Sound Program of Study Daily Plan

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Inquiry-based Science Curriculum from
The *Guided Inquiry supporting Multiple Literacies* Project
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Cycle 1 – 1st-hand investigation as a Teacher Interactive Demonstration

Engage

We all know that we can make sound with our voices.

How are the sounds that we can make with our voices different? What are the different kinds of sounds that we can make?

- *Introduce or recognize/emphasize loud/soft to describe volume or loudness of sound*
- *Introduce word pitch and use of language high/low to describe it*

What do we think happens when we make sound with our voice? Let's say "hello."

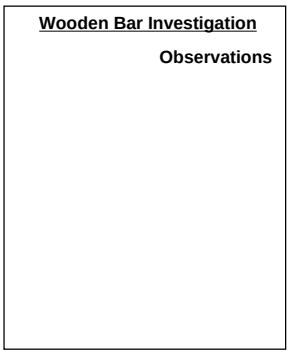
- First, what can we feel?
  Direct students to put hands on throat and then on their nose while saying "hello." Indicate this is a way to observe what happens when we make sound with our voice.
- What do you observe by feeling?
  Introduce or recognize the word vibration to describe what is felt. [operational definition]
- Now hum with your mouth closed, and feel with your fingers around your chest, throat, and face (*point to places as they are stated, include lips*) to see what you can observe.
- Now let's make different pitches with our voices and see what we can observe.
  How will we observe? [*If needed, remind students they just made observations with their hands, and ask them to state what they did*.]
  Let's first make a low pitch hum.
  What do you observe with your touch?
  Now let's make a high pitch hum.
  What do you observe with your touch?
  Did you notice any differences?
  [*May want to repeat this sequence but with loud and soft humming*.]

It's hard to observe what's happening in our throat with our voices, but we can study sound in other ways. We are going to be studying sound in science, using several materials in addition to our voice that can make sounds.

Investigate – Interactive Demonstration: *Metal/Wooden Bars*

Here is a set of wooden/metal bars [*point to an unordered pile*].

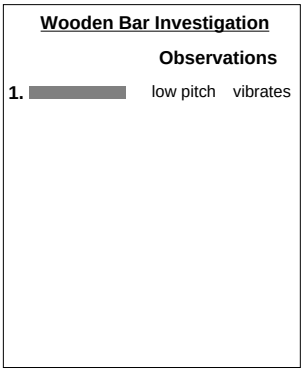
- If we make sound with the bars by tapping them with this mallet, how do you think the sounds from these bars might be the same? How do you think they might be different?



These bars can make different pitches. We are going to investigate their pitches, and record what we observe. I've prepared this chart so that we can record our observations. [*put up chart*]

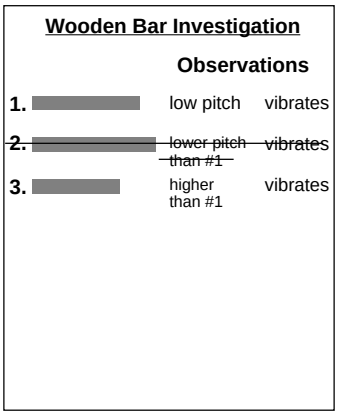
- If we want to put the bars in order from low pitch to high pitch, with which bar should we start?
  Take the bar that the greatest number of children nominate, and ask a student or have a student volunteer to trace the bar on paper that is posted, so that its length is shown in a horizontal orientation.

Let's listen to its sound. [*Ask a student, or take a volunteer, and have the student strike the bar so the class can hear the sound.*]



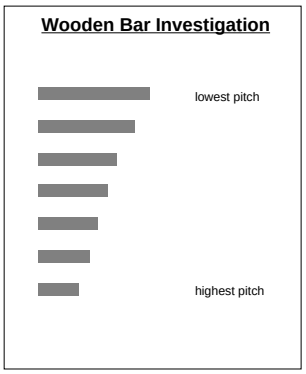
- What can we observe about the bar when it's making a sound? What did we observe when we made sound with our voices?
  Record Ss judgments of the pitch.
  If only pitch is mentioned, prompt students to remember what observations they made with their fingers
  What do you feel when this makes a sound?
  [*have several students lightly feel the bar*]
  If needed, prompt:
  Is there any evidence that the bar vibrates?
  Record Ss judgment of whether the bar vibrates. Then, put a piece of masking tape on it with the #1 written so that it can be easily visually distinguished as Bar #1 when the observations are discussed and compared.

- Which bar do we think will make the next highest pitch?
  Using whatever bar the majority of students select, trace the bar on the observation sheet. Then, prompt the Ss for their observations of pitch and whether it vibrates [choosing new students to make the observation and judgment about vibration] and record the observations for the new bar. Place a piece of tape on the bar with a #2. Help students determine what to write for the pitch by suggesting that they can state it in terms of whether it is lower or higher than the pitch for Bar #1.
- Remembering that we are trying to put the bars in order from lowest to highest pitch, have we done that so far?
  If yes, continue the process as before and keeping adding observations to the sheet.
  If no, ask students to select a different bar that they think will make a higher pitch than Bar #1, cross out the data, and record the data for the new bar.



Once two bars have been selected that differ in pitch in the desired direction, continue with the same process of investigation and recording. The pitch difference will not always be in the desired direction, but as long as the selections are generally in the direction of higher pitch, keep recording data as is, and when the subsequent bar is a lower pitch, simply record that observation for pitch.

It is likely that the students will be able to get several bars in order, so that the data sheet will show a pattern of pitch and length. So, when all the bars have been observed, but not all are in order, have the students try to use the data to figure out how to rearrange the bars to be all in order. With the bars on the floor in the order of the data sheet, have the students listen to the pitches of the bars and change the order of the bars as they see fit. Continue the process of revision, playing the set of bars each time once they have them in order, until they are in the correct order from high pitch to low pitch.



Use a new data sheet to trace the bars in their final order.

Placing the two data sheets side by side, ask students what claims they can make from the data.

There are two claims that can be made from the data: Bars vibrate when they make sound; The shorter the bar, the higher the sound it makes when struck. If needed, guide students to focus on the data that show patterns (e.g., the word vibrates in the observations for each bar, the pattern of change in length, but in as general way as possible so that they are given the opportunity to figure out how to look at the data to see patterns , only getting more specific in focusing them to the data (e.g., by saying you see a pattern on this page of data in how the bars look, or moving one's hand across the data that show a pattern) if needed.

Support students in discussing how best to word each claim, and write their statement(s) on a new sheet entitled in the same way as the other sheets (e.g., Wooden Bar Investigation), but with the heading of: "Claims:"

Investigate – Interactive Demonstration: *Tuning Forks*

I have other materials here that we can use to make sound. Here is a set of materials called tuning forks. You hold them like this, and then strike them with a mallet, or you can strike them on your knee, or you can strike them on the bottom edge of your shoe. You should not strike them on your desk or chair, or anything hard. They are easily dented, and that will disrupt their sound. Here's how you strike them (*demonstrate*).

Sound from these are hard to hear if they are not right next to your ear, but, we can hear the sound if I place the bottom of the tuning fork on something solid and large like a table, after I strike it (*demonstrate*).

If we want to put these in order from high to low pitch, like we did with the wooden bars, what do you predict the order to be? Why do you think that?
[*probe for whether Ss are using the similarities in the wooden bars and tuning forks to make their prediction; e.g., they are both solids, differ in length, and are treated in the same way to produce sound – struck*]
Record the prediction in a drawing and label it as "Tuning Fork Investigation" and as a "Prediction."

Repeat the investigation as done with the wooden bars, including having data sheets and letting students touch the bars when they are making a sound, in order to determine whether they vibrate. Have Ss make claims as before.

Ask Ss to compare the claims from the two investigations. Are there any claims that are the same?
<u>If yes</u>, tell students that when claims are very similar or the same, it is important for scientists to state a claim that combines them, that is more general. Help Ss write a more general claim and record it. Then, encourage Ss to see whether they can combine the other two claims in any way.
<u>If no</u>, indicate that you see two claims that are quite similar, and see whether they can identify them. If they can, proceed as indicated above when students identify claims as similar.

Focus on the claim about vibration: If things that make sound, vibrate, how might we draw those vibrations so that we can use them to show sounds and tell others about them?
Let's have everyone use a sheet of paper to draw their idea about how we might show vibration. Then we'll share our drawings.

Post Ss' drawings and give Ss a chance to see all of them before discussing them.
Analyze the drawings and categorize them into groups as possible, and rearrange the posted papers into the groups.

Gather Ss near where the papers are posted, and have them discuss the nature of the representations in each grouping. Give Ss opportunities to share their thinking about their own drawings, but also prompt discussion about the features that led to the categorizations.

Ask the Ss to try to select one type of representation (i.e., one grouping) to work with. Indicate that they should pick the type of representation that they think best shows others about vibration. Emphasize that scientists typically chose representations that are simple; that is, if they like two, they will chose the one that is less complicated or complex to draw or tell about.
Try to get the class to agree upon one type of representation (or two, if necessary).

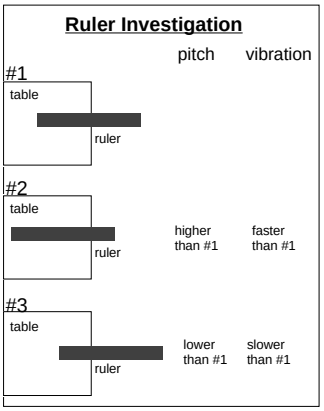
Bring out the ruler, and show how it can be used to make sound. Show it making a pitch that allows them to easily observe the vibrations. Ask the Ss to draw a representation of the vibration that they observe, and write a letter (or word) to tell about the pitch (H – high or L – low).

I want to now make a different pitch with the ruler. Thinking about our investigations with the wooden bars and the tuning forks, what do you think I might be able to do to make a different pitch with this ruler?

After hearing a number of Ss' ideas and determining their ability to recognize the similarities in the materials making sound, and to apply their understandings from the previous claims, try out their ideas. Shorten or lengthen the ruler as needed, and ask students to draw their prediction of what they think the vibrations would look like. Tell them to draw their idea on the part of the paper that has the word prediction (which is written on the board).
[*If at this question, the representations that Ss previously picked do not lend themselves to showing these kinds of differences, allow Ss to select another type of representation, and facilitate discussion about this so that Ss are helped in making a good choice, and the class all works with one (or two, if needed) types of representations*.]

Let's see what happens.

Ask Ss to describe what they observed regarding the vibration.
If needed, prompt them to describe the speed of the vibrations.
Ask how their prediction compared to their observation.
Ask whether the results made sense to them.
Start a chart for recording observations for each position of the ruler. Write observations by comparing the results relative to the observations in the first position of the ruler.



Let's talk about what claims we can make from these observations.
There are two claims that could be made: the longer the amount of the ruler that is vibrating, the lower the pitch; the lower the pitch, the

slower the vibrations.
Support students in discussing how best to word each claim, and write their statement(s) on a new sheet entitled in the same way as the other sheets (e.g., Wooden Bar Investigation), but with the heading of: "Claims:"

As we think about the representations we used to show vibration, how did it work for you to use the representation we selected? How easy was it to show the differences you thought about or we observed?
Support Ss in constructively evaluating the representation. Indicate again, when appropriate, that scientists select representations that make it easiest for them to illustrate their thinking or their observations.

Benchmark Lesson:
To help us to think in another way about how we want to represent vibration, let's look up here for a moment. Like the ruler when it makes sound, I'm going to vibrate my hand. With this pen in my hand, what does the vibration look like?

Now, let's see what the vibration looks like when we move the paper so that the pen doesn't keep writing in the same place on the paper. [*select a student to move the paper, and instruct the student to move the paper at the same rate*]
What do you observe? [*post drawing*]

Now I'm going to do the same thing, but move my hand like I'm making a higher pitch. How should I vibrate my hand differently to make a higher pitch?
If Ss don't correctly answer this, go back to the ruler demonstration and show the ruler when making a low pitch and then a high pitch.

[*repeat demonstration but with a higher rate of vibration; make sure to instruct student helping you to pull the paper at the same rate as before; post drawing*]
How is this result different from the first?
[*If Ss talk about amplitude of the waveforms as well as frequency, that is fine, accept both observations of the difference*.]

Cycle 2 – 2nd-hand investigation: *Interactive Reading*

Begin the notebook text "Sounds in a Bottle."

Engage: Follow the teacher's guide for this notebook text. Introduce it as a 2nd-hand investigation, and indicate that it will read a little bit now, and more later.

Read interactively up to the beginning of the first investigation and the switch to notebook pages. Make sure to sufficiently discuss the diagrams showing amplitude versus frequency, and their relationship to loudness versus pitch – this is a benchmark lesson.

Return to the drawings with the pen and the vibrating hand. Have Ss compare the drawings again, and distinguish the pitch differences shown in the drawings from the loudness differences that are shown.

Cycle 3 – 1st-hand investigation: *Strings*

There are three types of relationships about sound that can be explored with strings: the pitch-length relationship, the pitch-thickness relationship, and the pitch-tension relationship. The pitch-tension relationship is possible because strings can stretch, which is something that can also be explored with rubberbands, and investigated more easily in terms of materials because of what's required to set up strings so that their tension can be changed. Thus, this investigation with strings is designed to take on the relationships of pitch-length and pitch-thickness.

The pitch-length relationship with strings can be studied in two ways: plucking several strings of different lengths, plucking one string with a finger used to hold down the string at different points. These two methods, however, can be seen differently by students because in the situation of dividing a string into lengths with a finger and comparing each side, students may think that the string parts are being stretch differently and attribute that to the pitch. Thus, if both are used, it will be helpful to have students first investigate a context with multiple strings of different lengths. It is also important to note that either method lends itself to examining the pitch of strings of the same length, which is important.

Regarding the investigation of thickness, this is done in the context of having multiple strings of the same length, but different thickness. This relationship may be explored in a teacher-led investigation manner, with the emphasis on having the children plan the investigation. Their experiences investigating string length should help prepare them for thinking about how to use strings of different thickness in the investigation of the pitch-thickness relationship.

NOTE: The following investigation is designed to begin with a teacher-led investigation with multiple strings, followed by a student investigation with one string. The former allows for modeling of experimental design issues that will be important to the next investigation when students use rubberbands. It also allows for conservation of materials in that the context with multiple strings only needs one set up and the context with one string needs multiple set ups. However, you may judge your students to be ready for their own investigation and not in need of more modeling of the investigative set up. Thus, this investigation can be done differently, either leaving out one of the contexts altogether, or using one of the contexts only for some students (e.g., to have more to do for some students who are capable of taking on multiple investigations). If you only do one investigation, we recommend that it is the context with a single string because the data collection is more interesting and provides more opportunities to develop analytic thinking.

Prepare to Investigate – *string length – multiple strings*

Looking at our claims, we decided that length was a factor in determining pitch for bars and tuning forks and a ruler, but what about strings? Do you think that the length of a string will have any effect on its pitch? *When students respond, ask*: "Why do you think that?" *or* "What have you observed that gave you evidence that string length did/did not have an effect of the pitch of the string?"

We are now going to investigate whether the length of a string affects its pitch. I have some fishing line here, and some materials to hold the fishing line down like a string on an instrument.

How do you think I should set up my materials to investigate whether the length of a string makes a difference in pitch?

As Ss share their ideas, draw the set-up on a sheet of paper so that students can compare them. After each student describes an idea (perhaps requiring your help to solidify or articulate it), ask why or how he/she thinks the set-up would enable investigation of whether the length of a string affects its pitch.

Have the class discuss which idea provides the best set-up for the investigation and why. As needed, following a student's description of an idea, indicate what scientists would do (e.g., a scientist would set up the investigation in as simple a way as possible, a scientist would try to control the things in the situation that are not related to the question of interest; i.e., control variables except the one of interest), and ask the student how their set up fits that convention. Only if needed, suggest a way to meet a convention and have the students come up with a new design.

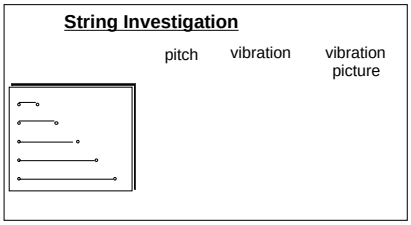
Draw the resulting best design.

Once the class – with your guidance – has selected the best method for investigation, set it up as indicated, and, using the drawing of it, ask how the data can best and most easily be recorded. Indicate that we need to check again for vibration as well. Make suggestions as needed (indicating information about what scientists would do – e.g., use a table to record the data), and write the students' ideas. Have the class discuss the best means of recording data, and prepare a data sheet for the investigation.

NOTE: You may want to prepare two or three set ups with multiple strings. That way, more students can be involved in the investigation, and you can provide Ss the opportunity to have more data to work with. If you do this, consider having one set up be the strings in the reverse order, and one set up with the string lengths not being much different. You can tell the students that as you were thinking about their ideas, you had other ideas and made several set ups for the class to use for investigation. Also, when you set up the strings, be sure to try to make them of the same tension so that it is not an uncontrolled variable. This should be done so that if Ss bring up that issue, you can tell them how you worked to control that variable.

Investigate – *string length – multiple strings*

Invite a student to pluck the strings and record the observations on the data sheet.
For each string, ask students to make a drawing that they think communicates how the string vibrates.



Repeat these steps for each investigative set up.

Looking at our data, what claim(s) can we make for strings about the relationship between pitch and length?
Support students in discussing how best to word the claim(s), and write their statement(s) on a new sheet entitled "String Investigation Claims."

Repeat these steps for each set of data, if you have made several different sets of strings.

The claims that are possible to make are: string vibrates when making a sound, increasing string length decreases pitch, longer string vibrates more slowly and for a longer period of time. It is

not necessary to have children establish that the speed of vibration changes, but if they notice that, enourage all Ss to try to observe that and see what they think.

Prepare to Investigate – *string length – single strings*

Instead of investigating strings by making different strings different lengths, how could we investigate the relationship between the length of string and its pitch if we only have one string? *Show a set up with one string as you ask this question.*
As Ss share their ideas, make sure they state how their idea will result in a change in the length of the string. When a student suggests placing a finger to shorten the string, demonstrate this with your apparatus and point out that when this is done both sides of the string can be played. Also, indicate that you have worked with this apparatus and the sound will be easiest to hear if the finger is placed firmly on the string. Illustrate firm placement versus loose placement.

If this is how we will investigate, what do you think would be a good way to record our data? *As Ss share their ideas, be sure to press them to indicate how their idea would help them easily record their data and keep it organized so that they could tell what they had already done, as well as to help them figure out what data to collect next.*
A good way to collect data is to have Ss use a ruler to draw a straight line on their data sheet that is the same length as the string (assuming that the length of ruler is long enough to measure the length of the string), and to use the ruler to determine exactly where to draw the finger placement. When the pitches are compared, Ss can simply write H or high and L for low on their data sheet to indicate pitches.

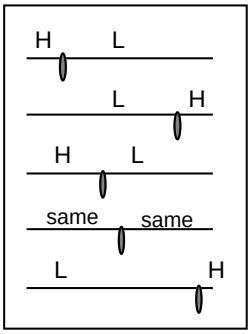
How much data do you think you should collect? How will you know when you have collected enough data? *One rule of thumb you could share is that at least three data points are needed to tell the nature of a relationship.*

As we think about this investigation, we want to be thinking about <u>what</u> makes sounds different, in this case, what makes the pitches the same or different. We already know how sounds can be different, but we've not yet figured out why they are different. So, let's think about that when you are investigating.

Investigate – *string length – single strings*

NOTE: Consider designing your instruction so that actual investigation is done with a small number of students (e.g., four groups of two) at a time so that you can be close by to observe Ss activity and provide feedback as needed.

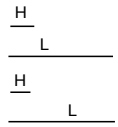
As students investigate string length with one string, check for intended use of the ruler, accurate use, thinking about how much data to collect, accurate data recording. Feedback should be given relative to accurate use of the ruler.



Once all student have collected data and tried to write a claim, post all the papers on the board and have Ss discuss how to put together the data to determine whether there are any patterns. As Ss share ideas, press them for how their idea would help to combine <u>all</u> of the data.

If no one suggests it, you can suggest that the length of the string for the low and the high pitches be cut out so from each paper so that all the information can be combined.

Then, use one sheet of data that you prepared, and show the Ss what you were thinking by cutting up the paper. This will model the action with the data sheets that you want them to take (cutting across the sheet between each string, then cutting off the ends to where the string drawing started/ended, then cutting the string length at the point of the finger placement that was marked. Tape each segment on the board as you are cutting them out.



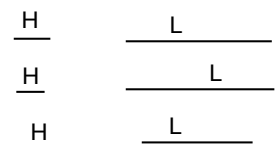
Now what should I do with all these pieces? How should I organize this data?

As Ss share ideas, press them to tell how their idea will help find patterns in the data. If no one suggests it, you can suggest that you were thinking that you would group the data, putting the things that are alike together.

What are the things that are alike in my data that I could use to group these pieces to help me find a pattern?

If students are making suggestions that are off the mark, remind them of the questions we've been asking: How are sounds different and what makes them different?

Group the pieces together (rearranging them on the board as they are grouped), making one group that shows low pitches and one group that shows high pitches.



Do you think this helps us see a pattern?

Now each group needs to organize their data to see if they can find any patterns.

Organize some time during the day for Ss to cut out their data and paste them on another sheet of paper in their organized groups.

Once all the students have organized their data, post them on the chalkboard.

Do you see any patterns? What do you see?

As Ss share ideas, raise questions about whether what they are seeing is true for <u>all</u> of the data. What about these groups where the pitch was the same? How do we fit that into a pattern?

What claim do you think we can make about strings from these data?

Support students in discussing how best to word the claim(s), and write their statement(s) on the sheet entitled "String Investigation Claims."

Also, promote discussion about what they think is making a difference when the pitches are different. Refer back to your statement asking them to think about what makes sounds different. Use this opportunity to have students think about vibration and why the vibration might be different.

How does this string claim compare with the other?

How do these claims about strings compare to what we found out for length with the bars, tuning forks, and ruler?

I think it's time to see if we have any claims that as a class (community) we all think are accurate. What claim might we make about length and pitch?

Support students in discussing how best to word the claim(s), and write their statement(s) on a new sheet with the heading of: "Community Claims about Sound:"

The claims that children might make at this time is that length affects pitch; same length, same pitch; the longer the length the lower the pitch. Also, a claim can be made that things that make sound vibrate.

NOTE: For students who are more advanced, they can become involved also in an investigation about the relationship between thickness and pitch. You can either chose to have them do this instead of the single string or in addition to. Investigations about thickness must be done in a way that attempts to control tension as well as length. Again in this case, the means for fastening or tightening the strings must allow you to control for tension or at least have it similar enough that if a student mentioned that possible difference, you could show how it was controlled for.

These students should be asked, when the class is discussing community claims, how they might link their findings to the others. Since thickness can be thought of as a linear measurement, Ss could argue that increasing the thickness is like increasing the width of a string, which is similar to making it longer; in both cases the string is made bigger, and that affects the pitch.

Cycle 4 – 1st-hand investigation: *Rubberbands*

There are three sound relationships that can be investigated regarding rubberbands: length, thickness, and tension. However, it is challenging to change the length without changing tension, so, examination of the length-pitch relationship is not a part of this investigation. In addition, because rubberbands are so flexible, it can be challenging to control all the variables intended. For example, although we want to investigate thickness, it can be challenging to get rubberbands that are the same length but different thickness, and keeping the tension constant can be tricky when stretching a rubberband around pegs because the two sides of the rubberband may not be stretched equally.

This investigation is intended to be done by students, and not teacher-led as in the other cases. However, the teacher's role in helping students prepare to report is crucial, and even more so in this case since the students will set up their investigative context and will be the ones manipulating the rubberbands.

Prepare to Investigate – *Rubberbands*

This time we are going to make sounds with rubberbands. We are still investigating the question: What makes sounds different? This time you will be determining within your group how you should best set up and use the materials to investigate.

Using rubberbands will enable us to investigate the relationship between pitch and tension as well as thickness and tension. Each group needs to select one of those relationships to explore, and if you have time, you can explore both.

We will be using a pegboard and pegs to hold the rubberbands, and you can easily move the pegs to a different position to investigate. [*illustrate with actual pegboard*]

I suggest that you begin with using just two pegs to investigate so that you can pay attention to setting up a good investigation, and later you may use up to four pegs.

Before we begin, let's talk about what we need to think about when we investigate with rubberbands. First, let's list all the ways that rubberbands can be different from one another. *For each characteristic named, have the student show rubberbands or a rubberband with the differences. If all the possible differences are not mentioned, add your own ideas.*

If rubberbands can be different in all these ways, and we just want to know whether tension makes a difference, what do we need to do?
For instances described that include multiple uncontrolled variables, ask, for example "How will we know it is tension and not length that is making the difference?"

Once we figure out how to set up our materials to do a good investigation, how should we think about how to record our data?

For thickness, if students don't mention it, indicate that they can trace along the sides of the rubberband to show its thickness and use a ruler to document its length.

For tension, tell (and show) students how to "measure" it using a ruler. Here are the steps:
1. *Put the rubberbands on the pegs so that each side is as loose as it can be without having the rubberband touch the peg board.*
2. *Grab the rubberband with a finger by each peg, but make sure that each finger is right next to the peg.*
3. *Pull the rubberband back to the peg from where you were holding it.*

If you do this the same way each time, then you can count how many times you stretch the rubberband; the more stretches, the tighter the rubberband. Thus, on their data sheet they can record the number of pulls.

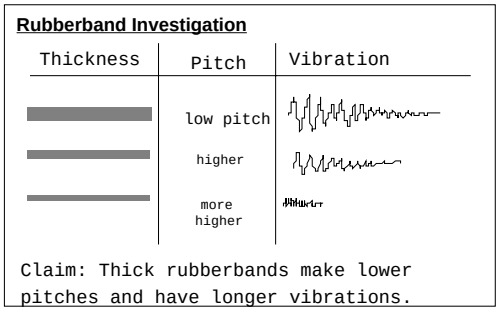
If Ss don't mention organizing the data in a table, gesture to the posted data sheets from other investigations and ask Ss what these suggest about how we might organize the data.

This time, instead of imagining what the vibrations look like, you might be able to see them. So, think about drawing the vibration pattern that you think you see.

Investigate – *Rubberbands*

As students investigate with the rubberbands, check for control of variables, attention to extraneous variables (e.g., how high the rubberband is on the peg – encourage Ss to set those to be the same), recording amounts of targeted variables (e.g., thickness), thinking about how much data to collect, accurate data recording. Feedback should be given about extraneous variables and recording amounts of targeted variables.

Encourage Ss to use a table to record their data.
Have Ss write a claim for what they found out.



When all Ss are finished collecting data and writing a claim, group the posters by the variable that they investigated .

For reporting: put that posters on the board for one variable. Consider having some groups in each group report, but not all groups. Choose groups that have posters that provide the greatest opportunity to learn, either within themselves or in contrast to others.

Have the class determine similarities and differences in what they see on the posters, both regarding the data as well as the choices in the procedures of the investigation.

Support Ss in asking questions of the group members regarding what they found out from their investigation and their decisions about how to investigate, so that the students understand what is on the poster.

If the claims are similar, have the students pick the wording they think is the best or construct a different one, drawing from wording from several posters.

Repeat these procedures for each group of posters.

Have the class discuss what additional claims they can write for their community claims. Support students in discussing how best to word the claim(s), and write their statement(s) on the sheet with the "Community Claims about Sound:"

Cycle 5 – 2nd-hand investigation: *Interactive Reading* (cont.)

With all of our investigation, we are now in a good place to read more of the book that we started before. What do you remember about Lesley Park and the children making sound with pop bottles?
Press Ss to be specific or to include detail in what they recall.

With our investigations, we tried to document vibrations, but it was quite difficult. We did not have an oscilloscope the Lili told Lesley about. In reading this book, we'll be able to see what Lesley found when she used an oscilloscope. So, let's see what happens.

Begin the notebook text on the page of Sound Investigation #1.