2012 Summer Curriculum Institutes
for SCSU TAT Alumni

Team Leader: Judith Leach
Team Members: Stephanie White & Raquel Rodriguez
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Original Reading #1</td>
<td>4</td>
</tr>
<tr>
<td>Modified Reading #1</td>
<td>7</td>
</tr>
<tr>
<td>Original Reading #1 Resources</td>
<td>10</td>
</tr>
<tr>
<td>Modified Reading #1 Resources</td>
<td>12</td>
</tr>
<tr>
<td>Original Reading #2</td>
<td>16</td>
</tr>
<tr>
<td>Original Reading #2 Resources</td>
<td>19</td>
</tr>
<tr>
<td>Modified Reading #2</td>
<td>22</td>
</tr>
<tr>
<td>Modified Reading #2 Resources</td>
<td>24</td>
</tr>
<tr>
<td>Frayer Model Vocabulary</td>
<td>28</td>
</tr>
<tr>
<td>Resources</td>
<td>36</td>
</tr>
</tbody>
</table>
Introduction

The 5th grade science curriculum for the New Haven Public School District does not follow a scripted/package curriculum. The science teacher pulls from a group of resources. These resources will be listed in the resource section. Presently, she uses the State of Connecticut Grade Level Expectations to guide her lesson objectives and long term curriculum goals. However, because of the recent changes and mandates by the Connecticut Department of Education we realize that changes will soon be made to incorporate the new Common Core Standards. Additionally, because the Common Core addresses both speaking and listening skills it has become paramount that we provide opportunities for our ELLs to demonstrate their language proficiency. This summer curriculum project has created an opportunity for our team to revisit our practices and take part in collegial conversations about how to modify both our materials and practices to best meet the needs of our ELL/bilingual population.

The modified readings were pulled from the Science and Technology for Children (STC) Kits. The kits are provided by the New Haven Public Schools (NHPS) science department. The modifications were made to the readings in an effort to make it more accessible to English Language Learners without reducing the complexity of the content but rather to reduce the linguistic intricacy. We simplified where language complexity was an issue and elaborated the text to clarify concepts. By exposing the gist of the reading and front loading target vocabulary (We chose the Frayer model for vocabulary instruction because it allows for a deeper understanding of concept words), it thereby reduces the stress of language processing overload. In doing this it allows our ELLs more opportunities to participate in academic discussions not only during literacy but more importantly in the science classroom discussions.

Mastery of content specific academic language is our end goal and using academic language in their discussions along with speaking during oral presentations will help them to master the new common core standards.
Crickets chirp, rabbits thump, and birds sing! Animals make sounds to tell each other things. Some animals like dogs, make sounds in their throats, the way people do, although they cannot speak words or make as many different sounds as people can. "But how do people make sounds?" You may wonder, "How do I make the sounds that I hear when I talk or sing?"

To make these sounds – to speak, sing, laugh, or shout – you use your vocal chords. They are in a place in your throat called your voice box, as the drawing shows.

You can find your voice box by locating your Adam's Apple. Your Adam's apple is a piece of tissue (cartilage) inside your throat at the front of your voice box. To find your Adam's apple, gently touch the front of your neck at about the middle of your throat. Your Adam's apple will feel like a bump. Do not worry if you cannot find it. If you can speak, you definitely have a voice box.
Now look at the drawing again. You will see that your voice box is at the top of the tube called the windpipe (trachea). Your windpipe goes down to your lungs. When you are ready to speak or sing, you send air from your lungs up your windpipe. This happens so fast you usually don’t even know you are doing it. The air moves up your windpipe, through your voice box, and out of your mouth. When the air passes between the vocal chords in your voice box, it makes them vibrate, and you hear the sound of your voice.

Air also passes between your vocal chords each time you breathe in or out. But the vocal chords are open so that they do not vibrate when you are just breathing. When you want to speak or sing, your vocal chords tighten up and move closer together. These two pictures show the difference.

You will make a model of your vocal cords today. The rubber band in your model stretches like the vocal cords in your voice box. The rubber bands make higher sounds when they are stretched tighter, and your vocal cords make higher sounds when they are stretched tighter.

Adult women’s vocal cords are about 11 millimeters (about one-half inch) long. Adult men’s vocal cords are typically longer. They are about 15 millimeters (about two-thirds of an inch) long. Adult men usually have deeper voices than women do. When a boy is about 12 years old and his voice begins to change, his vocal cords grow longer and become thicker. That is what makes his voice sound deeper.

You may have noticed that sometimes your voice sounds “froggy” or “hoarse.” This happens when your voice box become inflamed or swollen because you have used your voice a lot or you were sick. This condition is called laryngitis (lair-in-jite-us). The name comes from the word larynx (lair-inks). Larynx is the scientific name for voice box. People who have laryngitis are usually able to speak only in a soft voice. This gives their larynx a chance to recover.

You may have wondered why your voice sounds different from your friend’s voices. It has its own special sound because of the length and thickness of your vocal cords and the size and shape of your chest, throat, nose, mouth, and the bones in your head. No one else’s head and chest are exactly the same size and shape as yours, so no one else’s voice sounds just like yours.
Modified Reading # 1
Making Sounds with Our Vocal Chords

Crickets chirp, rabbits thump, and birds sing! Animals make sounds to tell each other things. Some animals like dogs, make sounds in their throats, the way people do, although they cannot speak words or make as many different sounds as people can. "But how do people make sounds?" You may wonder, "How do I make the sounds that I hear when I talk or sing?"

To make these sounds – to speak, sing, laugh, or shout – you use your vocal chords. They are in a place in your throat called your voice box, as the drawing shows.

You can find your voice box by locating your Adams Apple. Your Adam's apple is a piece of tissue (cartilage) inside your throat at the front of your voice box. To find your Adam's apple, gently touch the front of your neck at about the middle of your throat. Your Adam's apple will feel like a bump. Do not worry if you cannot find it. If you can speak, you definitely have a voice box.

Now look at the drawing again. You will see that your voice box is at the top of the tube called the windpipe (trachea). Your windpipe goes down to your lungs. When you are ready to speak or sing, you send air from your lungs up your windpipe. This happens so fast you usually don't even know you are doing it. The air moves up your windpipe, through your voice box, and out of your mouth. When the air passes between the vocal chords in your voice box, it makes them vibrate, and you hear the sound of your voice.
Air also passes between your vocal chords each time you breathe in or out. But the vocal chords are open so that they do not vibrate when you are just breathing. When you want to speak or sing, your vocal chords tighten up and move closer together. These two pictures show the difference.

![Vocal cords open for breathing and vocal cords pulled tighter for speaking]

You will make a model of your vocal cords today. The rubber band in your model stretches like the vocal cords in your voice box. The rubber bands (like your vocal cords) make higher sounds when they are stretched tighter, and your vocal cords make higher sounds when they are stretched tighter too.

Adult women’s vocal cords are about 11 millimeters (about one-half inch) long. Adult men’s vocal cords are typically longer. They are about 15 millimeters (about two-thirds of an inch) long. Adult men usually have deeper voices than women do. When a boy is about 12 years old and his voice begins to change, his vocal cords grow longer and become thicker. That is what makes his voice sound deeper.

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You may have wondered why your voice sounds different from your friend’s voice. It has its own special sound because of the length and thickness of your vocal cords and the size and shape of your chest, throat, nose, mouth, and the bones in your head. No one else’s head and chest are exactly the same size and shape as yours, so no one else’s voice sounds just like yours.
Original Reading Resources #1
Making Sounds With Our Vocal Cords - After Reading Questions

Directions: These questions are to be answered using complete sentences and evidence from the text.

1. How are vocal cords similar to your rubber band model?

2. How are vocal cords different than your rubber band model?

3. Explain how your voice and a friend’s voice are different.
Modified Reading Resources #1
Making Sounds with Our Vocal Cords - After Reading Questions

Directions: These questions are to be answered using complete sentences and evidence from the text.

1. Today in class, you had a chance to experiment with a model of your vocal cords. How are vocal cords similar to your rubber band model?

2. How is the model of your vocal cords different than your rubber band model?

3. There are no two voices that are exactly alike. Explain at least three different ways in which your voice and a friend's voice are different.
Making Sounds with Our Vocal Cords - After Reading Questions

1. Today you made a model of your vocal cords. How are vocal cords just like your rubber band model?

The rubber band model of our vocal cords is just like our own vocal cords because ____________________________________________

__________________________________________________________________________

__________________________________________________________________________

2. How is the model of your vocal cords different than your rubber band model?

The rubber band model of our vocal cords is different from our own vocal cords because ____________________________________________

__________________________________________________________________________

__________________________________________________________________________

3. No two friends have the same voice. Explain two different ways in which your voice and a friend’s voice are different.

My voice is different from my friend’s voice because ____________________________________________

__________________________________________________________________________

__________________________________________________________________________

Another way our voices are different is because ____________________________________________
Making Sounds with Our Vocal Cords - After Reading Questions

1. How are vocal cords just like your rubber band model?
   a. They both stretch.
   b. They both can sing.
   c. They are both made of rubber.
   d. They can both talk.

2. How are our vocal cords different than your rubber band model?
   a. It's different because they are both made of rubber.
   b. It's different because our rubber band model doesn't breathe.
   c. It's different because the rubber band model will move on its own.
   d. It's different because they can both speak and sing.

3. No two friends have the same voice. Circle the 3 different ways in which your voice and a friend's voice are different.
   a. Length and thickness of your vocal cords
   b. Location of your vocal cords
   c. Shape and size of your chest, throat, nose, and mouth
   d. The bones in your head
Original Reading # 2
Protecting Our Hearing

Did you know that the thing on the outside of your head that you call your ear is really only part of your ear? The other parts of your ears are inside your head, as the illustration shows. One of these parts is a passageway called the ear canal. At the inside of the ear canal are the delicate parts of your ear with which you actually hear. Today you made a model of one of these parts -- the eardrum.

The eardrum and the other parts of your ear have particular jobs to do, but they all work together. The outer ear, for example, catches sound waves and directs them farther inside your head through the ear canal. The sound waves then hit the eardrum. As you can recall from experimenting with your model, the eardrum vibrates when sound waves hit it. The eardrum needs to vibrate for hearing to take place.

The location of the eardrum inside a person’s skull helps protect it from damage. Eardrums are also protected by another safety feature: earwax. This sticky wax collects dust that enters a person's ears. Without earwax, eardrums could become covered with dust; this would interfere with the vibrating when sound hits them.

You may have heard someone say, "Never put anything in your ear that is smaller than your elbow." Of course you cannot put your elbow in your ear, but it is a good idea not to put another
object in your ears either. Besides damaging eardrums, objects can get stuck in your ear and interfere with hearing.

Another thing that can damage your hearing is loud sounds. Even music that you like to listen to can be harmful if it is too loud. How can you tell if a sound might be loud enough to damage your hearing? If you cannot hear someone talking two feet away from you or if you must raise your voice above the noise around you in order to be heard, it is time to protect your hearing.

One thing you could do to protect your hearing is to move away from the source of the sound. If you can't do that, you can just cover your ears. That is what people do when they work around a lot of noise. Musicians, for example, sometimes wear earplugs to protect their hearing. And at construction sites and airports, you may have seen workers wearing ear protectors that look like headphones.

Even though they may take care of their hearing, people of all ages can have hearing problems. For example, people may lose their ability to hear high-pitched sounds. Both children and adults with hearing problem sometimes use hearing aids. These tiny electronic amplifiers can help make sounds louder, but they cannot always restore normal hearing.

Sometimes we take our hearing for granted. But if we stop for a moment to think some of the sounds that are important to us - sounds of voices, music, animals, rain, thunder, and many others - we quickly recall how important our hearing is and why we want to take good care of it.
Modified Reading # 2
Protecting Our Hearing

Did you know that the thing on the outside of your head that you call your ear is really only part of your ear? The other parts of your ears are inside your head, as the illustration shows. One of these parts is a passageway called the ear canal. At the inside of the ear canal are the delicate parts of your ear with which you actually hear. Today you made a model of one of these parts—the eardrum.

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Another thing that can damage your hearing is loud sounds. Music that is too loud can be harmful. How can you tell if a sound might be loud enough to damage your hearing? If you cannot hear someone talking two feet away from you or if you must raise your voice above the noise around you in order to be heard, it is time to protect your hearing.

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Even though they may take care of their hearing, people of all ages can have hearing problems. For example, people may lose their ability to hear high-pitched sounds. Both children and adults with hearing problem sometimes use hearing aids. These tiny electronic amplifiers can help make sounds louder, but they cannot always restore normal hearing.

Sometimes we take our hearing for granted. But if we stop for a moment to think some of the sounds that are important to us - sounds of voices, music, animals, rain, thunder, and many others - our hearing is important and we want to take good care of it.
Original Reading Resources #2
Protecting Our Hearing After Reading Questions

Directions: These questions are to be answered using complete sentences and evidence from the text.

1. What are some ways to prevent your hearing from being damaged?

2. What do you think a hearing aid is used for?

3. Use words or pictures to describe your ideas about hearing and a model eardrum.
Modified Reading Resources #2
Protecting Our Hearing after Reading Questions

Directions: These questions are to be answered using complete sentences and evidence from the text.

1. After reading, Protecting Our Hearing, we learned that loud sounds can damage your hearing. How would you explain to a friend at least two different ways to protect your hearing?

2. There are many people in the world that have difficulty hearing. What could be done to improve their hearing? How would this help them?

3. Make a labeled illustration of an eardrum. Explain how you hear.
Protecting Our Hearing after Reading Questions

Directions: These questions are to be answered using complete sentences and evidence from the text.

1. After reading, Protecting Our Hearing, we learned that loud sounds can damage your hearing. How would you explain to a friend one way to protect your hearing?

4. I would tell my friend that you need to ___________________________ to protect your hearing because ___________________________.

5. ___________________________.

2. Many people have difficulty hearing. What could be done to improve their hearing?

Some who has difficulty hearing could ___________________________. This will help them because ___________________________.

3. Label the illustration of the ear with the three sections of the ear and the three inner parts of the ear.

Illustration.

The parts of the ear
Protecting Our Hearing after Reading Questions

1. Loud sounds damage your ears. How can you protect your hearing?
   - Sit closer to loud sounds
   - Move away from loud sounds
   - Make loud sounds
   - Ignore loud sounds

2. To help people who have difficulty hearing, they could:
   a. Talk louder
   b. Wear ear plugs
   c. Listen very carefully
   d. Wear a hearing aid

3. Here is a model of an ear. Using the word bank, label its parts.

Word Bank: Middle ear, Eardrum, Outer Ear, Bones of middle ear, Ear canal, Inner ear

The parts of the ear
Frayer Model Vocabulary
See PDF Files for Worksheets
See PDF Files for Worksheets
See PDF Files for Worksheets
See PDF Files for Worksheets
See PDF Files for Worksheets
See PDF Files for Worksheets
See PDF Files for Worksheets
Resources

Frayer Model Worksheet Generator

http://www.worksheetworks.com/miscellanea/graphic-organizers/frayer.html


Sound Vocabulary

Name: ______________________  Date: ______________________

Definitions

Characteristics

Absorb

Examples

Non-Examples
Sound Vocabulary

Name: __________________ Date: __________________

Definitions

Characteristics

Vibration

Examples

Non-Examples
Sound Vocabulary

Name: ____________________  Date: ____________________

Definitions

Characteristics

Volume

Examples

Non-Examples

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