Bouncing Ball Experiment

type.

Procedure:

We received two balls, one for each day we did the experiment. On the first day I received a ping pong ball. Each day we were told to do tests with our balls and figure out how high they would bounce back up after being dropped from different heights. At the end of class we would be given height (our mystery height) and we would have to come up with a another height to drop our ball from so that it would bounce back up to our "mystery height". We wrote down on a whiteboard our tests and results and came up with the height we would drop our ball from. The second day was the same except that I had an orange ball.

Observations

Day 1

Drop Height (cm)	Bounce Height (cm)
200 cm	110 cm
100 cm	70 cm
90 cm	63 cm
80 cm	57 cm
70 cm	50.5 cm
60 cm	44 cm
50 cm	37

Good

"For every 10 cm of drop height added, 6.5 cm of bounce height are added."

The mystery height was 47 cm. The prediction was 65 cm.

Bouncing Ball

Day 2

Drop Height (cm)	Bounce Height (cm)	Difference (cm)
200	125	75
180	120	60
160	110	50
140	95	45
100	70	30
95	70	25
90	65	25
85	65	20
80	55	25
70	50	20
60	45	15
50	40	10
40	30	10

"The difference became lower as the drop height became lower."

Good

The mystery height was 39 cm. Our drop height was 48 cm.

Conclusion:
In both test the ratio was about, 10 cm of drop height for every 7 of bounce height. Our whiteboard was much neater on the second day.

Very good.

revised [redacted]

[redacted]

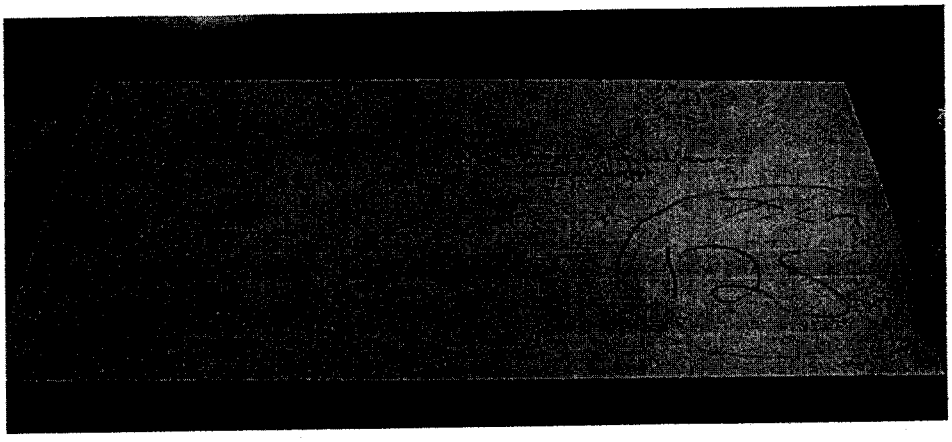
Bouncing Ball Experiment

Procedure: This week in science we were challenged to find a way to predict from which height to drop a ball so that it bounces back up to a certain mystery height. Each group of us was given a different kind of ball. Each group then dropped its ball from various heights and recorded the heights to which the ball first bounced. We then recorded this data on our whiteboard. Mr. Miller then took away our balls (so that we could not practice) and then placed a piece of tape at a mystery height. We measured the mystery height, and then, using our data from the whiteboard, we made a prediction of what our drop height would be so that our ball reached the mystery height on the first bounce. We then dropped our ball from our predicted drop height and then watched how close our ball got to the mystery height on a high speed camera to see how accurate our prediction was. We did this experiment twice, each time on a different day. Afterwards, we discussed why our prediction was successful or not. Also, we revisited what the characteristics of a good experiment are and what is a good way to display data on a whiteboard.

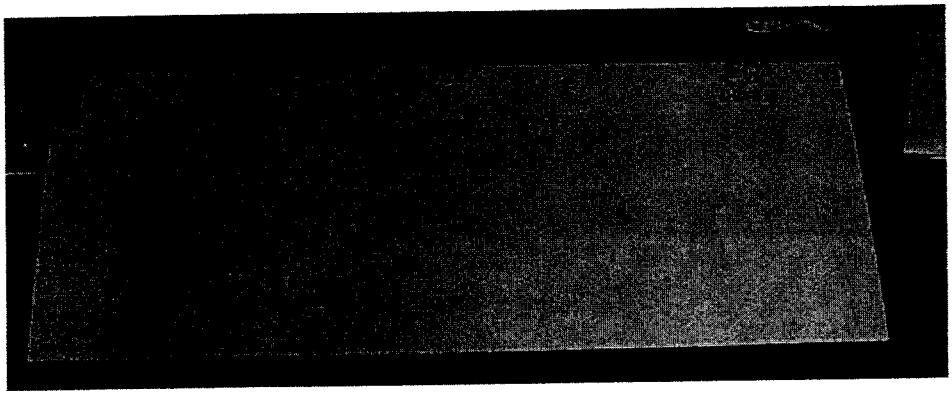
Great

Observations: These are the whiteboards we used to record our data.

Here is our first whiteboard with 4 drop heights and 2 resulting bounce heights for each of the 4:



Here is our second whiteboard with 5 drop heights and 3 resulting bounce heights for each of the 5:



Data Squish the whiteboard images. hard to read.

As you can see our whiteboards got neater and more organized as we progressed.

[redacted]periments with two different balls:

First Experiment

Trial	Drop Height (cm)	Ave Bounce Ht (cm)
1	75	50
2	100	69
3	200	110
4	180	95
5	15	10

Second Experiment

Trial	Drop Height (cm)	Ave Bounce Ht (cm)
1	100	51
2	200	108
3	20	10
4	50	26
5	80	44

nice tables.

Here are some photos from our group:

nice touch

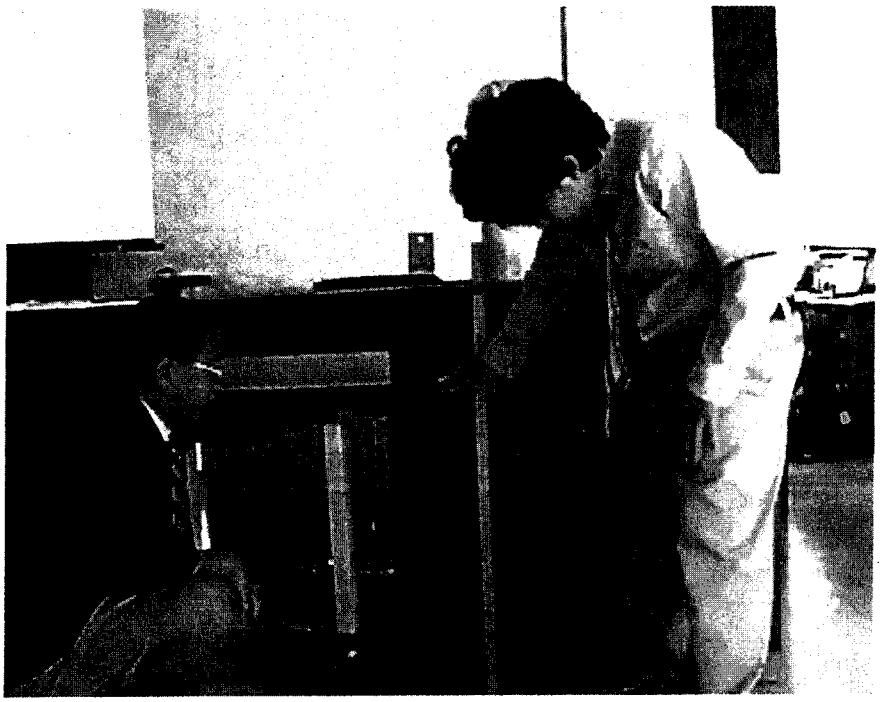
Conclusion: We le[redacted]rop a ball from different heights, there is a patte[redacted] how it bounces back up. We also learned that our prediction became more accurate in the second experiment. Different balls bounce up at their own height pattern.

Bouncing Ball Experiment by [redacted]

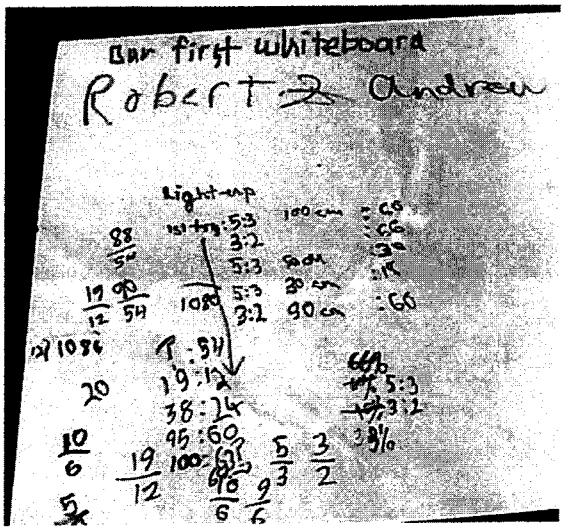
Purpose: This experiment is about calculating the relationship of the drop height of a specific ball to the height of its first bounce.

Procedure: The different groups in the class were given one of the six balls: skee ball, light-up ball, black rubber ball, neon green golf ball (plastic), orange ball, and Ping-Pong ball. Robert and I (my group) dropped the ball from different heights using a meter stick and tried to figure out what height we should drop the ball from to make it bounce to a specific height. We recorded the drops with a slow-motion videotape camera to make sure that we could see the height each ball bounced to properly (as shown in the screenshot below). We did two experiments, each with a different one of the six balls. In the first experiment we did, we had the light-up ball. In the second one, we had the black rubber ball.

Great. Nice picture.



Observations: Experiment #1: Light-up ball



I did five drops, and after that, I found a ratio of drop height to bounce height. For each drop, I recorded the drop height and the bounce height on the whiteboard on the left. The two ratios that were derived from the experiment were 5:3 and 3:2, and when I averaged them, I got 19:12. I used that ratio

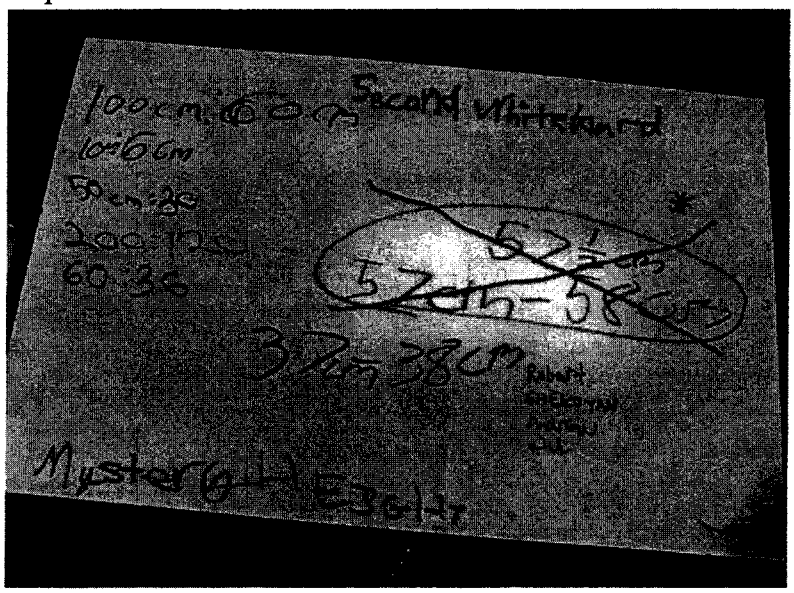
great.

to find the height that I should drop the ball from to get the first bounce at a specific height.

	Drop Height	Height of 1st bounce	Ratio-Drop to Bounce
Drop #1	1m	60cm	5:3
Drop #2	1m	66cm	3:2
Drop #3	50cm	30cm	5:3
Drop #4	30cm	18cm	5:3
Drop #5	90cm	60cm	3:2
Specific Height Drop (Aiming for 54cm)	88cm	55cm	8:5

Entire table.

Experiment #2: Black Rubber Ball



I did the same thing as in the first experiment, but with the different ball, I got the ratio of 5:3 each drop. My drop heights and bounce heights are on the whiteboard and on the table.

good.

	Drop Height	Height of 1st bounce	Ratio-Drop to Bounce
Drop 1	1m	60cm	5:3
Drop 2	10cm	6cm	5:3
Drop 3	50cm	30cm	5:3
Drop 4	2m	120cm	5:3
Drop 5	60cm	36cm	5:3
Specific height drop (37.5 cm)	63cm	39cm	21:13

nice table

Conclusion:

What is the relationship between drop height and bounce height (specific balls)?

For the light-up ball, the ratio was 19:12.

For the black rubber ball, the ratio was 5:3.

good.

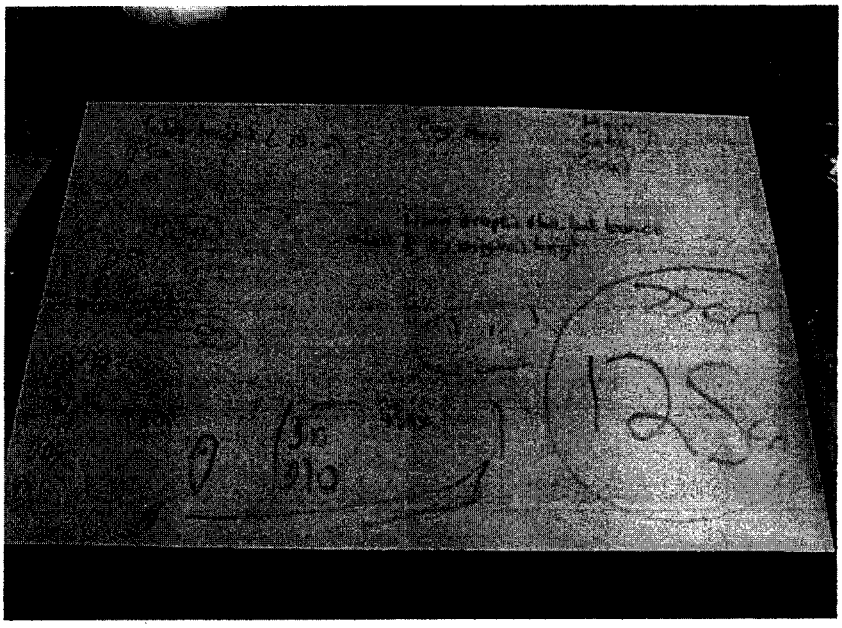
Mr. Miller
9/16/12

Bouncing Ball Experiment

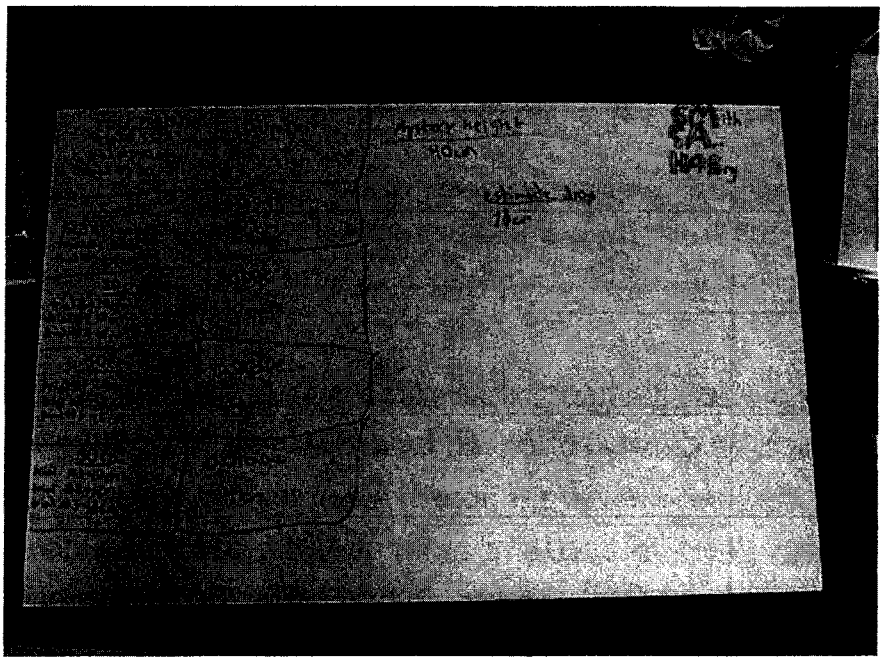
Procedure

First we got our ball (which in our case was a ping pong ball). Then we started testing how high our ball bounced by dropping it from different heights and recorded it all onto our whiteboard. After several tests Mr. Miller gave us a mystery height that one of us went and measured. Once we knew the mystery height, using our tests we had to decide what height to drop the ball from in order to get it to bounce to the mystery height. Then we did the same exact thing except with the orange ball and a different mystery height.

Observations



This was our first whiteboard for our observations when we used the ping pong ball.



This was our whiteboard when we used the orange ball.

Tests: Ping Pong Ball

Drop Height (cm)	Average Bounce Height (cm)
75	50
100	69.5
200	110
180	120
15	10

— good Data table

Test: Orange ball

Drop Height (cm)	Average Bounce Height (cm)
100	51
200	105
20	10
50	26
80	44

Conclusions

Ping Pong Ball:

We concluded that the ping pong ball bounced $\frac{2}{3}$ of the drop height. So when we measured the mystery height of 75cm we decided to drop the ball at 125cm, because 75cm is $\frac{2}{3}$ of 125cm.

Very good

Orange Ball:

We concluded that the orange ball bounced just over $\frac{1}{2}$ of the drop height. The mystery height measured 40cm so we decided to drop the ball from 78cm, because 40cm is just over half of 78cm.