

Appendix F Science Posse Partner Teacher Handbook

Partner teachers are an important component of the Science Posse's success. Collaboration between partner teachers and Fellows provides classroom experiences and helps Fellows hone their presentation skills. We appreciate your participation!

This handbook provides information and suggestions to facilitate a successful partnership. Please remember: Science Posse Fellows are selected in part because of their potential to be future leaders in their fields: They are not planning to become K-12 teachers nor is it the Science Posse's intent to encourage them to do so. In ten years, they will be university faculty, managers in industry, entrepreneurs, and government employees who will know how to work effectively with teachers, are interested in doing so, and will encourage others to join them. Moreover, they will be a generation of new leaders in scientific fields who have experience in and are passionate for community and school outreach. Perhaps most importantly, they will have the ability and the drive to communicate the importance, impact, and meaning of the work that they do.

What is Expected of Science Posse Fellows?

Science Posse Fellows have many hats to wear, and as a consequence, Posse Fellows easily average far more than 40 hours of work per week. Here's why:

- Wearing their Science Posse Hat: In addition to the work they do with you in the Partner Teacher project, they are also responsible for conducting lab tours on campus and for traveling to schools across the state which means spending time developing and perfecting their lessons, coordinating visits with teachers and the other Fellows, completing journal entries and activity tracking and traveling to the far reaches of the state. Science Posse Fellows also plan, organize, and present multiple science summer camps in June for students along with the teacher workshop professional development in August.
- Wearing their Graduate Student Hat: Along with spending approximately 20 hours per week on their Science Posse responsibilities, the Science Posse Fellowship requires the Fellows to make progress toward their degrees. This means they are also full-time students pursuing degrees in math, science or engineering who are taking courses, doing research or both. In addition, they also work on grants and other projects for their advisors AND deal with:
 - Comprehensive Exams, (The name differs from discipline to discipline. 'comps', 'prelims', 'qualifiers', etc.). No matter the name or format, students have a fixed number of attempts to pass each exam. If they do not pass, they must leave the department without a degree. Because of the consequences, Fellows probably will be more stressed than usual when taking these exams.

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- **Completing and Defending their Dissertations:** The final hurdle is, of course, writing and defending their dissertation, which again is a stressful time.

Studying to pass these exams and writing a defensible thesis is part of what we pay Science Posse Fellows to do. These hoops are critical, stressful times in the lives of STEM graduate students, and their successful completion has a high priority for the Fellows. This may mean they are not as available during these times as they usually are, and your patience and understanding during this time is much appreciated.

- **Wearing their Everyday Life Hat:** In addition to their graduate student and Science Posse hats, graduate Fellows are also normal every day people who have a life outside of school and Science Posse. Some are mothers or fathers, some are searching for jobs, planning a wedding, working with the ski patrol or racing snowmobiles. They need time, just like you do, to have a life outside of school or the Posse!

What is Expected of Science Posse Partner Teachers?

Responsibilities

- With a team of Fellows, develop a plan for integrating the Fellows' expertise into your classroom.
- Make time for Fellows in classroom as necessary throughout the semester.
- Coach the Fellows as they develop their classroom skills. (Remember, they have limited experience in classrooms and limited pedagogical training.)
- Assist Fellows with lesson development and implementation.
- Work with Fellows to produce a 'product' - the form/nature of this product is flexible and should be cleared with the coordinators.
- Meet with Coordinators monthly.
- Complete surveys required by the Science Posse's evaluators at the Wyoming Survey and Analysis Center (WYSAC) and the Science Posse's funding agency, the National Science Foundation. (NSF).
- Complete feedback surveys on the Fellows after every classroom visit.

Expectations

- Maintain discipline among students in your classroom.
- Work constructively with the Don Roth, the Principle Investigator, Coordinators, Fellows, and other Partner Teachers.
- Communicate ANY concerns to the Coordinators as soon as possible.
- Prepare students with sufficient pre-teaching knowledge and skills.
- Evaluate learning by students at appropriate stages of the project.

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What is Expected of the Partner Teacher Project:

Each Science Posse Fellow will collaborate with one or more of the Science Posse's partner teachers during the school year.

- **Goal:** The goal of partner teacher projects is for an interdisciplinary team of Fellows to develop their abilities to design and present inquiry-based lessons (or series of lessons) in a partner teacher's classroom(s). This benefits:
 - The teacher by increasing their content knowledge and providing lessons to do with future classes;
 - The students by providing them hands-on innovative classroom activities to enhance their learning and opportunities to interact with actual scientists to see that scientists are real people;
 - The graduate Fellow by helping them to develop new and better ways to communicate key ideas from their research and their field.
- **Description:** Partner teacher projects take place during the fall semester. Graduate Fellows regularly go into the partner teachers' classroom and teach. The exact nature of these projects varies depending on grant requirements, graduate Fellows' interests, and the semester's curriculum. During the spring semester, there will be some form of follow-up on these projects. This could take the form of continued classroom visits or the development of curriculum for future use, or something else entirely. For example, during 2009-2010, the teams collaboratively wrote articles for publication in the National Science Teacher's Association journals.

Hints for a successful Partner Teacher project:

You are your Fellows' introduction to the K-12 classroom (which most of the new Fellows haven't been in since they were students themselves) and to teaching students at your level!

POINTS TO KEEP IN MIND:

- You will need to coach your Fellows in adapting to school culture and norms including telling them about signing in at the front office, etc.
- Remember that most of the Fellows have absolutely no experience in the classroom before joining Science Posse. You will need to help them become comfortable and confident in working with your students.
- Coach your Graduate Fellows in teaching to reach all students. This can be frustrating for them if they feel they are explaining things as clearly as possible and some of the kids just are not getting it. They need to learn to adjust how they communicate according to the level of the kids and their abilities. You have a major role to play in helping them do that. Two areas that have been helpful to Fellows in the past have been:
 - Finding analogies to things the students know really helps clarify points.

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- Being specific about defining/explaining vocabulary and repeating the definitions throughout the presentation.
- Be conscious of the role of the Fellows in your classroom.
 - They are not student teachers or classroom aides. Have your Graduate Fellows in the classroom only when he or she will really make a difference.
 - On the other extreme, your Graduate Fellows should not be expected to develop lessons and teach them by him or herself. They do not have the training to do that, and it doesn't make the best use of their talents.
- When you plan with your Fellows, please follow the plan. Grad student obligations can vary greatly from week to week. If they have an especially heavy week coming up, they may not be able to respond to a brand new idea that needs lots of researching. Give them time.
- Having your students take notes or complete a journal entry about what they learned from the Science Posse is a valuable way to provide the Fellows direct feedback on the main points the students got from the lesson.
- Check your e-mail frequently! All scientists, mathematicians and engineers use e-mail as their main communication method. If you do not read your e-mail for days at a time, you are likely to miss opportunities and frustrate the heck out of your Graduate Fellows if they are trying to get information from you. Please check at least once a day and more if you can.

GETTING STARTED

First Meeting Day (This will be the Friday of the Science Posse's Teacher workshop. New Partner Teachers are required to attend the workshop as part of their contract. All partner teachers are required to attend this initial meeting.)

- Ask what prior classroom experience your Fellows have and also what their ideas and expectations for the classroom experience are.
- Address any concerns your Fellows have about being in the classroom.
- Go over the lesson planning outline with your Fellows to be sure you and they all have the same understanding of what it means. This will help them in their planning and help you in giving them feedback after the lesson.
- Discuss specific days and times that work for you and your Fellows to be in your classroom, and compile a schedule.
- From this schedule, decide on specific dates for the semester. Schedule a few at a time, or the entire semester - whatever works for you and your Fellows. (Be flexible, especially if you are outside of Laramie.)
- The Fellows' first visit should allow them to try out their Career/Research talks which will introduce themselves, their interests/hobbies, and their research to your classes. These will include a "fun" hands-on activity as well.

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- This works well all on the same day if you have multiple classes the Posse will be working with.
- Make sure your class knows who and what the Science Posse is and why they are coming to your classroom.
- Make an outline of the lessons/content that the Posse will prepare for the class.
- Discuss what your "product" will be, when you will work on it, and communicate that to the Coordinators.
- Choose a "product" that you all will have equal roles in and that will build upon your Fellows' strengths, but remember that you are ultimately the one responsible for its completion.

Second Meeting Day (Before they actually come into the classroom.)

- This day is optional, but helpful to the Fellows - especially if they are new!
- Review the Career/Research Talks that the Posse is doing for your class, and any subsequent lessons that are already planned
- Practice/run through the Career/Research Talks and lesson and give the Posse feedback. Remember this may be the first time they have ever been in a classroom, so help them with timing, and basic teaching tips (see below)
- Make some suggestions on delivery style, knowledge level of the students etc. based on the initial presentations.
- Don't be afraid to ask the Posse to help teach lessons you already do or to suggest lessons and activities for them to look at and possibly expand on.

TIPS FOR LESSON DAYS:

- Make sure your students have nametags.
- Encourage your Fellows to start with a "hook" on these days to get the kids engaged. (They may need help with this or you could do the "hook" and then turn to time to Fellows.)
- Encourage the Fellows to move around the class when the kids are working, talk to the kids, smile, and have fun! (This is huge. It helps if they can see you doing this even if they are teaching a lesson or leading an activity.)
- Remind them that you will take care of discipline, and make sure you do! This is not the Fellows' job - they have enough to take care of.
- Make sure you leave about 5 minutes at the end for review and closure of the lesson. Use this time to answer questions, or relate the lesson to their lives...

TIPS FOR HELPING FELLOWS IN THE CLASSROOM:

- Remember that most of the Fellows have absolutely no experience in the classroom.

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- Meet with your Fellows after each lesson so you can discuss how it went. Make recommendations that can help them improve for the next lesson.
- If lessons are not working out, review the basic lesson planning outline with your Fellows.
- It also helps if you can give them an idea about the level of your students and some prior knowledge.
- Don't be afraid to add input during the lesson, for example if a Fellow asks a question about something you know your students know you can give them prompts that will help them come to the answer. You can also ask questions that will help the Fellows bring lessons back to topic if students get off topic.
- Do be careful, however, not to take the lesson away from the Fellows.

TIPS FOR DOING VIRTUAL/CYBER LESSONS WITH ELLUMINATE:

- If you are working with the Posse through Elluminate, set up a practice time with the Posse Fellow, you and a person from your tech department, to do a practice lesson using the Elluminate program before the first day you use Elluminate with the students. This will help to work out any audio and visual problems that may occur due to incompatibility with the software, etc.
- Setting up multiple screens is helpful too if the Fellows are including a PowerPoint in their presentation. Set up a screen to show communication with the Fellow and then run the PowerPoint presentation on the Smart Board.

FINALLY, if there are problems with your partnership, do not wait until things get unbearable before telling the Project Coordinator about it. We want you to be happy and satisfied with your experience. If there is **ANYTHING at all** that is bothering you, contact the Project Coordinators and tell us. The worst thing is to have something festering for a long time so that when it comes to a head, it is a mess. We want to help.