

Workshop 2    *2:00-5:00 PM*    Room 270 F

All workshops require preregistration and cost \$10. Please email Don Donovan ([ddonovan@thayer.org](mailto:ddonovan@thayer.org)) to reserve a spot. You may pay when attending with either cash or a check made out to NES\_AAPT. If space permits, on site registration would be available, too.

**Three workshops for the price of one!**

Mark D. Greenman; Marblehead High School

(First hour) **Interactive Lecture Demonstration: An alternative for limited budgets.**

An Interactive Lecture Demonstration is an 8-step process that has been demonstrated to improve concept learning of science ideas. The Interactive lecture demonstration process was developed by Dr. Ron Thornton at the Tufts center for excellence in math and science education. The 8-step process can be used to replace and/or supplement simple lecture based instruction or lecture-demonstration instruction. ILDs have also proven an effective alternative to full class laboratories especially where budgets are limited.

In this presentation, the ILD process will be modeled for teaching ideas in physics and data will be offered to demonstrate the efficacy of this process.

(Second hour) **Quark Rummy – The Quest for the Nobel Prize.**

Your students use a Rummy-like card game to learn about the formation of common Baryons and Mesons. Participants are guided by rules of color and charge to combine quarks into Hadrons. This is a student centered fun activity that teaches basic rules for Hadron formation. Templates for all game pieces and game cards will be shared with participants.

(Third hour) **Estes Rockets - Project Oriented Activity**

Students use a force probe to obtain real-time impulse graphs for a variety of Estes engines. They then use their knowledge of kinematics and dynamics to make predictions concerning acceleration, velocity and altitude performance for rockets they build and launch. Go home with an exciting hands-on project-oriented activity that will facilitate and extend the learning of dynamic and kinematic principals involved in projectile motion.