

April 10, 2006

Society of Physics Students
Blake Lilly Prize Committee
One Physics Ellipse
College Park, MD 20740

Dear Sir or Madam,

Earlier this semester, the SPS chapter at Mississippi State University (MSU) graciously received the Marsh W. White award. This award has allowed our SPS chapter to begin establishing a strong outreach program that has been desperately needed in the region around Starkville, Mississippi, where our university is located. When researching schools around the area to determine which age group to focus on, we, unfortunately, discovered that the majority of high schools in the area do not offer their students any physics classes at all. The schools that do offer physics, however, lacked sufficient funding to supply their classrooms with proper equipment and demonstrations. For this reason, we decided that our Marsh W. White project would have us bringing physics demonstrations to these resource-poor high schools in east-central Mississippi.

Our physics demonstration 'show' consists of ten different demos, covering the areas of classical mechanics, electricity & magnetism, thermal physics, and optics. The purpose of these experiments is two-fold: to introduce to these high schools students ideas and concepts of physics they have most likely never seen and, with our highest hopes, to spark enough interest in a few of these students that they eventually want to study the subject of physics. For these reasons, we chose demonstrations that were both exciting and thought-provoking. A few examples of our demonstrations include 'the electric pickle,' 'the jumping ring,' 'the flying mirror,' and various experiments dealing with liquid nitrogen.

Simply put, the participating members of SPS had no idea how much positive feedback we would receive. When first visiting these resource-poor schools, our SPS members (pessimistically) did not expect to have much feedback from the students in these schools; by the end of the first demonstration show, we were overwhelmed. Our first show consisted of a group of 49 high school students alone, and when a demo would come up that required a volunteer, there were few hands that were not in the air wanting to be picked. These students were not only interested in what we were doing—they wanted to know more! Moreover, they truly showed their interest by maintaining their high spirits about the demos even though they were in an extremely over-crowded (standing room only) and hot room (and stayed an hour after school for the show). After the demo show was over, an assortment of questions was thrown at us. A few examples of these questions are shown below.

Where can we buy those handboilers? (*we gave away handboilers as prizes*)

Why does the pickle smell like burnt hair? (*referring to our 'electric pickle' demo*)

Is space really empty?

How long would it take to freeze your hand in the nitrogen?

The most common question, to our surprise, though, concerned when we would return to their school with more demos. It was clear we had established a relationship with this school and sparked a long-needed interest in physics. By the time we were done cleaning up the room in which we performed the demos, the high school teacher, who happened to be a biology teacher, was collaborating with us on helping him obtain some of the demos and even on establishing a physics class at his high school that he wanted to teach!

Pictures from one of our high school visits have been included. Descriptions of each picture can be found on pg. 3 of this packet. We have also included a few examples of feedback forms the high school students completed after our visit (pages 4-6) .

Altogether, MSU's newly-developed physics outreach program has been a great experience so far for all involved. We truly believe this program has benefited the students we have reached out to, the high schools teachers we have collaborated with, and, finally, our own SPS members. We look forward to continuing this program for many years to come.

Sincerely,

The Society of Physics Students, Mississippi State University
Department of Physics and Astronomy
P.O. Drawer 5167
Mississippi State, MS 39762-5167

Description of Pictures

Picture 1 - 'Moment of Inertia Rods'

As is the typical case, we gave each of these two students a rod of the same mass. However, the mass of the guy's rod is further from the center of the rod than in the girl's rod. This was a funny moment in the show, for after telling the students to rotate the rods as fast as they could using one hand, the guy pictured here really thought the girl was out-muscling him. He tried and tried to rotate his faster and even got help from one of his friends before giving up.

Picture 2 - 'Jumping Ring'

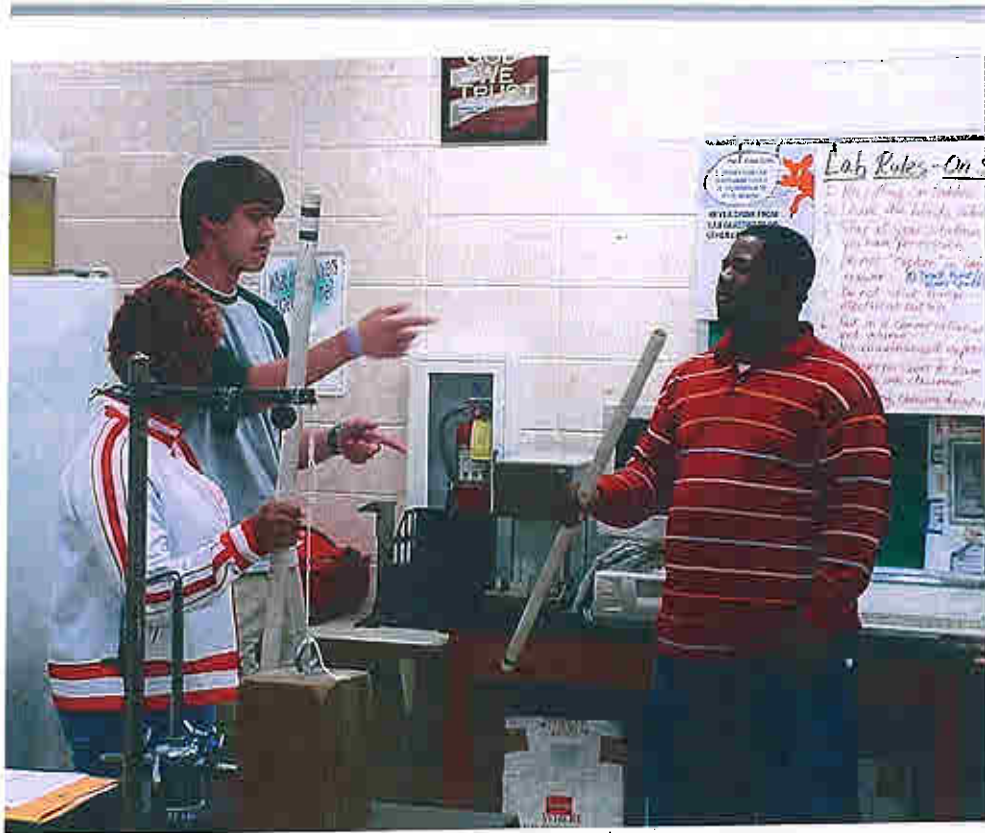
The entire class was amazed at the jumping ring demo.

Picture 3 - 'Liquid Nitrogen'

This student could not get enough of the liquid nitrogen.

Picture 4 - 'The Flying Teacher'

After showing one class the flying mirror trick, they insisted that their teacher try it. After rejecting the notion several times, the high school teacher finally gave in and 'flew.'







Evaluation of Physics Demonstrations

performed by

MSU's Society of Physics Students (SPS)



1. High School Name: Vanessa Robinson

2. Physics/Science Teacher's Name: Mr. Hollis

3. Circle your grade level: 9th 10th 11th 12th

Please fill in the appropriate bubbles.

	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
4. The physics demonstrations were entertaining.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
5. The demonstrations were helpful in understanding the physics concepts they were portraying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
6. I would enjoy another visit from the MSU Society of Physics Students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
7. I have learned something new today.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8. The SPS members seemed well informed in the concepts taught during the visit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

9. Which demonstration did you enjoy the *most* and why?

I enjoyed the demonstration when they put the ball on the nitrogen. Because it went up and pop right

10. Which demonstration did you enjoy the *least* and why?

I enjoyed all of them I don't have a least one.



Evaluation of Physics Demonstrations

performed by

MSU's Society of Physics Students (SPS)



1. High School Name: West Point High

2. Physics/Science Teacher's Name: Mr. Hollis

3. Circle your grade level: 9th 10th 11th 12th

Please fill in the appropriate bubbles.

Table with 5 columns: Strongly Disagree, Disagree, Indifferent, Agree, Strongly Agree. Rows 4-8 contain statements about the physics demonstrations and student learning.

9. Which demonstration did you enjoy the most and why?

the balloon & flower trick

10. Which demonstration did you enjoy the least and why?

the smoke & pickle b/c it was smelly but entertaining.



Evaluation of Physics Demonstrations



performed by

MSU's Society of Physics Students (SPS)

- 1. High School Name: West Point High
- 2. Physics/Science Teacher's Name: Mr. Hollis
- 3. Circle your grade level: 9th **10th** 11th 12th

Please fill in the appropriate bubbles.

	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
4. The physics demonstrations were entertaining.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
5. The demonstrations were helpful in understanding the physics concepts they were portraying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
6. I would enjoy another visit from the MSU Society of Physics Students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
7. I have learned something new today.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8. The SPS members seemed well informed in the concepts taught during the visit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

9. Which demonstration did you enjoy the most and why?

The one with the mirror, because it seem like they where flatting.

10. Which demonstration did you enjoy the least and why?

I Like Them all

Please use the back of this page for additional comments.