for students to gain additional problem-solving skills by seeing how their peers approach the problems. Unfortunately, not every student agrees with this mindset. Some will proceed ahead individually regardless of where the group is, some will over-dominate the discussions, and some will refuse to participate at all. Part of being an effective leader is using the collaborative learning strategies to overcome these obstacles, so make sure to stand behind them.

Pairs is quite an effective strategy because it allows you the chance to split up dominant students, pair quiet students together so they are forced to talk, and mix up the seating in the room. I always made an effort to have different pairs each time to allow students to hear multiple perspectives of problem solving, so keep that in mind when assigning pairs. Pairs also allow you to gauge the level of understanding of the students, as it will be obvious when one student is not participating.

Small group is another effective strategy, especially to emphasize teamwork. Use this to your advantage! Keep the groups dynamic to allow a variety of learning types to come together, and experiment with different combinations to find which groupings promote the best discussion.

Round robin is slightly more difficult, if only because students either refuse to participate or try to say too much. I altered round robin slightly for my group, in that I used this strategy to call on the quiet students who would otherwise not participate, rather than letting the handful of dominant students take the whole problem. This just goes to show that just as the pairs and small groups should be dynamic, so too are the learning strategies (within reason, of course). I found that round robin is also a good way to incorporate probing questions, as there is usually a small pause after each piece of information is given. Always keep it varied though – don't call on the quiet students too much or they might feel singled out, and the other students might feel ignored.

In my experience, scribe was the hardest strategy to effectively implement. Either no one would volunteer, or the student who had clearly skipped class all week would volunteer to avoid doing any work, since the scribe is not supposed to speak. I scribed for the first week or two, but there comes a time when the students should participate. In my sessions, when no one would volunteer I would simply give the marker to a student and jokingly tell them that they've been voluntold to scribe. Scribe also provides a great opportunity to encourage quieter students to speak, especially if a dominant student is a scribe.

Although the students may be opposed to the learning strategies at first and try to persuade you to not use them, they exist for a purpose and are designed to help the group. Use them effectively and to your advantage, and hopefully your students will also grow to become crazy in love with the collaborative learning strategies.

### **Collaborative Learning Strategy Tips**

**By Jeffrey Rosenthal**

First off, congratulations on becoming a PLTL leader! Being a peer leader is an invaluable experience and you will hopefully grow as an effective leader and communicator. Even if your first session did not run smoothly, or as you would have liked, you have a whole semester to perfect your ability as a leader. Leading as a facilitator and not as a mentor is a difficult task that requires practice. I hope that these tips regarding the collaborative learning strategies make this process a bit easier!

Many peer leaders will admit that the collaborative learning strategies presented in the PLTL packet are often cumbersome and seem difficult to implement for some questions. However you will realize soon enough that these strategies do indeed encourage the students to engage in thoughtful discussion, and are intended to be used on specific types of problems for a reason. In my opinion, the easiest strategy to facilitate is pairs. During pairs problems split your students up, allow them 10-15 minutes to work on the problem depending on the difficulty and length, and then bring the pairs together for a large group discussion. As I'm sure you've been advised already, make sure to change up the pairs so the students have the opportunity to work with other students of all levels. Additionally, friends tend to sit next to each other but may not necessarily work efficiently together. While the students work on the problem, walk around the room and approach each pair. Some pairs will undoubtedly be behind others, and you can target specific probing questions directly at the slower groups so each pair finishes on time. This allows all of the students to finish at the same time, and also provides guidance that only certain students need. I would recommend remaining out of your seat until each pair is nearly finished and then bringing everyone together. During the group discussion, ensure that no one has any questions before you move on. And as usual, if you are directly asked a question, redirect it to the group. The same approach can be applied to the small-groups strategy.

The scribe strategy can be a little more challenging to implement as a leader. However, during scribe problems, all of the work gets placed on the board so you do not need to worry about students being lost or not following the solutions. Usually scribe questions involve graphs or drawings, so make sure to select different scribes that have neat handwriting, so the group can clearly see what is being written. Also some students tend to volunteer for scribe more than others, so do not be afraid to assign students to be scribe or create a rotation so that all students have the chance. Additionally it is perfectly acceptable for you, as the leader, to serve as scribe. I actually prefer this strategy for certain problems, as all of the students are able to pool their thoughts together. As scribe you simply need to write their

ideas on the board without contributing to the solution. If the group is heading in the wrong direction, do not stop them! One of the best ways to learn is from your mistakes. Write what they say on the board and allow some time to pass. If the students do not correct themselves after a few minutes then follow up with probing questions that will guide them the right way.

The last collaborative learning strategy is round robin. For these problems, do whatever you need to do to make sure that students do not work ahead. This can be done by limiting the group to one pencil or by requiring all of the work to be written on the board. Be strict in defining the rules of round robin and also make sure the students know that a small contribution is a sufficient contribution. The students will feel more willing and comfortable to participate. I hope these tips helped and good luck!



**Collaborative Learning Strategies Can Do What No One Else Can****By Christina Tsai**

Congratulations on making it successfully through the first few sessions! You have made it past the hardest part of starting your first PLTL session and getting the students acclimated to working together in groups. Now the hardest thing is to keep the students invested in the session, and that means using the collaborative learning strategies effectively. You might still remember them – Round Robin, Scribe, Small Groups, and Pairs. Each method has its pros and cons, and will appeal to the variety of students you may have in your group. What is important to understand is why and how they might be useful in your session, and how you should implement them.

One of the most difficult strategies you will have to use is Scribe. Oftentimes no one will volunteer to be the scribe, so you could either assign a dominant student to be a scribe to allow quieter and less confident students to have an opportunity to contribute without feeling shut down every time, or you could be scribe yourself, especially on very long problems. That way, the student that would have been scribe will be able to feel like they understand the problem without getting lost or bored while putting work up on the board. Another suggestion is to switch in multiple dominant students throughout an especially long problem. You may or may not have to consistently reinforce the fact that the scribe cannot talk and can only write down what others tell them to – it is easy for the students to forget this as the semester goes on. Another problem you may run into is when all the students start talking over each other at the same time. You can run Scribe in a similar fashion to Round Robin, where you go in a circle and ask students to contribute one at a time.

Round Robin is another strategy that sometimes takes some creativity to make it successful. There are several ways to approach Round Robin. One way to start Round Robin is to start to the right of a dominant student and then move clockwise. That way the dominant student is theoretically the last person to talk and will not finish the entire problem in one turn. Always, always stress the importance of anything that everyone contributes and encourage students to contribute even when they want to pass or are not completely correct. The goal is to maintain and create a safe environment where everyone feels comfortable talking; after all, mistakes are also a way to learn. That being said, do not be afraid to politely cut off a student if they start to work through the entire problem on their own. That way, both quiet and dominant students can equally contribute to the conversation to create a more leveled learning environment.

For Pairs and Small Groups (depending on how many students you have in your session at this point in the semester), always make a conscious effort to switch the students up. That way the same students are not always working together and each student will work with all of their group members. This will make them much more comfortable working together as a whole in the other collaborative learning strategies. Small Groups and Pairs are useful because they allow for more face to face interaction than Round Robin or Scribe might where the entire group works together. This will also force the students to reinforce their understanding of concepts discussed in lecture and recitation. After the small group or pair finishes the problem, walk around to make sure they do not work ahead individually, and also ask different groups probing questions to test their understanding of the problem. It may be helpful to pair quiet students and dominant students in separate groups. That way the quieter students are forced to collaborate and contribute in order to finish the problem, avoiding the dominant student who may take over the group dynamic. After all the groups or pairs finish the question, bring the entire group back together to discuss the question and have them put their work up on the board. Sometimes it is helpful during small group to have the groups come up to the board to work on it at the same time, if your room permits it. This takes the group focus away from their papers and to the board.

Remember that for all these strategies, all the work should be clearly written and explained on the board at all times. Always double check with every student in the group to make sure they understand the concepts involved in the problems, and if it is a particularly difficult question, don't be afraid to ask a quieter student to summarize how the problem was solved. As the semester progresses you will become much more comfortable with these strategies, and if a strategy does not seem to be working effectively for a specific question, judge the situation and see if you can somehow combine learning strategies. Best of luck!

**“Got me hoping you’ll save me right now  
Looking so crazy in love’s,  
Got me looking, got me looking so crazy in love.”**

**By Julia Xie**

As a student, you probably did not feel so crazy in love with collaborative learning strategies. However, as a PLTL leader, you will learn to gain a whole new appreciation for them.

Pairs and small group are both strategies that you can use to encourage equal participation from everyone. By pairing together the shyer students, they will be more likely to discuss the problem with one another rather than just watching the more dominant students solve the problem. Furthermore, pairing different students with one another in the first few PLTL sessions will create an inclusive environment where everyone can feel comfortable participating.

Scribe is a strategy that is often followed by complaints from the students. One reason students are hesitant to volunteer as scribe is because he or she may feel like they are missing out on key points brought up during the discussion. It is often helpful for the PLTL leader to offer to take notes for the scribe on what the other students say in addition to what is being put up on the board. Scribe is also a great strategy to help deal with dominant students. Because the scribe is not allowed to participate in the discussion, assigning the dominant student to act as scribe provides an opportunity for the rest of the group to create discussion.

Round robin is a collaborative learning strategy that helps promote participation from every student in the group. When a student seems confused or stuck figuring out what the next step in solving a problem should be, you can encourage the student to talk about the larger concept addressed by the problem. This provides a review of concepts discussed in class and allows everyone to contribute. The struggle with round robin is the tendency for students who work at a faster pace to work ahead alone. To prevent this from happening, you can ask the group to think about different ways to approach the problem. This will force the group to work on the same problem together.

Collaborative learning strategies if used properly maximize the benefits of group work. No wonder every PLTL leader is “looking so crazy in love.”

**Superpower****By Isabelle (Izzy) Carbone**

I want to start this essay by saying something that will seem very simple, and maybe even a little bit obvious, but I think is the most important lesson you can learn from this section of the SAM book: Being a Peer Mentor is about so much more than just helping your students learn chemistry. Your students come to every session to learn complex and challenging chemistry concepts, but there is so much more that they can, and want to, learn during their time with you. As a Peer Mentor, you have the opportunity to teach your students effective study techniques, to give them advice about how to not just succeed, but thrive in science classes, and also to encourage each of them to have a growth mindset.

As students taking the first semester of Gen Chem, most, though not all, of your students are probably freshmen. As such, they are still trying to figure out not only how to adjust to college life, but also how to study for all of their classes, including Gen Chem. This is where your role as peer can come into play. As a fellow student who recently took chemistry, and as a mentor, you have the capability to help your students make a smooth transition. The very first chem mentoring session, I spent the first few minutes talking about the course in general in attempt to assuage any fears my mentees had based on Gen Chem's reputation. I talked about what helped me the most throughout my first semester of Gen Chem and also told them some lessons I had learned while taking the course that I wish someone would've told me when I enrolled in the class. Then, throughout the semester at key points, such as before the first quiz, before the first exam, and in the middle of midterms when they felt overwhelmed by the amount of work from all of their classes, I suggested study techniques that worked for me or for other peer leaders as well as strategies to help them stay organized.

An easy way to brainstorm strategies to pass on to your students is to spend a few minutes thinking about and discussing with others what specific study strategies not only worked, but also did not work for you and why. Then, either discuss these strategies at the beginning of your next session if you are a Peer Mentor, or ask what works best for each of your students as an icebreaker if you are a PLTL leader. As an older peer, your students look up to you and will listen to you. You can further encourage your students to study effectively by modeling good study habits by showing up to your sessions well prepared and also by encouraging each of your students to have a growth mindset.

As part of your role as mentor, encouraging your students to have a growth mindset will not only set them up for success in Gen Chem, but in all of their classes at Wash U. The main idea of a growth mindset is to emphasize a focus on mastering the material and improving one's personal understanding of the concepts, rather than focusing on results and grades. Many students who attend to Wash U did incredibly well in high school and are not used to being as challenged as they will be in a course like Gen Chem. As a result, many of your students may start to feel discouraged when the concepts discussed in Gen Chem don't come to them as easily or if they don't do as well as they expected on a quiz or exam. They will be frustrated and want to compare their grades to others. Try to steer conversations away from grades not only because it does not encourage a growth mindset, but can also create divisions within the group. Instead, focus conversations on how each student can individually improve and also congratulate them when they understand a particularly difficult concept they had been struggling with. This positive reinforcement and focus on personal growth will motivate them to keep working hard even when the material covered in class gets more difficult. As a peer and a mentor, your positive motivation as well as advice about Gen Chem, and school in general, can help your students develop confidence in their abilities as well as help them develop a strong work ethic.

As a Peer Mentor or PLTL leader, you have so much more to offer your students than chemistry knowledge. You are a role model for them, they look up to you, almost as if you have superpowers. You can help shape their success in both Gen Chem and in their studies at Wash U in general. You can also offer an understanding ear when they are most stressed. Offer empathy and advice during the toughest parts of the semester and you will not only make your students feel better, but you will also build trust. That trust and cohesion can improve group dynamics so that future sessions are more productive. Being a peer leader means being both a peer and a mentor to your students. Both roles are equally important and both roles can help your students individually as well as help your group as a whole become even more cohesive and productive.

**A Student beyond the books****By Pooja Jairam**

As a PLTL leader, your first priority of course is to act as a mentor in session and ensure that students gain the problem-solving skills that they need to be successful general chemistry students. In addition to encouraging them to spend a lot of time understanding chemistry concepts rather than memorizing, also spend some time on the growth mindset. There may be a few students in your PLTL section who do not have strong high school chemistry and physics backgrounds, so they may struggle with the material. It is your responsibility to make sure that they do not give up on the material and that they realize that if they put time into learning the material, they will eventually be able to gain a thorough understanding of the material.

It is essential to discuss this growth mindset early on in the semester as well as at later points throughout the semester. This is important because students need to be reminded that even if they are not able to do their best on the first few exams, they still have the ability to grow during the course. If you had any personal experiences struggling with the course at first, then it is important to also mention these to your students, because it will help them put their own struggles into perspective.

Your next priority as a PLTL leader could also be to act as a peer. Your students may be going through/recovering from traumatic events in their life that they may not tell you about. Thus, it is your responsibility to make sure that you do not assume certain things about your students. Each student has their own story and their own reasons for studying general chemistry, but this should not impair your ability to give each student equal priority.

Furthermore, a few students may feel like they are obliged to work a lot of the time in order to keep up with everyone around them and to keep up with their own personal standards. However,

maintaining a balanced life in college is essential because it will prevent burnout. Ultimately, there is a lot more to college than the grades that you end up with, so if you talk about these ideas with them early on, they may start to incorporate them in their lives.

A great way to prevent burnout and to maintain a balanced life is by engaging in group activities. If your students are not already in groups, encourage them to join groups that are related to their interests because there is a group out there for everyone. In addition to participating in group activities outside academics, students can also have study groups for General Chemistry. It is difficult for students to grasp all these higher level chemistry concepts by themselves, and group discussion encourages them to dig deeper into the questions they are asked.

Remember that these freshmen are experiencing a whole new world – so tell them what you would have wanted to be told!

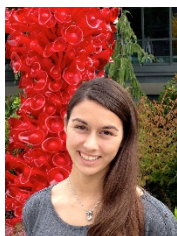
**PLTL Leader for Chemistry...and College Life!****By Samir Kaveeshwar**

When you first envisioned what your job would be as a PLTL leader, I'm sure you probably focused mainly on the facilitating chemistry learning aspect of it, as you initially should. Of course, this should be your priority during this first semester of being a PLTL leader, and what you should be focusing on during SAM class—how to improve your overall ability to facilitate the student's group learning of the week's chemistry material. However, as you will soon find (or have found out through experience or in SAM), one of the major parts of a successful and effective group is one in which the environment is friendly, open, and conducive to group discussion which can thus help with the students' learning of General Chemistry. Therefore, this begs the question—how does a PLTL leader go about helping make the environment as positive and helpful as possible?

Of course, you should be as friendly as possible to your students during session, being ever mindful of the diversity present—not just in terms of religion, ethnicity, etc., but also in their individual learning speeds and styles. This is crucial for helping group discussion—each student is different in how they can take in the material presented to them in this tough and challenging course. One of the most important things to remember that may be obvious but is nevertheless significant is that just because you succeeded in the course, doesn't mean that your students will succeed necessarily with the same ease. However, more than just being friendly in session to make this environment conducive to group learning, you must realize who you are really “leading.” An extremely large majority of your students (and General Chemistry students, for that matter) are first-year students who are entering a daunting time in their lives, and, perhaps, are experiencing one of the most difficult transitions of their life. As you may easily remember, we were all (at one point) thrown into college life and thrust, in our first year, into this challenging chemistry course. Many of your students will not know how to properly study for college courses. Many will need a confidence boost, and not be used to lowered grades (remind them of adjusted cutoffs and curves!). Thus, in one sense, it is important to be a PLTL leader not just for General Chemistry, but also for college life in general. When you get to session, you'll find that you won't naturally immediately start with Chemistry problems exactly 10 minutes after. This is your prime opportunity to discuss their transition, offer advice, provide motivational speeches for the upcoming chemistry exam, etc. When you see your students outside of class, don't ignore them—see how they're doing, ask them how the exam went, and provide general advice and answers to the questions they have that you can answer.



Your students will ask you a variety of questions that, chances are, you probably had when you were in the first position. When the first exam comes up, they will most probably ask for study strategies and how to go about preparing. Remember, your advice can be extremely helpful to them, for it obviously helped you succeed in the course. Perhaps the greatest “advice” you can offer to your students are “motivational speeches” before exams. To many, the prospect of taking the first chemistry exam is daunting, so it is important to stress that proper preparation will lead to positive results. More importantly, stress the significance of improving—if they do not perform as well as they wanted to on the first, their goal should be improvement on the next couple of exams. Ultimately, as a PLTL leader, it is important to acknowledge the significance of helping your students in both the chemistry and general college life sides to the job.

**'Cause the truth of the matter is replacing you is NOT so easy****By Samantha Kelly**

So maybe at this point, your students have figured out some of the ropes of college classes and living on campus in general. Or maybe you still pass by and see them in the cafeteria still not understanding how the lunch lines work. Either way, it is important that when they come to PLTL they feel that you genuinely care about their transition into college. As a Peer Leader/Mentor, you are not only there to facilitate the sessions but also to be a role model and resource for your students.

You have a year or more of college underneath your belt, but your students are just as scared and nervous about the college transition as you were. For the most part, your students have been taken care of by their parents or guardians up to this point and now it is their first time on their own. They're not only trying to figure out what a laundry machine is or how to wake up on time for classes, but they are also freaking out about whether or not they are good enough students to be at the school they are at, if they will make friends, and who they will be in the future. Tell me you didn't have those same fears then or even to some extent now? As a Peer Leader/Mentor part of your obligations to your student is to help them through the college transition and support them through the change. This can easily be done by just stopping and saying hi to your students when you see them around campus or offering advice when it comes to how to choose classes, meet professors, or most importantly RELAX. Help your students see that although academics are important, there is more to college than just grades and course work.

All semester I hope that you have been emphasizing the fact that there is always room for improvement, because growth mindset is often the key to success. Think about the classes you did well in and those you did not. How many of the classes that you did NOT do well in did you think that the material was either a "you know it" or "you don't" with no grey areas? It is important that your students learn to have confidence in the fact that they are capable of improvement. Will everyone improve so far as to become the next Stephen Hawking? No, that's pretty unrealistic, but everyone can improve relative to his or her own starting point. It's essential that your students begin to build confidence in

themselves and not compare themselves quite so much to their peers. These are not easy lessons to try to teach or show by example, but my hope is that in trying to show your students the importance of these lessons they become more instilled in your mindset as well.

Lastly, and what I believe is most important, is to tell your students that grades do not define who they are. I'm sure that you had and still have a fear of making anything less than an A (I know I still do), but grades will never define you as a person. Albert Einstein once said, "Education is not the learning of facts but the training of the mind to think." Problem solving sessions and peer mentoring sessions are not meant to just be a way to access more problems to practice for the class. These sessions are meant to teach your students how to problem solve and how to begin to think for themselves.

So to close, never forget that you are a role model in and outside of the session. Your students truly do look up to you and look to you for advice. So be prepared and be genuine, and good luck my fellow leaders.

**Irreplaceable****By Itzel Lopez-Hinojosa**

As a PLTL leader it is important to help them through their personal development as a learner and to help them gain the confidence in their intelligence. Often throughout the semester, you will find that they will stagger and doubt their own ability. It's hard to believe in oneself when one's measure of intelligence is based on grades. Even though, it probably has been some time since you remember how it felt to be a freshman; coming from being a big fish in a little pond to being a little fish in a big pond. Most of the time, our high schools were not as challenging as we found it to be here at WashU. As a PLTL leader it is often easy to remember how you felt as a freshman, but it something that must not be forgotten. It is needed in order to be able to connect to them. It's important that not only do you help them go through the problems and help them understand the content but to be able to understand where they are coming from and be there as a support network for them to believe in themselves.

Throughout the semester, you should strive to build a sense of community among the students to work towards instilling a sense of confidence. In the beginning of the semester they will look towards you for the answers, but the goal is to look towards each other, and for each student to be responsible not just for their own learning but for the learning of others. This is done through many different techniques. For example, making sure that each student feels like they are adding something to the learning process can be done through making sure that each person gets a chance to speak. Going around in a circle to make sure that each student gets a chance to contribute is important. But as PLTL leaders it is your job to go beyond that. When students contribute a piece of knowledge regardless of how small it is important to verbally confirm their contributions. Saying phrases like, "that was a really good point, that's a very different way of looking at it and offers a new perspective on what we learned, thanks for sharing" really builds rapport between the PLTL leader and the student. It may seem like

something so minimal and that requires little effort, but it is honestly something that the students notice. It truly makes an impact because it makes them feel listened to and appreciated.

Self-disclosure is another important practice as a PLTL leader. This often is paired with growth mindset. Many students will walk out of their first test feeling defeated and accepting their fate as a poor General Chemistry student. But it doesn't have to be this way. It is during this time that you can create a space that practices vulnerability on your part and demonstrates the prospects of growth mindset. They look up to you and they are very aware that in order to be a PLTL leader you received an A in the course. Therefore hearing from you that you got a poor quiz grade, did below the A cut off or even the mean on the first exam, then it brings them hope that they can also achieve what you did. As you share your Gen Chem narrative make sure to talk about how your mindset affected you and the things you changed in order to make sure that you achieved your goal. But most importantly, you need to let them know that you still believe in them, there are more points left in the semester and ultimately this grade does not define them. In fact, they define themselves by how they choose to react to this unwanted grade. If you feel comfortable, let them know that you are there for them to talk about it, to plan a course of action to do better in the class, or to redirect them to someone that can.

At the end of the day, you are a resource that they can tap into throughout the year to help them through their challenges and to guide them. Don't forget that it is the little actions that count; telling them about your own personal struggles, letting them know that you still believe in them, and verbally affirming when they contribute are all key things to guiding a student in believing in themselves.

## Helping Students UPGRADE their Mindsets

By Daisy Ogede

The primary role of a PLTL leader is to facilitate students in their journey through the course of General Chemistry. However, in order to effectively help students reach their fullest potential, a PLTL leader must understand that the transition into college for many freshmen can hinder their academic performance. The relationship between a PLTL leader and his/her students is a very important component in the effectiveness of a PLTL session. To address the issues that can arise from the high school to college transition, I recommend leaders to continuously provide your students with study and time-management tips. Additionally, to help alleviate the academic pressures that students experience, reinforcing the growth mindset idea can encourage students to stay motivated and eager to learn.

The majority of general chemistry students are freshmen; this means that in addition to taking a very demanding course like chemistry, they also must learn to skillfully juggle academics, extracurricular activities, friends, and the basic duties of living like eating and sleeping. Because PLTL leaders are students, we are in an advantageous position to help them do well in the course by assisting in their transition into college. I decided that during my PLTL sessions before and after a midterm exam, I would designate five minutes to offer my students some study tips that have helped me in the course. This seemingly small action has shown through my experience to strengthen the leader-student bond and show the students that they can use their leaders and classmates as a support system.

One of the toughest lessons that freshmen learn entering into college is that some of the best students are the ones who can learn and grow from academic setbacks such as an unfavorable exam score. PLTL leaders can help students learn this lesson by introducing students to the growth-mindset idea. Growth-mindset centers on the notion, backed by research, that intelligence is not a predestined state and that effective work, not talent, produces favorable results. Incorporating the growth-mindset idea into your pep talks with your students before and after exams will keep your students encouraged and participatory during sessions.

There are many external factors that affect a student's academic performance. An effective PLTL learner is one who is able to acknowledge those influences and address them appropriately.