Welcome to Room D4

- **AS Physics P 1 & 2**
- **Physics P 5 & 6**

6:50 - 7:00	0 Period
7:05 - 7:15	1st Period
7:20 - 7:30	2nd Period
7:35 - 7:45	3rd Period
7:50 - 8:00	4th Period
8:05 - 8:15	5th Period
8:20 - 8:30	6th Period

Mr. Lee Trampleasure

- 1st year at MAHS
- 20+ years as an educator:
  - Last two years at Sacred Heart Cathedral in SF, ten years at Carondelet HS in Concord; teaching Physics, AP Physics C, Physical Science
  - One year at Lawrence Hall of Science writing physical science curriculum for SEPUP.
  - Nine years at Berkeley HS: Physics, Chemistry, Integrated Science, Yearbook, …
- BS Physical Science, CSU Hayward (East Bay)
- Regular presenter and attendee at local and national physics educator conferences.
  - Recipient of the Homer L. Dodge Citation for Service to the American Association of Physics Teachers

Physics and Modeling Instruction

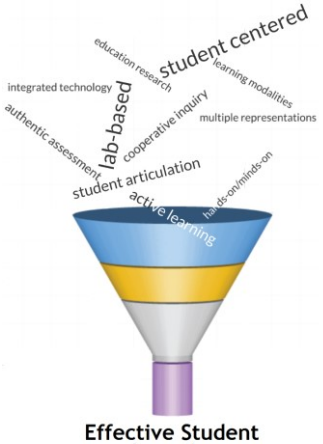
Modeling Instruction was developed at Arizona State University, and has been in use for over 30 years.

We emphasize graphing, equations, and written descriptions as a means to look for trends in physical phenomena.

The curriculum addresses the needs of students whose math skills may be on the weaker side, *but also challenges those who are strong in math*. Many Modelling students find the repeated use of graphing helps them to understand math better than they did in math class.

But,

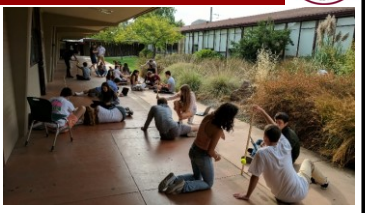
Modelling is not "watered-down" physics, and students should be prepared for a rigorous college-prep science course.



Effective Student Learning

AMTA
American Modeling Teachers Association

Physics and Modeling Instruction



A sample modeling cycle:

1. Observe the ball bouncing.
   - "The ball bounces lower than its drop height."
   - "The higher you drop it, the higher it bounces."
2. Challenge:
   - Using only a meterstick and a ball, predict how high the ball will bounce if dropped from 1.5 and 6.0 meters.
3. Develop an experiment to find the relationship between drop height and bounce height.
   a) Drop the ball from ten different heights; record the bounce height from each.
   b) Graph the results, extending the trend (graphically and mathematically), and predict the bounce height from 1.5 and 6.0 meters.
4. Test the prediction:
   a) 1.5 meters give good results with all balls.
   b) 6.0 meters gives mixed results, most bounce significantly lower than predicted.
5. Conclusion: Most balls exhibit a constant relationship between drop and bounce, up to a limit. **"No model is perfect, some are useful."**

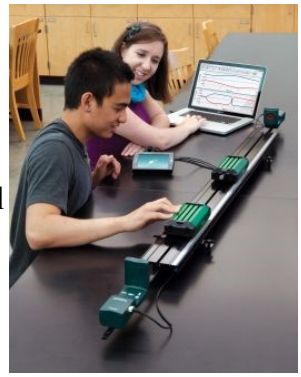
AS Physics

AS Physics is designed for students who have an interest in science and are willing to delve deeper into the concepts, as well as to focus on how math connects to physics.

- We emphasize analysing the uncertainty in measurements, a skill that is valuable for those students who continue in science.
- The course does not use calculus, but when calculus connections can be made, these are made briefly to help those students who are taking (or will take) calculus make the connections between the physics and calculus.

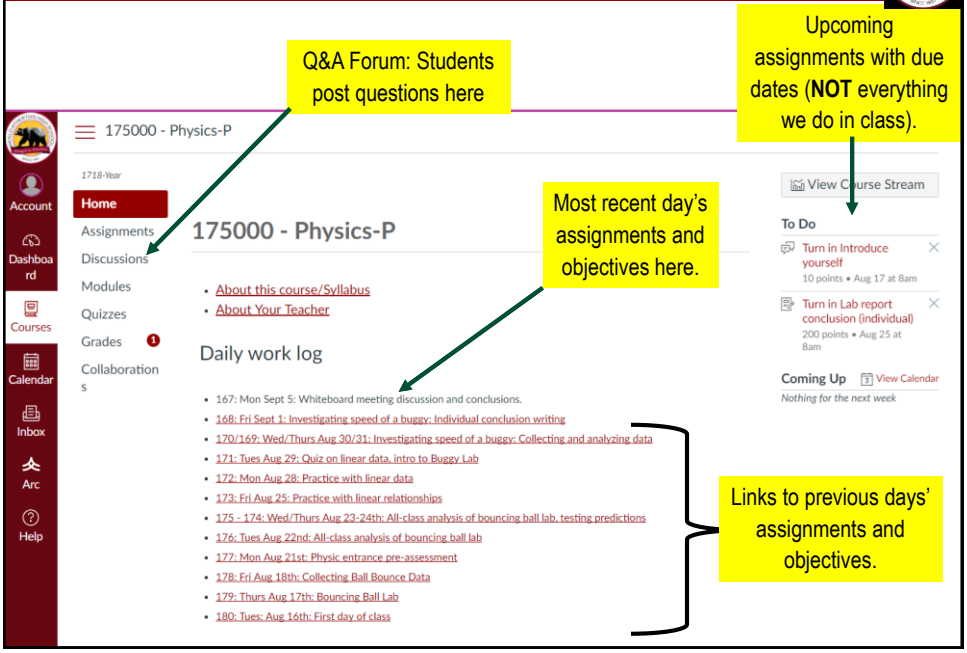
Physics and technology

As science has evolved to using more technology, so has science teaching. *But we still do some things "by hand."*

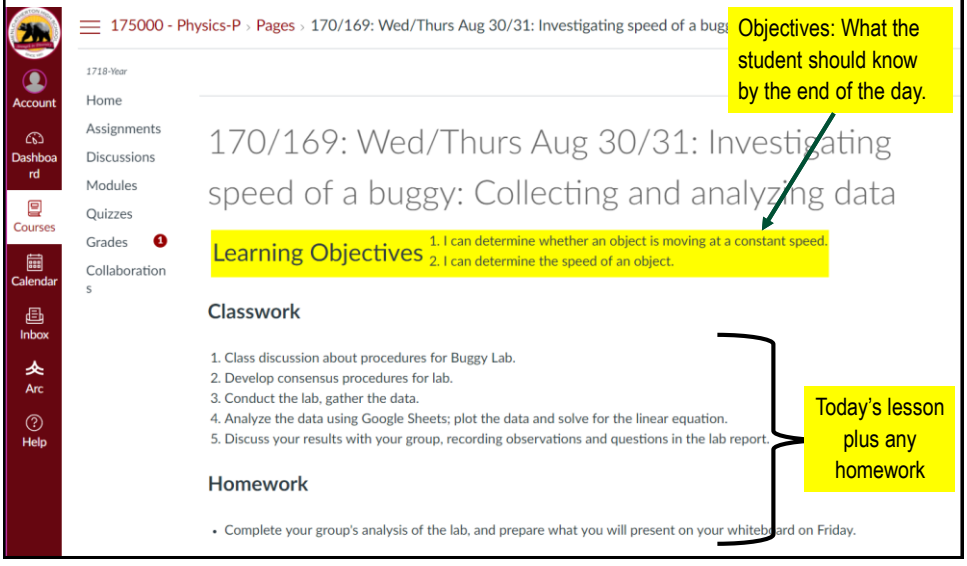


- Lab 'books' are online. Students collect data in shared Google documents, which they call contribute to (and we can check in Google 'revisions' if some kids are contributing).
- After analysing lab results with their group members and the class, each student writes an individual conclusion.
- Low tech lab: The bouncing ball lab used metersticks and the ball only.
- High tech lab: The buggy lab used video on phones to collect data for time and position.s

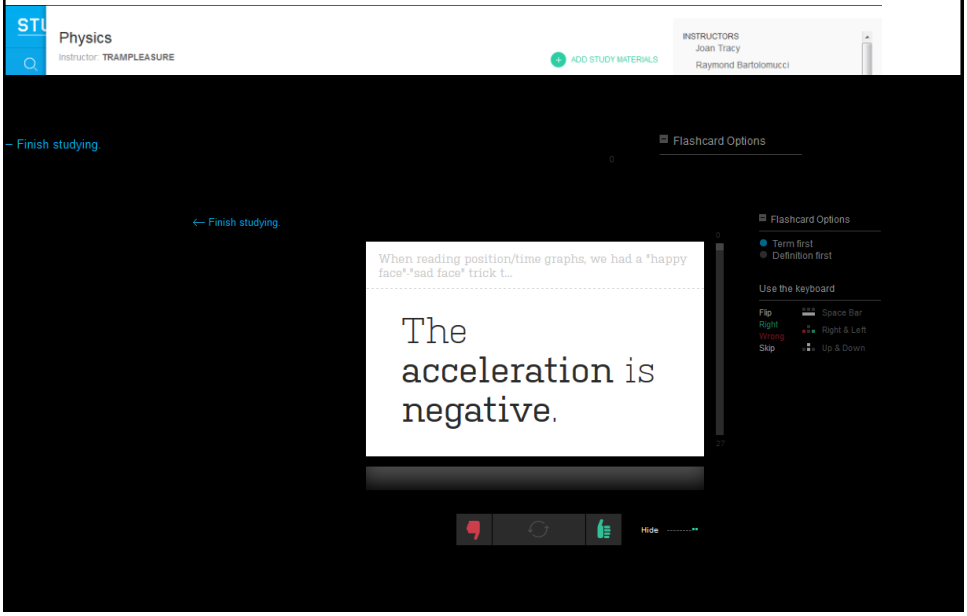
Canvas: Physics Home page



Canvas: Physics Daily Class Assignment



Study Blue Flashcards



How to monitor your daughter/son's work

Yes, they are (mostly) seniors. You (and they) are probably ready to have them on their own…but…

Please monitor your daughter/son's **preparedness** for class—Can s/he find all her physics notes and handouts for you tomorrow night?

Before you pay for a tutor, make sure your student has spent some one-on-one time with me.

Thank you

My personal science education blog:

trampleasure.net/lee

I'll add this presentation there, in case you 'missed' anything.

Need to reach me? Email is best, but school voicemail will also work.

Thank you so much for attending.