

# EXPERIMENTAL DESIGN

## 2008 NORTH CAROLINA STATE SCIENCE OLYMPIAD TOURNAMENT



**You must design, conduct and report the findings of an experiment dealing with building a spring board device to bounce a small ball off of and measure the vertical distance traveled. You have 50 minutes to conduct, write up and clean up your experiment station.**

### Materials you may use:

Ball (max 1)

Jumbo Paper clips (max 10)

Rubber bands (max 10)

Small balloons (max 4)

Zip lock bags (quart) (1)

Pushpins (max 10)

Cardboard squares (max 2)

7"x7" bubble wrap (1)

Tape (central station)

Ruler

### May use if you

**brought:**

Non-programmable  
calculator

Timepiece

Your write-up must include all of the following parts:

(Rubric points are given in parenthesis):

1. Statement of Problem (2)
2. Hypothesis (4)
3. Variables (10): dependent, independent, controlled
4. Experimental Control- Standard of comparison (2)
5. Materials (3)
6. Procedure: Including diagrams (6)
7. Qualitative: results and observations (4)
8. Quantitative: data table using significant figures (6)
9. Graph (6)
10. Statistics: may include average, median, mode, range, drawn in line of best fit (2)|  
mean, measure of variation, regression analysis, other statistics (4)
11. Experimental Errors (3)
12. Conclusion/analysis of results (4)
13. Recommendations for further experimentation (2)
14. Clean up/Safety: GOGGLES required; Up to 4 points may be subtracted for each  
infraction, see clean-up instructions below

Clean-up:

1. Discard any of the following: papers folded or torn, any tape, any broken supply pieces  
experimented with but not used in the final design
2. Goggles are to be worn at all times. First infraction is a warning, second is a point deduction,  
third is disqualification from the event.
3. Place your write-up in the middle of your station, in the appropriate order, when you are finished  
(up to 50 minutes allotted). Make sure each page is marked with your name and school  
information. Please this sheet on top of your final report.

**DO NOT BOUNCE THE BALL OUTSIDE THE EXPERIMENT TABLE;**  
**NO THROWING AT ANY TIME (Points will be deducted for poor sportsmanship).**

**YOU MUST BE FINISHED WITH YOUR EXPERIMENT, WRITE UP AND  
HAVE YOUR STATION CLEANED IN 50 MINUTES, NO EXCEPTIONS.**