

## Logbook for Sebastian & Morgan

-November 3

-First meeting - introduction to Science Fair concept

-Dec 1 -

-began to research topics during library time and made our groups

-Dec 11

- determined our question and decided if it was testable or researchable

-Dec 14

-developed our question more

-Dec-19

-wrote a hypothesis

-Dec-20

-wrote background research

-Jan-12

-found which variable we will change and thought about all the different types of variables.

-Jan-19

-We wrote the procedure and did background research

-<https://cajonguide.com/essential-drum-stroke-rebounds/>

[https://www.youtube.com/watch?v=A\\_riZzOAHas](https://www.youtube.com/watch?v=A_riZzOAHas)

This video explains elastic collisions and the elasticity coefficient. We learned about rebound and different types of drumsticks.

-January 26

-I designed a holder for the drumstick using one of my drumsticks at home and my Lego blocks. I tested the holder for the drumstick on my drums. I'm trying to figure out a way to mount the holder to the side of the drum or beside the drum.

-February 1

-Worked more on background about drumstick rebound.

-I have hickory and maple drumsticks. I emailed my music teacher to see if he has any other types of 5A drumsticks.

-Are **February 2 tasks**

-write out materials.

-**draw a diagram of the setup.**

-**come up with a way to mount the drumstick swivel to the side of the drum or cymbal stand or something.**

-come up with a list of questions for the interview with ben.

February 4 tasks

-come up with a way to mount the drumstick swivel to the side of the drum or cymbal stand or something. It took a lot of testing and trying with lego

Feb 6

-We came up with a way to mount the drumstick holder contraption onto a cymbal stand and finished up everything on the slide except for the experiment and are going to figure out a time that works for both of us for the interview.

Tasks for **BEFORE FRIDAY**

-draw a diagram of the setup

Feb 7

- We drew a diagram of the setup, sketched out what our tri-fold will look like and we created a name for our project.

Feb 9 Friday

- We are working on the experiment today
- We took the beads off the snare drum because that can be a source of error
- We Built a mount out of lego to hold the lego drumstick holder
- We used an ironing board to keep the mount at the same height
- We kept the snare at the same height
- We taped a plastic ruler to the side of our drum
- We used a level to ensure that it was strait(perpendicular) to the drum head
- We Taped a metal ruler to the plastic ruler with zero cm at the drum head because we couldn't see the centimeters on the plastic ruler
- We marked the center of the drum for the drum stick to hit(measured the opposite screws) with a pencil
- We moved the drum around till the drumstick would hit the dot in the middle of the drum
- We Mounted the camera on a gorilla pod that was sitting on a chair
- We Tested the approximate height the stick would rebound to know how high the camera should be.
- We took a test vid to see what angle the camera has to be at.
- On the vid we took before we also noticed we couldn't see the ruler because of the glare coming from the lights.(source of error)
- We also noticed that depending on the arc of the drumstick the tip of it would not center on the ruler.
- We decided to put graph paper behind the ruler so we could follow the tip of the drumstick to the ruler.

Feb 11

Measuring the heights of the drumstick and entering them into the table on google sheets. Been adding more information on the procedure, materials and started on the sources of error.

To do

-Research the types of drumsticks(5A)

- Finish measuring the heights of the drumsticks
- Start on results, conclusion and finish sources of error.

-Feb 13

- Looked at all the photos of stop motion and measured the distances on the ruler. Entered this data into the spreadsheet
- We completed everything on the spreadsheet except for the multi-rod(extra).

Feb 16

- Completed the entire spreadsheet including the mean of the measurements.
- calculated the mean for each type of drumstick

Feb 17

- Timetable until Science fair at school
- Tues Feb 20 - Gallery walk
- Fri March 8 - school science fair

#### **To do list**

**-book interview with Ben**

**-interview Ben**

**DONE-figure out the best way to graph the data**

**-statistics for determining if data is significant**

**DONE-add results to presentation**

**-add sources of error**

**-add future directions, ideas for next year**

**-change hypothesis to just materials, second part of the hypothesis is the injury rate and how it's related to rebound**

**DONE-add photo of Ben & Sebby together**

**-add photo of Ben drumming**

**-add photo of Morgan drumming**

**-print some of the original photos for the logbook to show how it was measured**

**DONE-use canva to make a bar graph**

Feb 19

- added photos of our experiment
- did some editing

Feb 22

- edited and add more to the conclusion

Feb 23

- worked on the numbers for drumsticks and made a more exciting title for the project

Feb 26

-We interviewed Ben and started planning out what our tri-fold will look like.

#### Interview with Ben

Ben has not had any injuries from drumming.

Ben stretches his forearms and knees a lot.

Ben does not think that injuries in drummers wrist are related to the rebound that is in their drumsticks. He thinks it is the consecutive motion of the wrist instead. He thinks that because it is the same motion of the wrist you will end up with more injuries but if you do different motions with your wrist you wont get as many injuries.

Ben knows people that have had injuries in their wrists from excessive movement and not warming up before shows and cooling down after shows. He also knows people that have had injuries in their knees from hitting the kick drum very aggressively and at the same tempo every beat. Back is bad posture at the drum kit and lifting equipment wrong.

Ben says that rebound is essential for your drumming capabilities. Without rebound you would get tired very quickly. With rebound you get much better technique, you use less energy and you can play smoother and more musically.

Gogo mayer hand technique

Buddy rich

Feb 27

- Started on building the tri-fold, editing the slides and finding out how many slides we can put on the tri-fold.

Feb 28

-worked on trifold

Feb 29

-worked on trifold

Mar 1

-school dress rehearsal

-finished trifold

-worked on oral presentation

Mar 8

- we did the school science fair showcase and got selected to go to the CITY SCIENCE FAIR!!!!