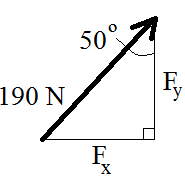
**High School Teacher Roundtable Discussion**

*Moderator:* Bree Barnett Dreyfuss

**1. Knowing your audience:** A “general Physics” class can look very different from one school to the next. Look at the grade level of your students, their transcripts and class schedule to get a better idea of their academic level. The same general concepts are taught from freshmen to senior students and to Advanced Placement or honors students. The difference between the expectations can perhaps be most easily seen in the form of a question given to each class:

*Advanced Placement or Honors:*



Four firefighters hold a square net, one at each corner. Each person exerts a force of 190 N whose line-of-action passes through a point just below the center of the net and makes an angle with the vertical of 50°. What is the net force the firefighters exert on the net?



But the net Fx will be 0 as 4 forces working in two opposite pairs will cancel out each other, and the 4 vertical component will add,



*General Physics:*

A piano of mass 987 kg is being pulled up to a third story window from the street. If the piano accelerates at a rate of 0.6 m/s2, what force must be applied?



*Conceptual Physics:*

Two students are playing tug-of-war. Sally pulls left with 45 N and Kumar pulls right with 55 N. The mass of the rope is 2 kg.

1. What is the net force on the rope? *Show GUESS.*

**G U E S S**



1. What is the acceleration of the rope? *Show GUESS.*

**G U E S S**



**2. Getting the best bang for your buck:**

*Not every piece of work from your students’ needs to be graded by you*. Let me repeat that:

*Not every piece of work from your student’s needs to be graded by you*.

There are several strategies for the grading of student work that can alleviate your workload:

1. *Stamp student work and have them self-correct it.* You can check it off later, either for simply having the stamp, being complete or for accuracy.
2. *Use TAs!* TAs can grade off of a rubric or simply check it off. If you go over something in class to insure the students know the right answer, it is not as important that they wrote it down originally.
3. *Use group work!* Students often work well in small groups or pairs for problem solving (see other strategies below) and it cuts down your grading automatically. I often say “one paper, two names” when assigning group work.

*Group strategies:*

You want your students to practice problems with you there to help them. There are many ways to assign practice problems:

1. *All together now!* When the practice problems are on a new topic or may cause students difficulty, it may be best to go through the problem together. **But,** make sure that students are still involved in the problem by calling on different students to explain what the next step would be, do a calculation, etc.
2. *Two papers, one name.* By pairing students (either in student chosen or teacher chosen pairs) students work through the problems together. These can be collected and graded for accuracy or make the rubrics available for students to check before they turn it in. Have them go back to their seats and correct themselves until they have the right answer and then they turn it in. *This also saves you from having to correct it; you can just check it off for participation*.
3. *Relay race: ready, set, go!* Take the practice problems you want students to do and cut them into strips. Color coding or number the strips so that students can easily tell the difference. Tell students that they have to get through a certain number of the total number of questions *but* they have to be right. Make the number of problems that has to be complete doable for all students; not just the high achieving students. Students work in groups or pairs and complete one problem at a time. They have to check the rubric or with the teacher before getting the next one because it has to be right before they can move on. Award a prize (extra credit points or candy) to the top three teams.
4. *If you know it, teach it.* Students working in groups or pairs have to complete one problem and know it well enough to teach the class. Students can either solve it on the board or on an overhead to be shared with the class. This can also be adapted so that the *students* write the problem that they have to share. These can be easily graded as the students present to the class.

**3. How to handle adjustments & learning curves:**

There will be times that something you decide on *does not work*. You are human; it will happen. When it comes time to change a decision, how you do it will depend on the repercussions of that change. BIG changes in policy or an assignment should be explained. If there is a reason you are changing the policy, tell your kids. Try making major shifts at natural breaks in your curriculum like the start of a new term (quarter or semester) or a new unit. Your students have not been through your class before, act like the change is planned.

There are not many things worse than making a mistake in your class. Sometimes even simple calculation mistakes can become a big deal to your students and can shake your confidence. Shake off the little things; saying “oops!” and admitting it goes a long way. Try passing it off like you *meant* to make the mistake to see if they would catch it. Your biggest prevention against mistakes is preparation. If you make a new worksheet, assignment or test make a rubric before you make copies and read through it carefully. If you don’t, undoubtedly there will be a mistake. If you assign reading to your students, look over it yourself because if they ask a question about an example or picture you’re going to want to know what they were talking about. The more you research a topic or problem, the more comfortable you will be with it and the easier your lesson will be.

**4. Discipline:**

Everyone will have their own discipline plan that works for them but it takes some time to get there. Different courses often have different discipline plans as the needs vary with level. Below are common consequences that you can use:

* Student stands outside for a few minutes (have brief talk before letting them return)
* Student is sent to another classroom for the remainder of the period (pre-arrange a “partner teacher”)
* Have student stay after class or after school (detention):
  + for a set amount of time (think “time out”)
  + to discuss the student’s behavior
  + to clean desks or lab benches or other dusting
* Parent(s) are emailed or called by the teacher:
  + Repeat contact until the issue is resolved
* Have a meeting with the parent(s) and student (meetings with just parent(s) are not as productive)
  + Repeat contact until the issue is resolved
  + Work together to create a “Behavioral Contract” for the student that has consequences at home for bad behavior at school
* Student calls parent(s) to explain why they’re getting in trouble
* If participation points are offered for the day the student loses points
* Have the student write an apology letter to teacher or another student
* Change the student’s seat (maybe even assign a special, isolated seat)
* Don’t allow the student to participate in fun labs or field trips.
* Teacher writes a referral for the student:
  + Student goes to the office for the remainder of the period
  + Student has detention with the teacher
  + Student has school sponsored detention

Avoid discipline that involves additional work; you will unintentionally equating work in your class with punishment. But sometimes turning a group or a teacher led activity into an individual “pop quiz” is beneficial. Use your resources: contact other teachers that have had the student for background on what worked for them; contact their counselor or dean or vice principal.