**Barbie Bungee Feedback Form WAMC Summer Conference – 2013:**

**How could your team have made your final jump more successful?**

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| Test each rubber band for amount of stretch. Thought about weight instead of just distance. |
| We could have dropped once or twice between 7 ft and 12 ft |
| If we didn’t consider safety. We calculated 15.9 bands so we used 15 instead of 16. |
| Taken more data and having more precise measure of actual drop |
| Measured at each height 3 times (intervals)  Use linear equations |
| We could have noted the exact point where the rubber band was held on the balcony railing for the first trial |
| We should have included the body of the doll |
| Added one more rubber band. We erred on the side of caution because we didn’t want Barbie to hit |
| More data points/more time. Trust the data. Record w/camera to enhance analysis |
| Rounding error – being more precise would have given us a better jump |
| Used another doll and checked the weight. More experiment trial |
| We were one inch from the ground. We win! We could have used ½ of a rubber band by knotting it and holding from the knot on the drop |
| No stairs in the way. More trials and more data. Retest where there were large disparities in data. Were all the rubber bands consistent size and stretch? |
| Measured for averages – used one person for trials. Graphed actual data not just the difference |
| Use partial rubber bands |
| Our drops were within micrometers of being the “closest drop!” Any discrepancies could be explained by tiny changes from the drop procedure. |

**How would you extend this lab?**

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| Compared accuracy of a variety of ways of testing. Comparing measurements with ft/in/cm |
| Anything with a linear function – one group compare with other group compare with other group how they arrived at their function. Compile a list of “guiding questions.” |
| Try different weights (heavy vs light)  One drop and they have to do a formula  Analyze w/physics formula |
| Given new object (pop bottle), have teams compete for the best drop |
| Require more trials  Adding weight  Apply laws of physics/measurement  Calculus Explanations |
| We would try different objects in place of Barbie to see what changes weight and/or size make |
| We could have tried: different rubber bands, a different balcony, different dolls |
| Could add the calculator portion by asking students to use the table and linear regression on the calculator. Ask students to interpret the slope and y-int of the function in the context of the problem |
| Longer distance/different heights (change rubber band ratio to increase gravity). Heavier or lighter dolls. Parallel rubber bands (one per leg to spread tension) |
| Perform with 2 objects at the same time to see if you get the same function regardless of the object’s weight |
| Asking what will happen with different sized rubber bans or different weight |
| ASK…. What if we doubled the rubber bands or cut them and made them single strands? How would that affect the stretch? Why would some groups need less or more rubber bands? |
| Different weights/bands. Explore momentum, mass, acceleration, friction etc… |
| Different weights, bands, height. Compare w/those w/exact materials. Use metric. No calculator. Use slope and Algebra 1 standards |
| Different Barbie weights. Contest at end with a new height |
| Our group had the discussion of whether the function would be exponential growth, quadratics or linear. The actual data supported a linear model. |

**Comments:**

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| Much fun! |
| We noticed that people stayed on the side of caution to save the doll |
| Focus on precision and accuracy of measurement |
| This was a good group building lab. I liked having minimal instructions |
| Great activity. Design an experiment instructions were unclear. |
| FUN! |
| She’s still alive! We didn’t kill her (the baby)! |
| AWESOME! FUN! SUPER! ROCKED! We will do this in class! |
| The easiest/simplest solution was, invariably, closer to the empirical data |