



**Little Shop of Physics
The Rainbow and Beyond
2008 - 2009**



Stress: Women in Science / Diversity piece.



A story: Building things / we did this every day. Worked well here.





Notice Mike Lacy...



Gave us a chance to focus on assessment.



And Jenna did observations, Mike will talk about.



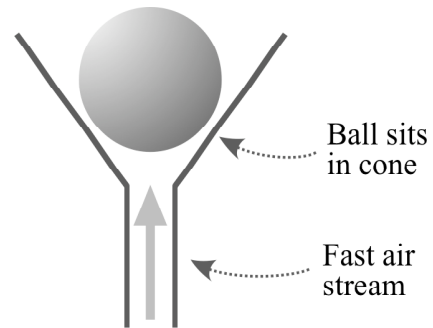
**Northwest High School, Shiprock, NM
(Navajo reservation)**

Our default.

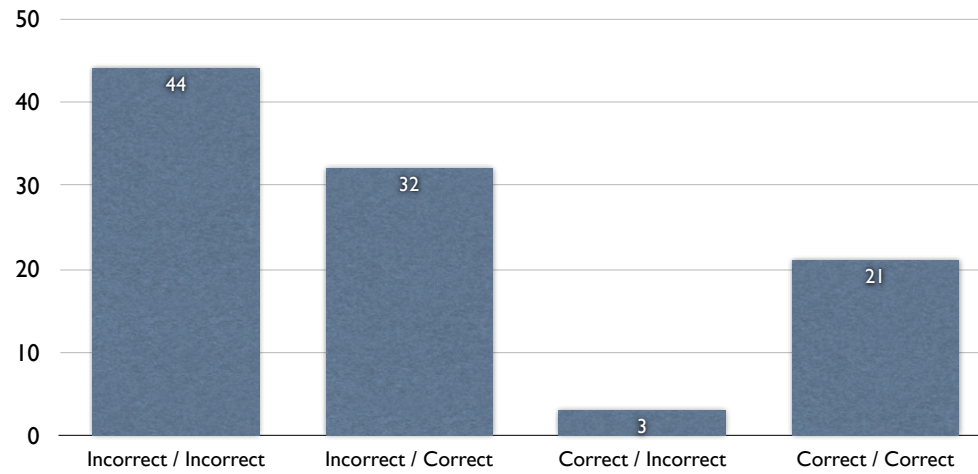
The Ball in the Cup

The picture at right shows a particular experiment in the Little Shop of Physics. When the air stream is turned on,

- A. The ball flies out of the cup.
- B. The ball is pulled in to the cup.



Ball in the Cup



Measuring Impact

$$\frac{\text{Incorrect / Correct}}{\text{Initially Incorrect}} = 0.42$$

$$\frac{\text{Incorrect / Correct}}{\text{Changed Mind}} = 0.91$$



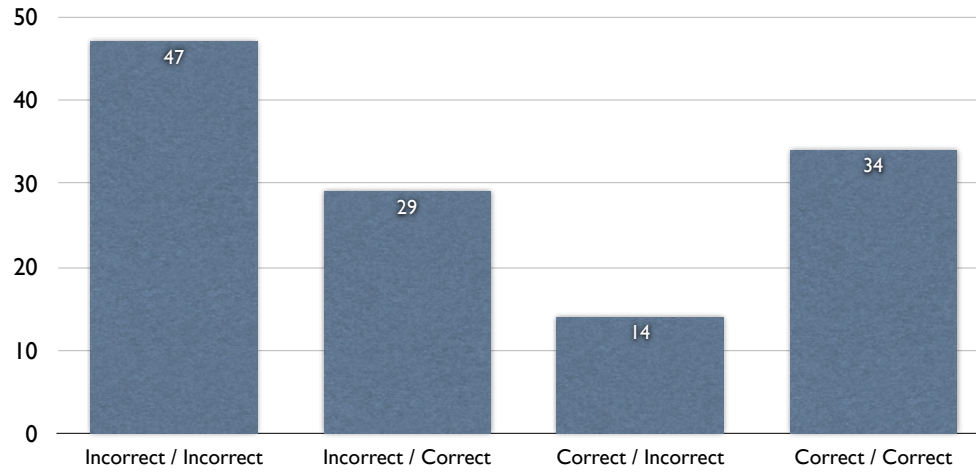
Interesting reason for failure...

Pump It Up

A bike pump is used to pump air into a bottle. As the pressure goes up, what happens to the temperature of the air?

- A. The air warms up
- B. The air stays the same temperature
- C. The air cools down

Pump it Up



Measuring Impact

$$\frac{\text{Incorrect / Correct}}{\text{Initially Incorrect}} = 0.43$$

$$\frac{\text{Incorrect / Correct}}{\text{Changed Mind}} = 0.70$$



Science PALS group, Colorado Springs

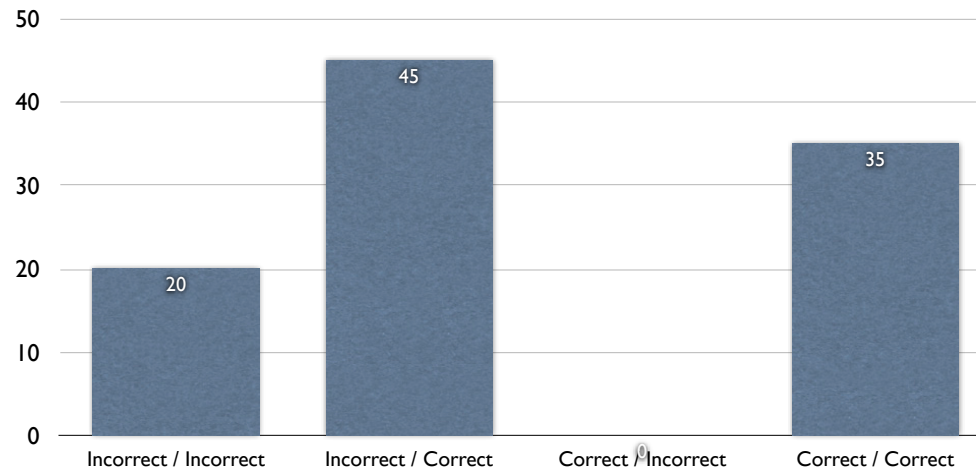
Working with teachers – more formal.

Different types of LED flashlights require different voltages to operate. Which color flashlight will require the highest voltage?

- A. Red
- B. Green
- C. Blue

And note: Didn't address this explicitly. Just did a series of related experiments. Got a chance to explore and discover, and discuss.

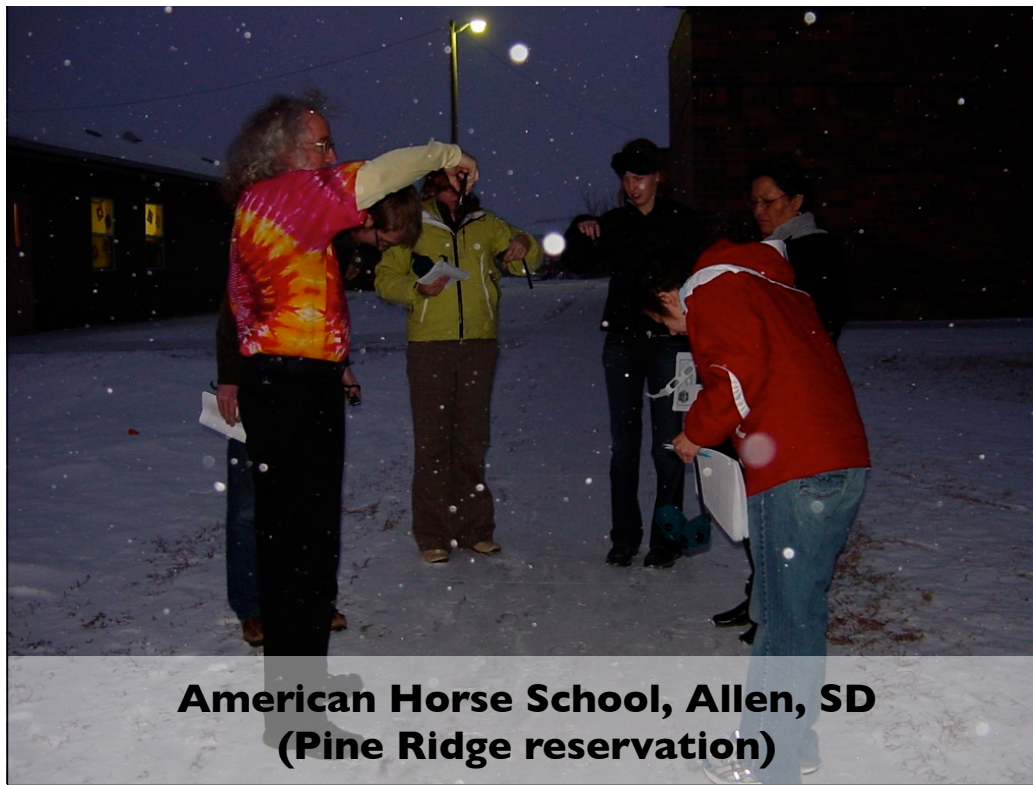
Solar Cells and Light



Measuring Impact

$$\frac{\text{Incorrect / Correct}}{\text{Initially Incorrect}} = 0.69$$

$$\frac{\text{Incorrect / Correct}}{\text{Changed Mind}} = 1.00$$



**American Horse School, Allen, SD
(Pine Ridge reservation)**

Now, some data from the summer course.

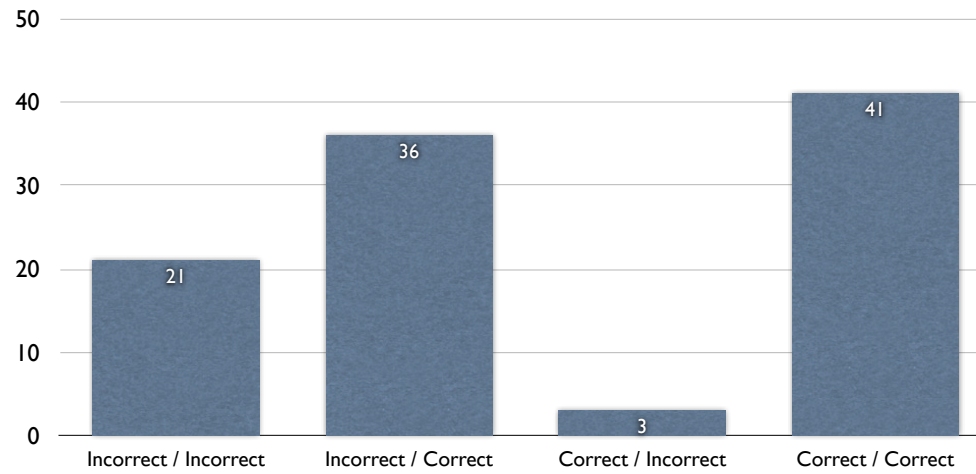
Clear vs. Cloudy

On a clear night, the temperature drops more than on a cloudy night. How do clouds “insulate” the earth?

- A. They trap warm air near the surface of the earth.
- B. The condensation of water vapor releases energy.
- C. They block the transmission of thermal radiation to space.

And note: Didn't address this explicitly. Just did a series of related experiments. Got a chance to explore and discover, and discuss.

Clear vs. Cloudy



Measuring Impact

$$\frac{\text{Incorrect / Correct}}{\text{Initially Incorrect}} = 0.63$$

$$\frac{\text{Incorrect / Correct}}{\text{Changed Mind}} = 0.92$$



Podcasts?



2009 - 2010 Tour
Put a Spin on It

Help us come up with ideas...