The National Science Teachers Association 2008
by Glenn Davison

"Forty-one percent of those surveyed believe in ghosts. I believe in the magic of kites." That was how I began my presentation on March 30, 2008 to the National Science Teachers Association at the Boston Convention and Exhibition Center. My topic was, "Using Kites as an Educational Vehicle" and I haven't heard of kites ever being presented at this level before so I feel it was an honor to be invited to such an important event.

My goal was to deliver a presentation that was heavily laden with science. I have delivered this presentation to the Science Teachers Association of New York State and to the New Hampshire Science Teachers Association. I worked hard to make sure that everything was ready because I feel that good results come from thorough preparation. Specifically, I prepared a class outline for me to follow during the session complete with timing cues. I also prepared a class summary sheet for the teachers to take home for future reference.

After the class began, I briefly explained the depth and breadth of the world of kites today.

I asked the teachers if they were using kites in their classrooms and a few, but not many, said yes! Two or three were building Eddy kites and one was building Tetra kites. One said that he used kites to explain the Bernoulli principle. Aha! I thought. Another teacher buys Dollar-store kites for her youngest students to fly.

During class I attempted to be clear, accurate and occasionally humorous.

My demonstrations included lift, drag, weight, gravity, strength of materials, air pressure and air movement. I blended them all together with a diagram that summarizes the forces that act on a kite. The diagram of forces allows me to explain why a kite flies. Then I flew a few miniature kites and related a mini Hargrave kite to the weather experiments that were done using 5' and 8' kites to lift weather instruments at Blue Hills Observatory around 1915.

I explained that when we were young we were taught about "Bernoulli lift" but this has lost favor because kites are now considered to rely on the action-reaction model described by Newton.

I had prepared materials so I built an Eddy kite in less than 2 minutes and used it to explain a "long line launch" (this should always be covered in every kite presentation.)

After class the teachers formed an orderly line (and there was no gum chewing allowed) while I gave each teacher a mini kite to take home.

One teacher remarked that what I had called a "ball of air" was actually a "ring" like a smoke ring that is shot from an Airzooka air gun. This is true and that's what allows it to move through the air. I thanked him for the insight.

Another teacher challenged my statement about the Bernoulli theory of lift. He was the one using Bernoulli to explain the flight of kites. I explained that the important part is angle of attack where Newton's third law comes into play. It is more important than Bernoulli lift. You can do this in an experiment yourself: Put your hand outside the window of a moving car. (Then pull your hand back into the car to avoid telephone poles.) If you turn your hand so that it's at an angle to the wind you'll feel the palm of your hand getting a strong "push" causing your hand to rise. You won't feel a strong "pull" on the back of your hand. The push is Newtonian lift.

After class I had many teachers thank me for an excellent presentation and one Principal invited me to Puerto Rico to visit her school. Every feedback form said that I should be invited back next year.

Two teachers told me that I did a superior presentation and one said, “I really thought yours was the most entertaining and useful presentation of all the five workshops I attended.”

When visiting a classroom there are so many aspects of kiting to convey including the sport, art, craft, history, materials and science.

If you visit a classroom to talk about kites, I encourage you to use the techniques and physics demonstrations described on my web site, http://classroom.kitingusa.com/

It’s fun to share the joy of kiting and visiting classrooms means that there will be more kite fliers in the field.