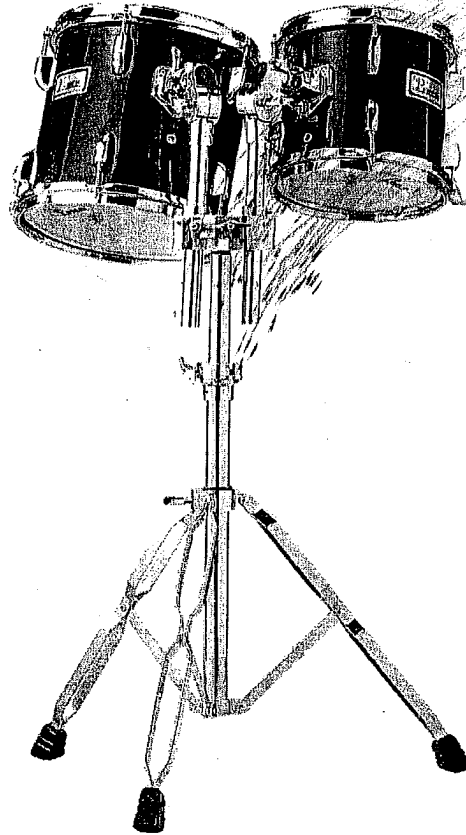


Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sounds have different volumes when you hit the drum hard vs. soft?



In your answer, be sure to write about the following:

- How the difference in volume is created by the drummer *How much force the drummer*
- How the energy wave causes the difference in volume *into the drum.*
The energy wave has a larger pulse.

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of volume
- A model/diagram of the instrument, the air, and the loud vs. quiet volume sound wave
- Use the words from the word bank in your explanation

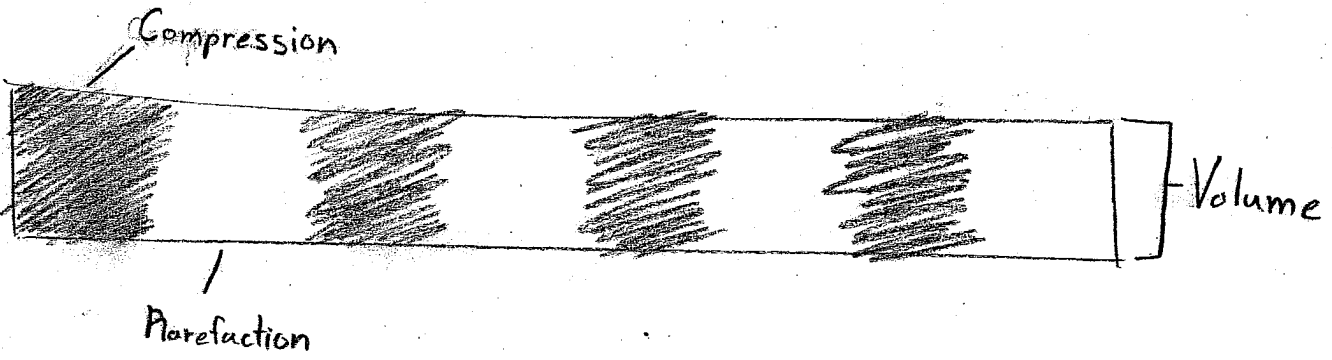
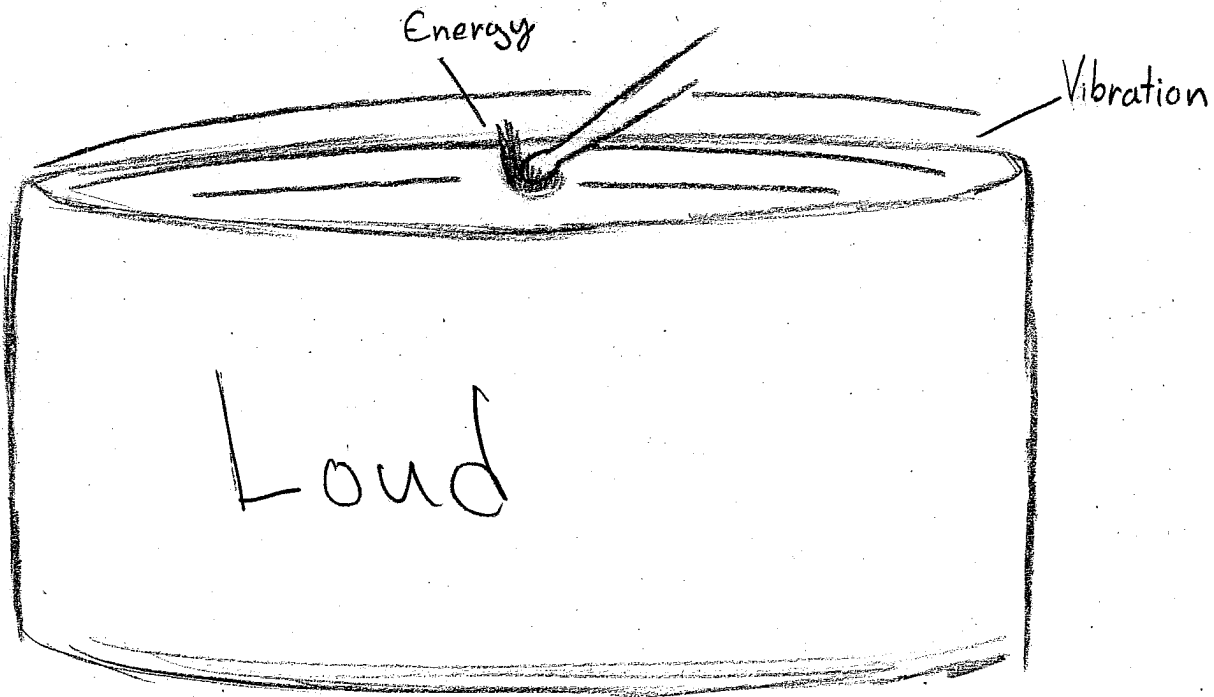
Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...

Sounds have different volumes when you hit the drum hard or soft is that volume is based on how much force is exerted into the instrument. The harder the hit the larger pulse is created in the sound wave. When the object is hit softer the pulse has less force in it to make a soft volume. When a drummer hits the drum hard the vibrations are harder which make a louder noise. Now if the drummer uses less force the vibrations are softer. That means a lower sound. In other words the more energy that you used to hit the drum the louder the sound. The less energy the lower the sound would be. Evidence: When we did the Rubein's Tube the flames were low because the speaker was on low volume. When it was turned up the flames rose. Also when we did the Humming Fork activity, we dipped the fork into the water and hit it and dipped it, the splash created more amount of splashes because more force was exerted just as I stated above.

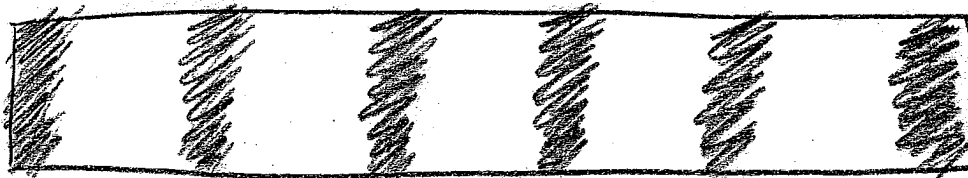
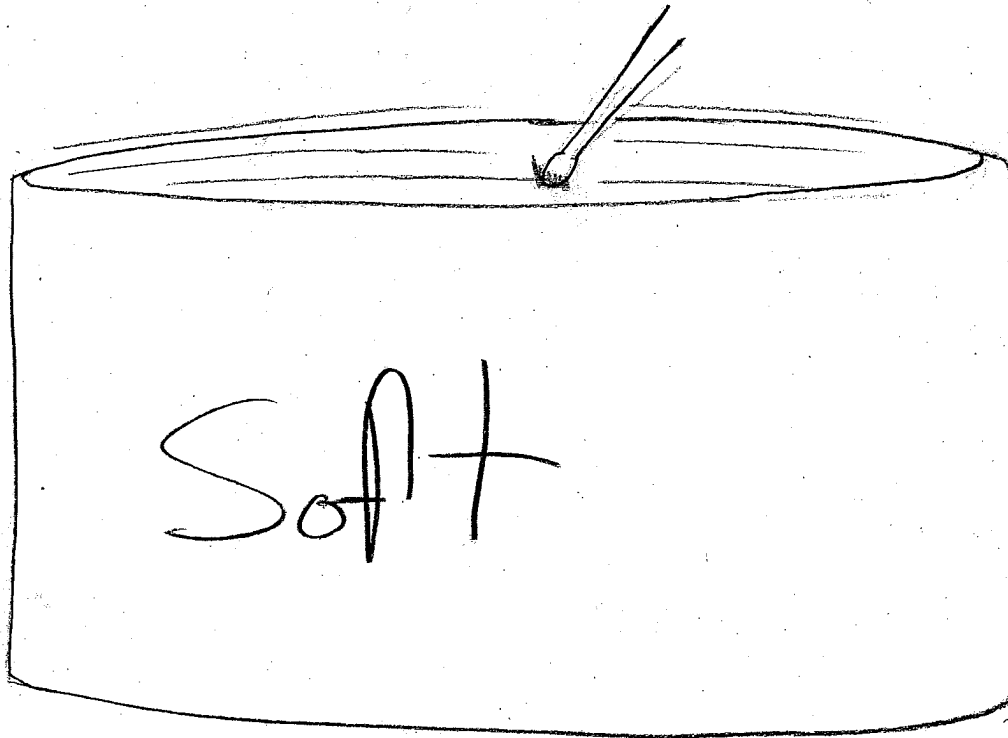
Illustration:

The left side drum has the same pitch as the right one. The left drum had more force exerted into it, which created a louder volume than the right drum. Even though the left drum has more compression it still has the same amount of rarefaction as the right side which gives them the same pitch.

JOE & KEITH



JOE & KEITH

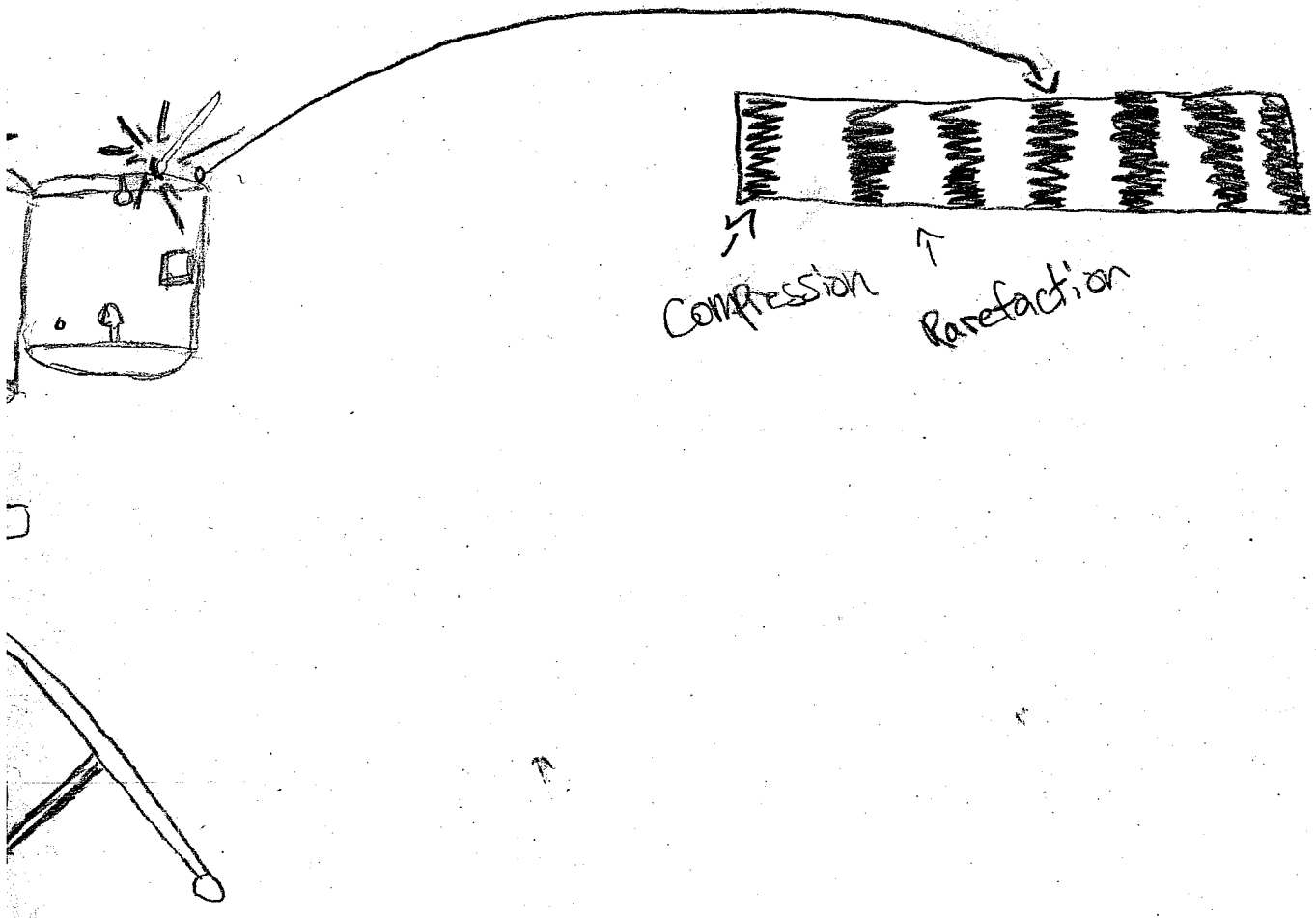


Volume

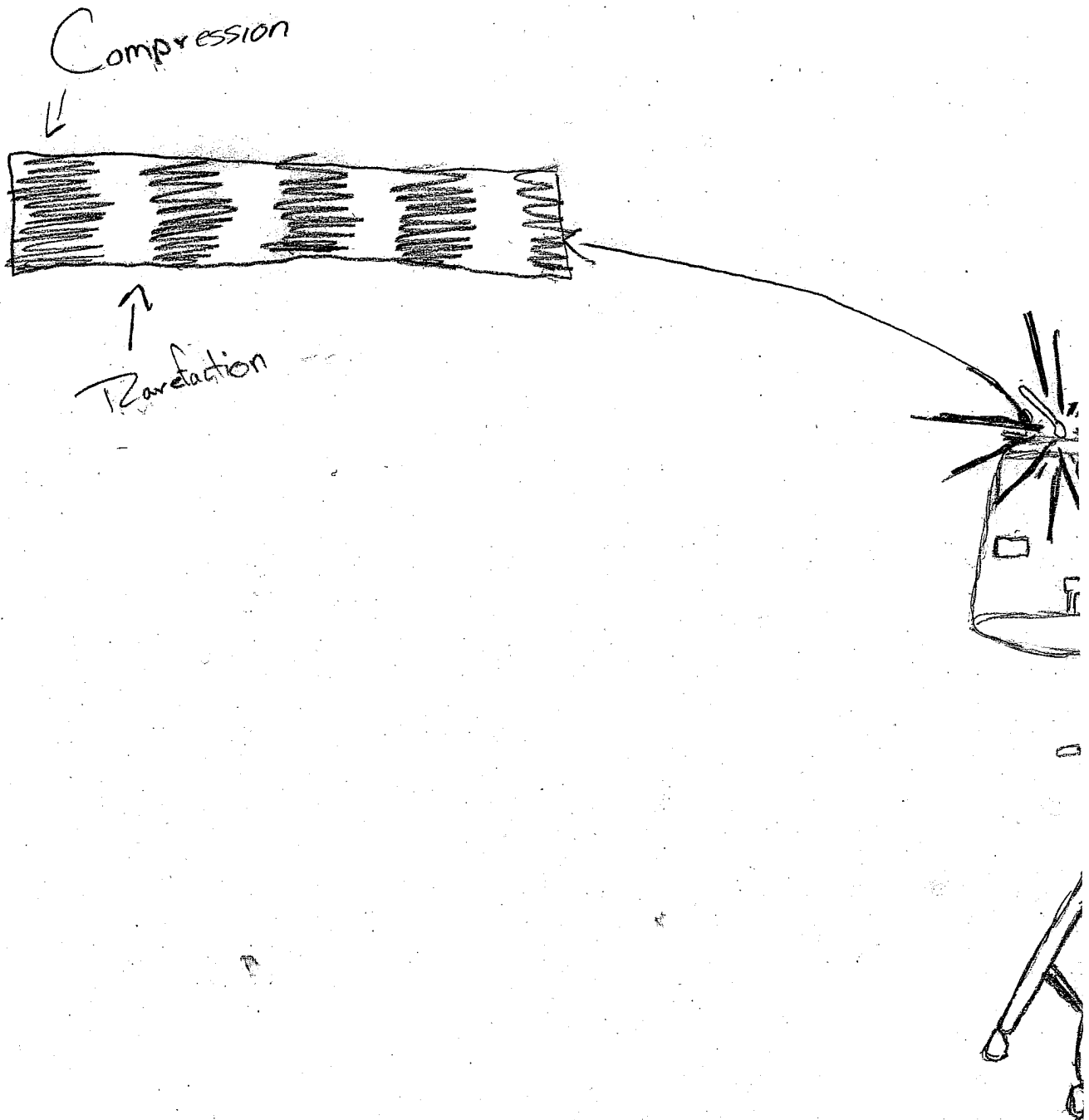
RONALDO

If you hit the drum hard it makes a loud noise because it has a strong vibration. If you hit the drum softly it has less vibration, so the noise is softer. The more energy you use, the louder the volume is. The harder you hit the tuning fork, the stronger splash there was toward the water. When you hit the tuning fork, it made a noise and we put it toward the computer. Garage band showed that when the tuning fork was hit hard, the volume was loud. If the tuning fork was hit soft, the volume was more quiet. For the Rube's tube, if the volume was high the flame was high. Then if the volume was low the flame was smaller. If the volume was loud, the slinky was more packed together and if the volume was quiet the slinky was spaced out more.

RONALDO



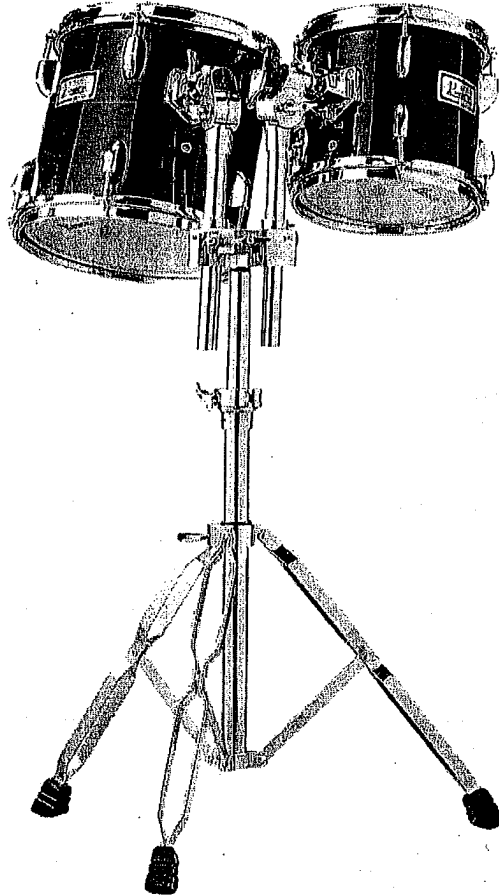
RONALDO



Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sound waves from these two drums have different itches?



In your answer, be sure to write about the following:

- How the difference in pitch is created by the drums
- How the energy wave causes the difference in pitch

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of pitch
- A model/diagram of the instrument, the air, and the high vs. low pitched sound wave
- Use the words from the word bank in your explanation

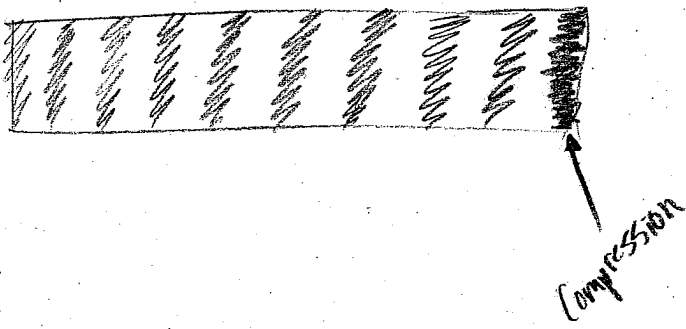
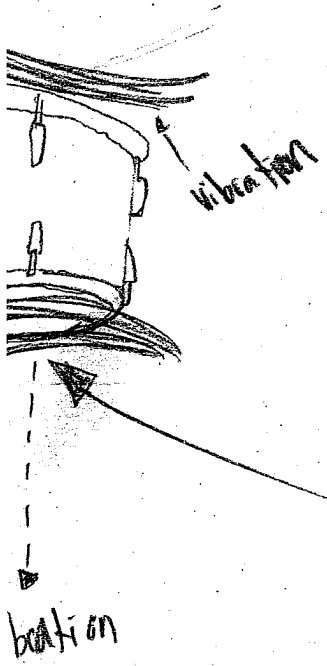
Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...

STACY & SERENA

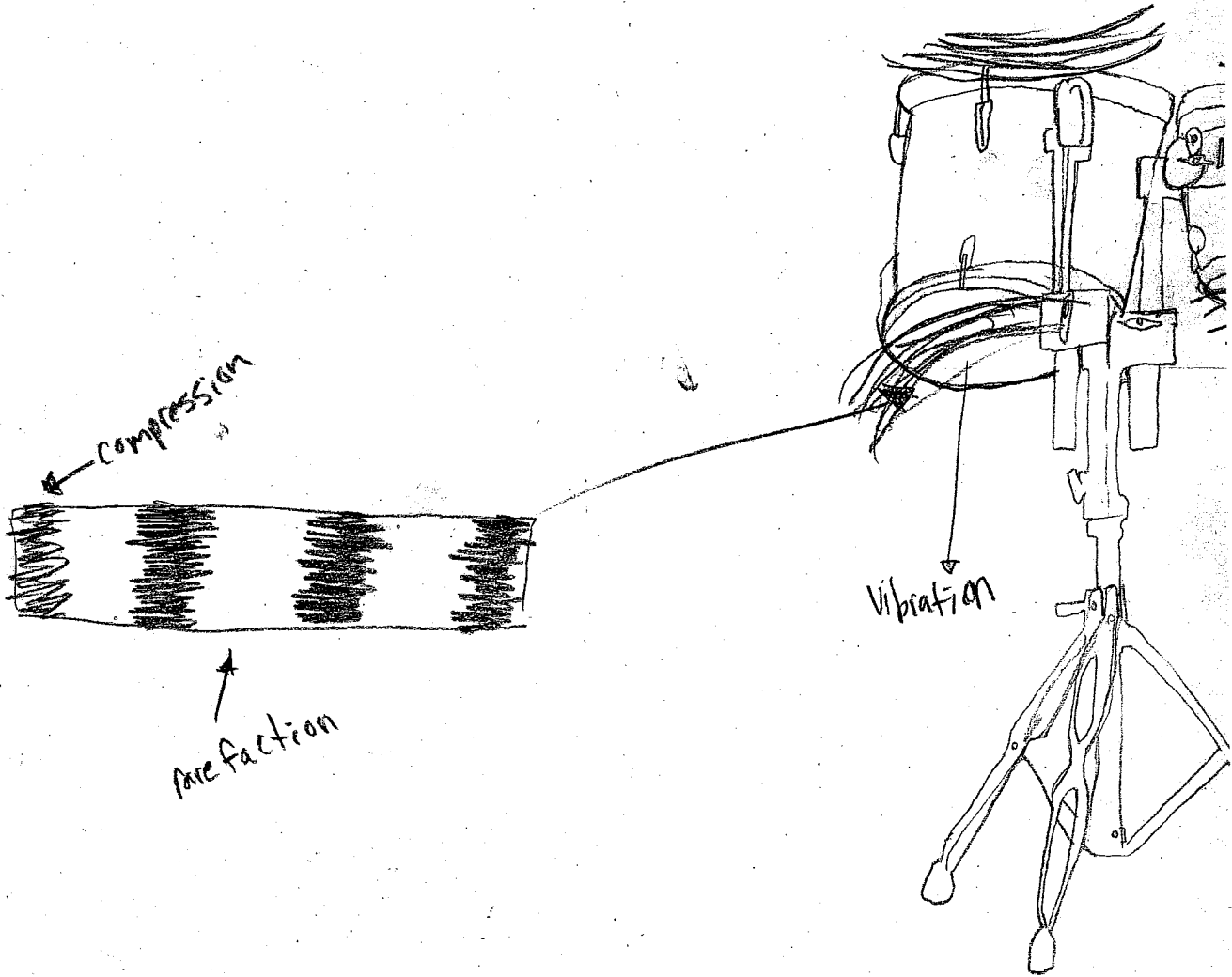
Pitch gets higher as the frequency of the sound waves increases. The smaller the drum the higher the pitch is. The higher the pitch, the faster the sound waves move.

**STACY &
SERENA**

HS# 104
BK# 4
02/25/09



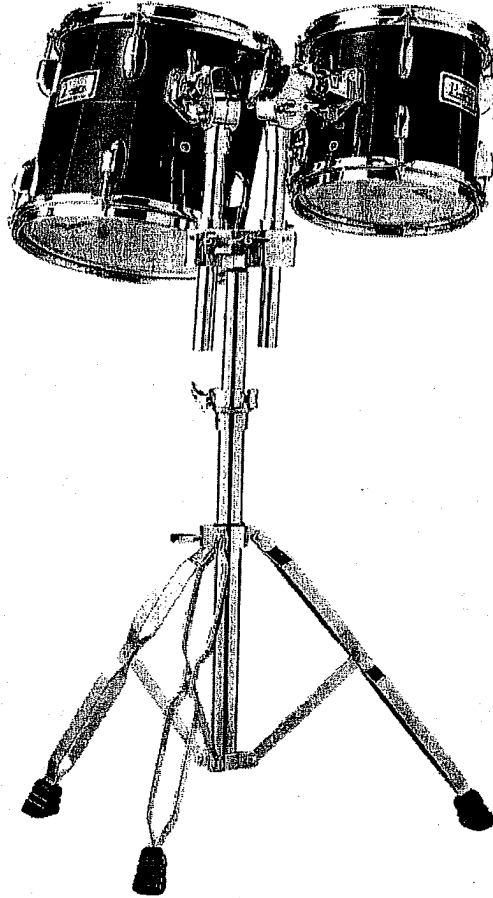
STACY & SERENA



Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sound waves from these two drums have different *itches*?



In your answer, be sure to write about the following:

- How the difference in pitch is created by the drums
- How the energy wave causes the difference in pitch

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of pitch
- A model/diagram of the instrument, the air, and the high vs. low pitched sound wave
- Use the words from the word bank in your explanation

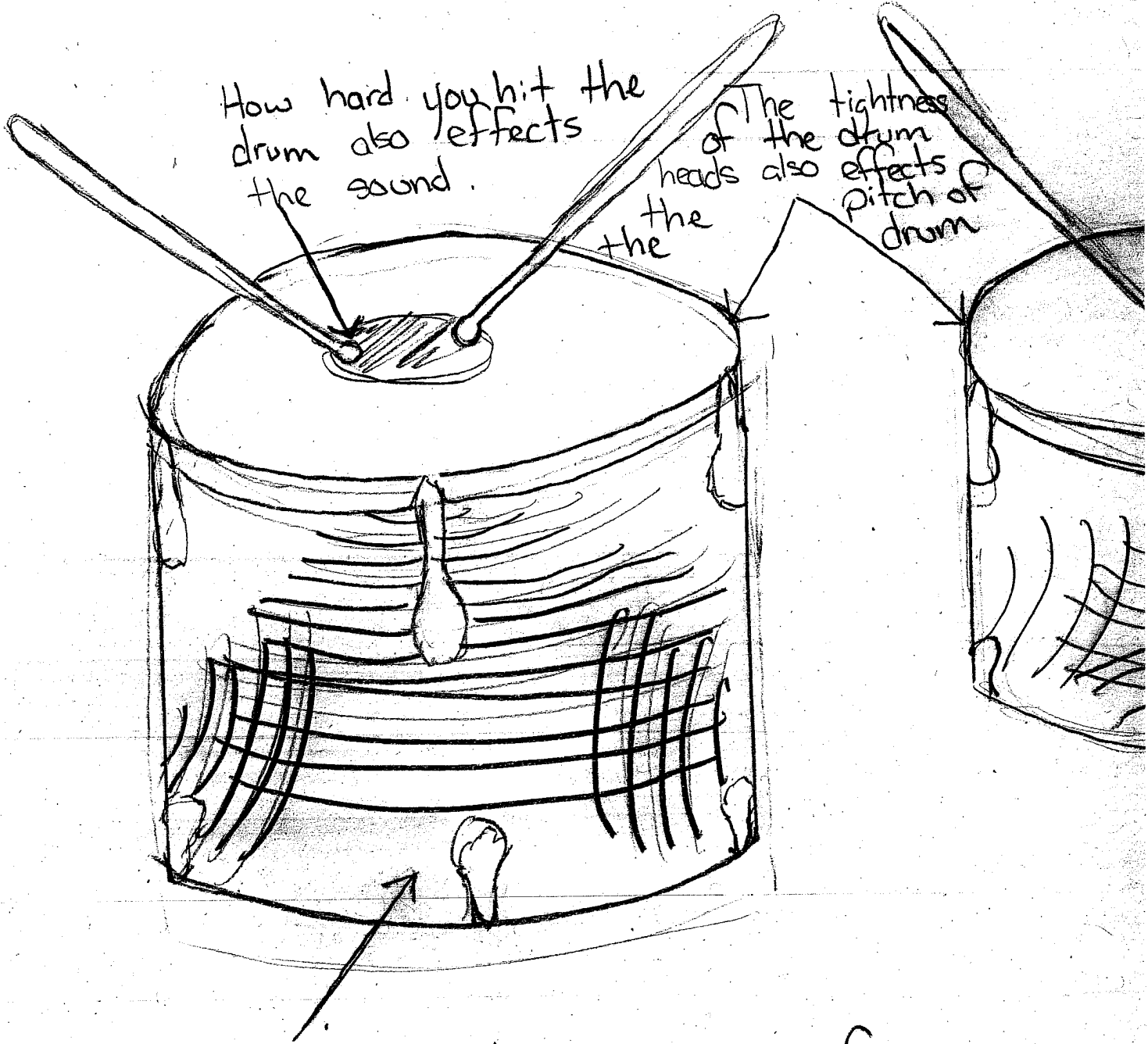
Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...

JACK

2/25/09

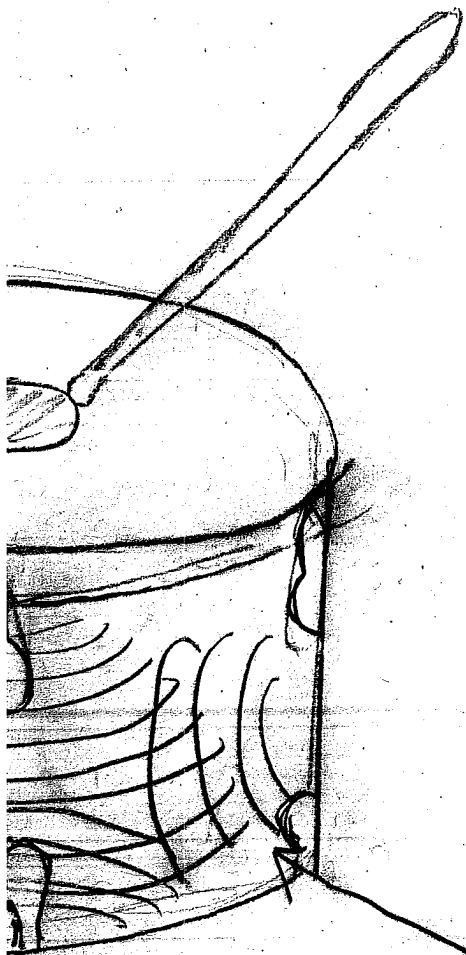
The sound waves from these two drums are different because the small drum has a higher pitch which is because the sound waves move faster. The sound waves move faster because they are more contained and have less of a space to move around but just as many sound waves. This also depends on how hard its hit. The big drums pitch is lower because the sound waves don't vibrate as fast because they have more space to echo or bounce around. One piece of evidence we used from the buckets was that the smaller the object the higher the pitch. Also smaller objects vibrate faster than larger objects, this means the air particles are moving faster which causes a higher pitch. In garage band we experienced differences in pitch due to distance and time, this would also ~~apply~~ be true to the drums. Using the Rubens' Tube we saw that the higher pitched sound the more waves there were in the line, with a low sound there was one shallow wave.

JACK



larger space to vibrate = lower frequency waves = low pitch sound.

JACK

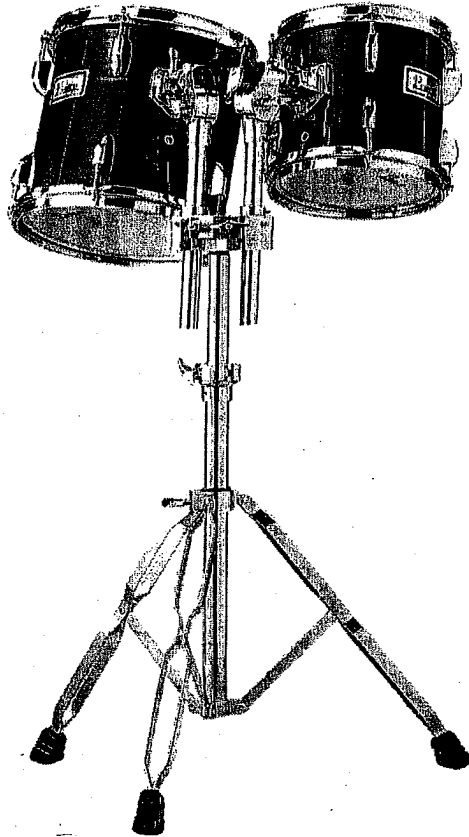


Smaller space to vibrate = higher frequency waves = high pitch sound.

Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sounds have different volumes when you hit the drum hard vs. soft?



In your answer, be sure to write about the following:

- How the difference in volume is created by the drummer
- How the energy wave causes the difference in volume

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of volume
- A model/diagram of the instrument, the air, and the loud vs. quiet volume sound wave
- Use the words from the word bank in your explanation

Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...

DANIEL

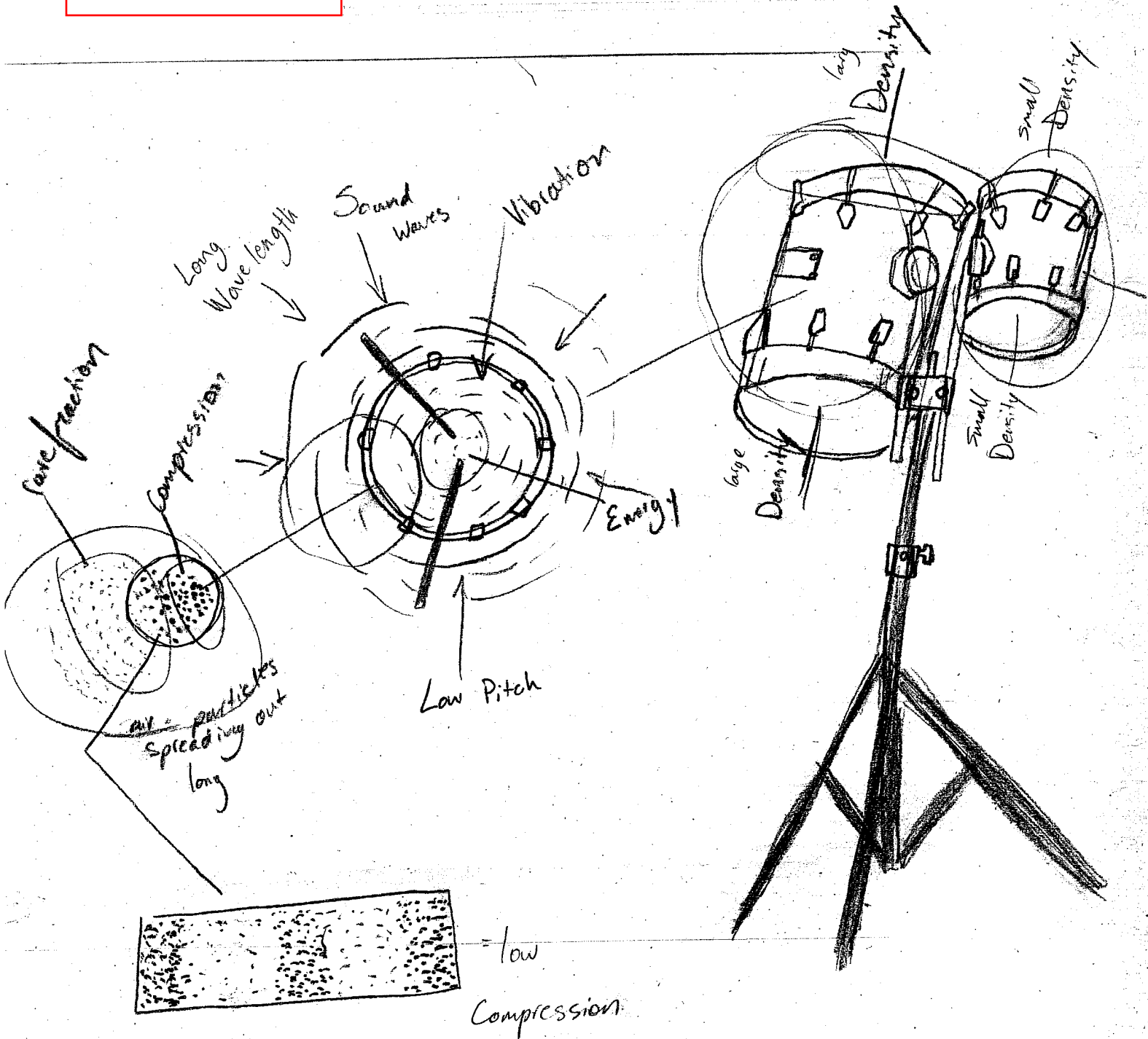
* The difference in volume is created by the drummer is cause by the power or strenght of how hard he/she hits the drum with a stick.

* The Energy waves causes the difference in volume by the pitch from the drum. not by how much force / energy you use.

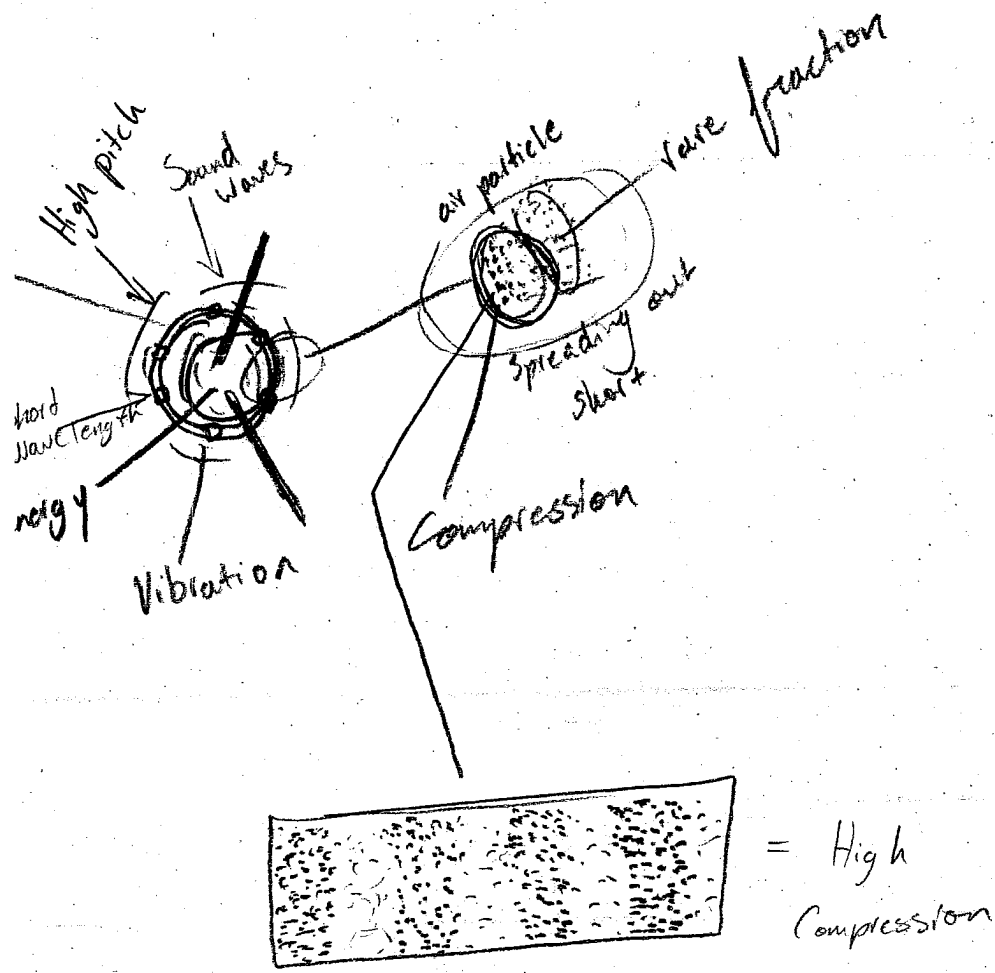
* Example: Tuning fork (hard hit, louder / soft hit, soft pitch)

* Example: Same as Example 1.

DANIEL



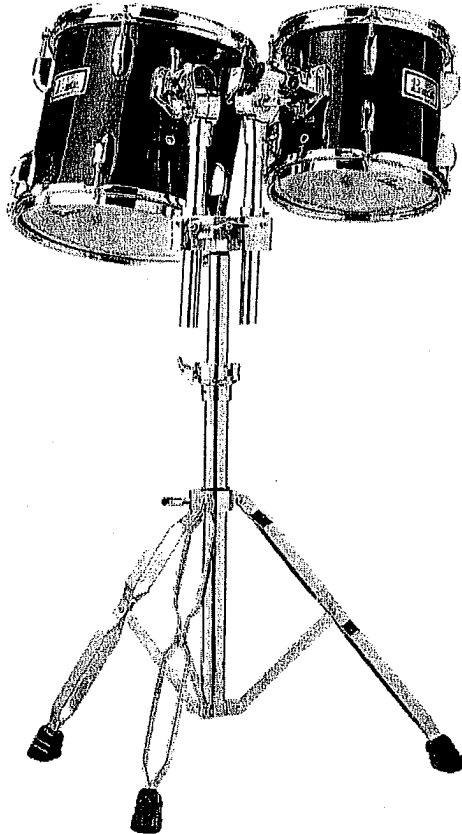
DANIEL



Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sounds have different volumes when you hit the drum hard vs. soft?



In your answer, be sure to write about the following:

- How the difference in volume is created by the drummer
- How the energy wave causes the difference in volume

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of volume
- A model/diagram of the instrument, the air, and the loud vs. quiet volume sound wave
- Use the words from the word bank in your explanation

Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...

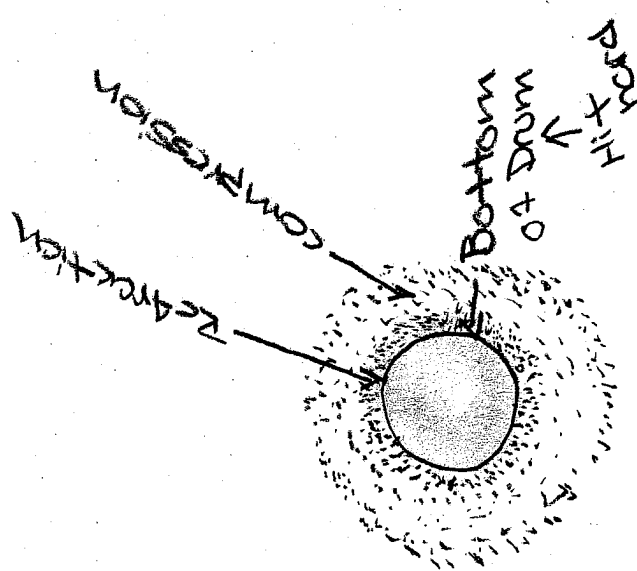
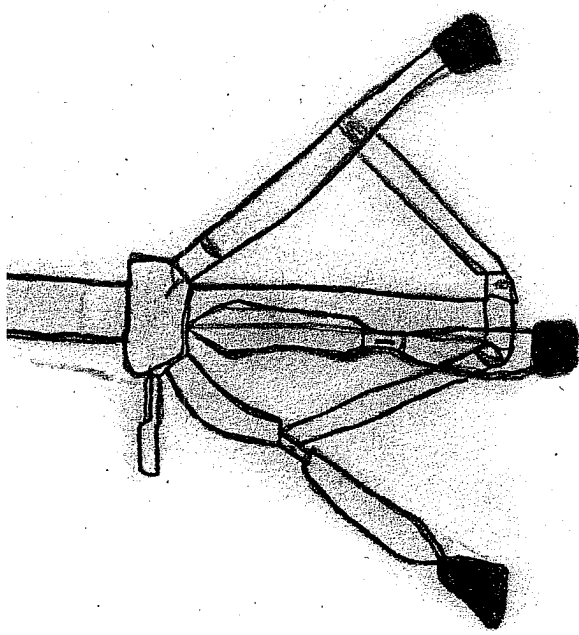
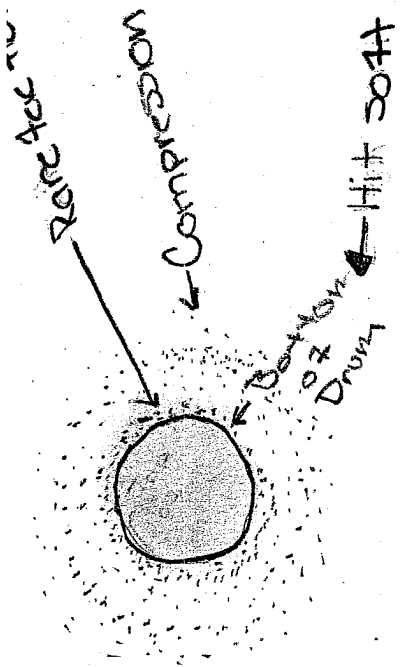
① Why do the sounds have different volumes when you hit the drum hard vs. soft?

The difference in volume is created by how hard the drummer hits the drum and what type of force is applied. The energy wave causes the difference in volume because it goes loud then softens and is just like a fork (tuning).

② When we hit the tuning fork hard and put it in the cup of water a lot of water splashed out vs. when we hit it soft and only a ~~little~~ little water splashed out.

On the Robens tube when the volume was high the flame was high and when the volume was low the flame was low.

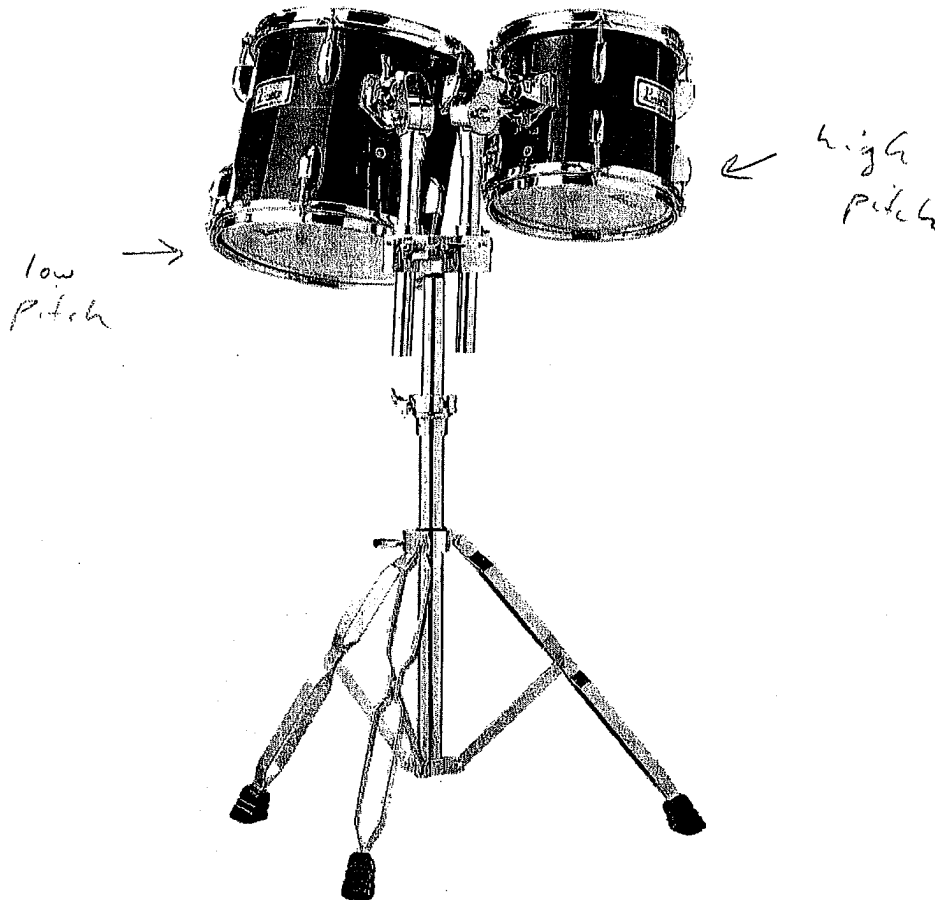
CELINE



Explaining Sound

Directions: In your table groups, you will answer the following question and provide examples and evidence to illustrate and support your explanation.

Q: Why do the sound waves from these two drums have different itches?



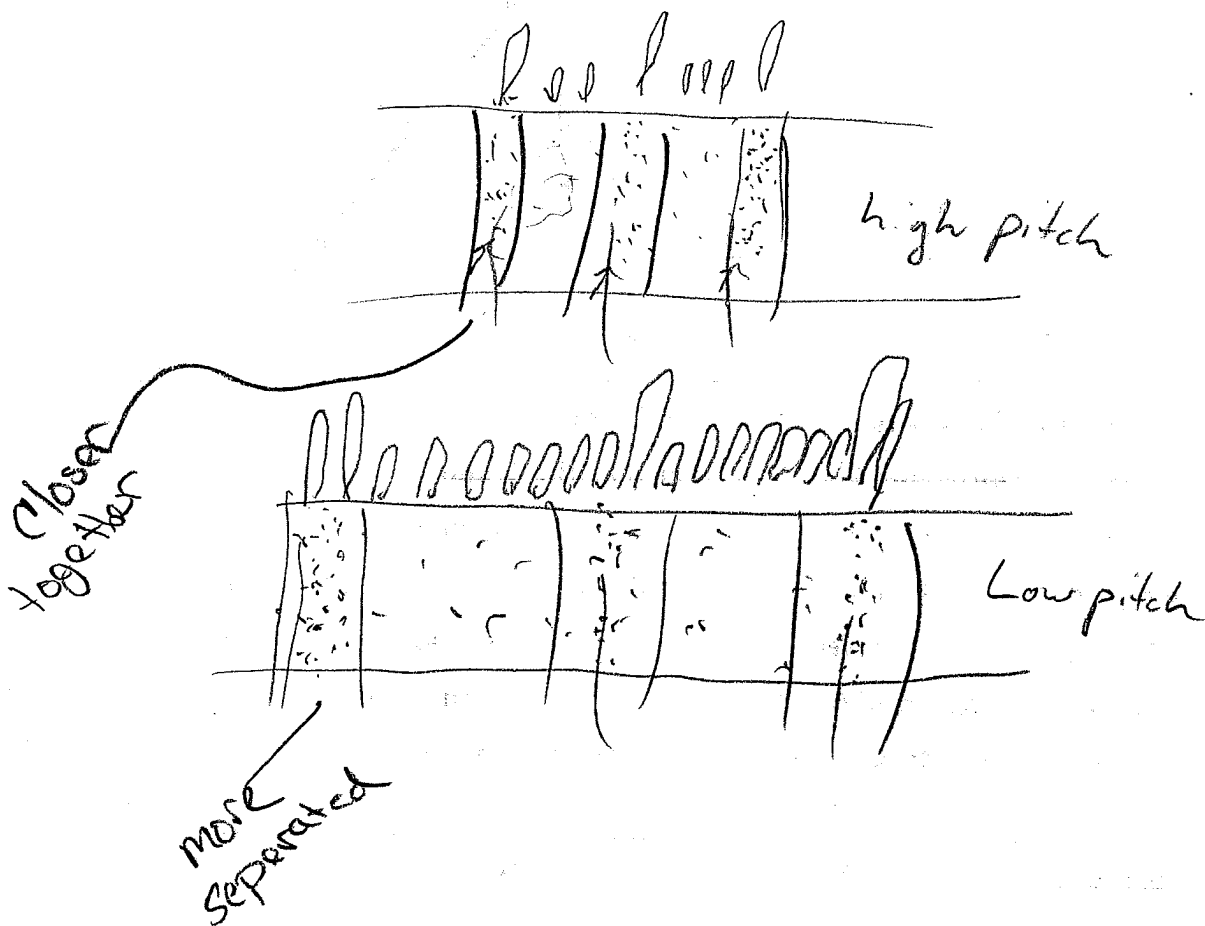
In your answer, be sure to write about the following:

- ✎ How the difference in pitch is created by the drums
- ✎ How the energy wave causes the difference in pitch

To have a complete answer, you must include the following: *(use this checklist)*

- Evidence and examples from each “bucket” to support your explanation of pitch
- A model/diagram of the instrument, the air, and the high vs. low pitched sound wave
- Use the words from the word bank in your explanation

Word Bank: pitch, vibration, air particles, wave, energy, compression, rarefaction, density, wavelength, etc...



The drums have different pitches because it depends on how many vibrations the drums can create. So the small drum would have a higher pitch because it can create more vibrations. The bigger drum would have a low pitch because it creates less vibrations.

The energy waves cause the difference in pitch by traveling slow, fast, soft, or hard. Depending on these things the waves make different pitches. When the waves have to travel through something those things affect the pitch.

#3

An example of how compressions and rarefactions is the Rubeen's tube. When the gas was inserted and the flames were lit they were all even because there was no sound running through the tube. When there was sound played into the tube, the flames were higher where the compressions of the sound waves were.

The flames were even where the rarefactions of the

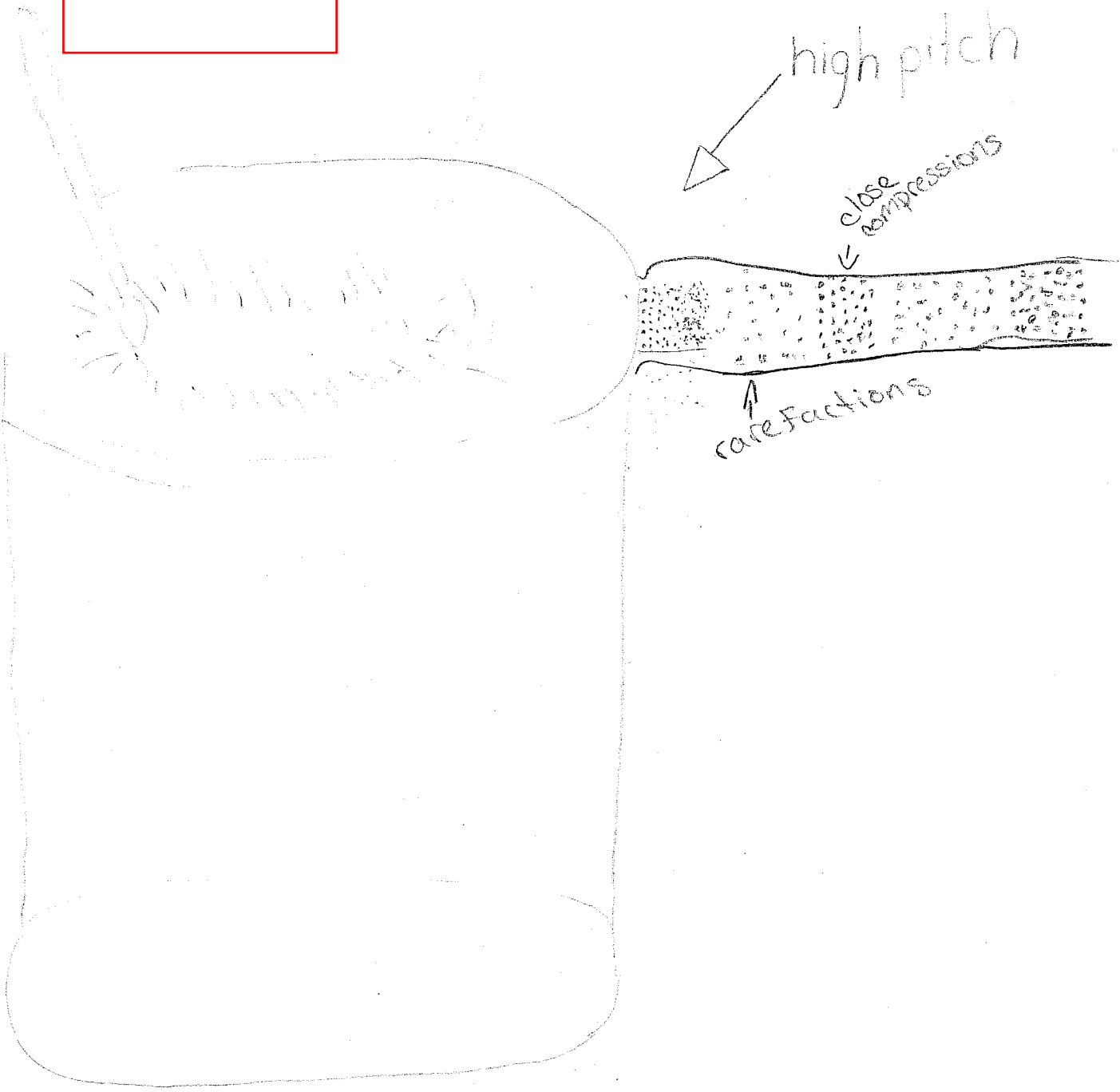
soundwaves were.

#1 We know that the speed of the vibrations affect the pitch because of our experiment with the tuning forks and the paper, water, and ping-pong balls. The paper was probably the most help because you could hear the different pitch and the speed of the vibrations of each pitch. The higher the pitch the faster the tuning fork vibrated.

#2 We also learned that the pitch doesn't change over time but the volume does. We learned this from our experiment with the tuning forks and garageband. When you found the pitch using the tuner it stayed the same no matter how far, close, loud, or soft the tuning forks were. The volume on the other hand changed as time passed.

#4 From the reading we found out that the waves affect the pitch that you hear. When we used the slinkies to show the waves the slink moved slower for the low pitch and then it moved faster for higher pitches.

LISA



$\rho = \text{more}$
 $\rho = \text{more}$

LISA

