

The Endo-Confusion about Our Skeletal and Muscular Systems

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Introduction

When I was in the fourth grade, I had a bike accident. It involved me (the dare devil that I was) playing chicken with the local neighbor kid. We both rode our bikes, pedaling as fast as our little legs could go, directly towards each other. I guess you can say I lost... I lost my nerve as I approached him and veered off the road. What was awaiting me was a long, bumpy, and quite painful slope down to a not so friendly fence. I don't recall much of that fall. I do, however, remember the pain I felt shooting rapidly through my right leg as I crashed to the ground and slid down the hill. I masked the fact that I broke my leg to my mother and father for quite some time. I would limp only secretly, but like all parents they eventually caught on. By the time my parents were able to get me to the doctor, my leg had already begun the healing process. I remember wondering; how do bones heal themselves? Are there little men in there with bandages just waiting for a sign to get to work? My mother, on the other hand, was more concerned about the fact that the doctor was spouting out things dealing with infections that may have snuck into my marrow and various bone diseases. I remember for about three months after that episode I was forced to go to the hospital weekly for blood work, just to keep an eye on everything. I ended up being fine. My mother, on the other hand, got grayer with every passing week.

I guess you can say I am accident prone. I have broken my left leg twice, each arm, four fingers on my right hand, a growth plate in my left wrist, and all my toes (except my left big toe). Each time I was left wondering how it is that bones heal. What exactly is going on?

When I first heard about the Charlotte Teacher Institute and *“Performing” Experiments: Exploring Depictions of Science in Theater* seminar, my mindset was somewhere else. I was a fifth grade teacher at the time and I was driven by the idea of building a curriculum unit around Newton's laws of motion, but my circumstances changed. Now I sit here, as a third grade teacher, with an entirely different set of standards and objectives to teach. I quickly began thinking ahead, wanting to come up with an equally strong curriculum unit that I could use in my third grade classroom. The more I thought, the more I kept coming back to competency goal four: “The learner will conduct investigations and use appropriate technology to build an understanding of the form and function of the skeletal and muscle systems of the human body.”^{CITATION}

^{CITATION} (North Carolina Department of Education 2004)

One word specifically stood out to me in this seminar title: “performing.” I knew that was the key to my curriculum unit. How would I incorporate the act of performing in my classroom? I began to think about a play and all of its roles. Then I began to realize our body is very much a stage and all the parts and systems are the actors. They are all performing different roles, yet working together for one production... me. So, that is how I got to my curriculum unit, "The Endo-Confusion about Our Skeletal and Muscular Systems."




I feel that this is an extremely important unit to teach at my school, specifically. We are currently over 50% free and reduced lunch. My students do not have the same life opportunities and background knowledge as other students in more affluent environments. They do not have exposure to many scientific concepts or vocabulary, so they often find themselves lost in this content area. With an idea as internal as the skeletal and muscular systems, they do not have the knowledge to understand something they can't see. That is why I feel this unit is so very important. It has been proven through countless essays, studies, and educational journals that students learn best when they are allowed to investigate, peer teach, and create hands-on learning opportunities. That is exactly what this entire unit aims to do. This unit gives students the opportunity to think for themselves, form their own thoughts and opinions, and express those learned concepts in several ways that will impact each diverse learning style.

Considering that our bodies are in constant movement and things are always going on, I decided that this was a great way to incorporate the arts into my unit. I also know, from years of experience, that children struggle with concepts that are happening internally. When children can't see what is going on, it is hard for them to understand, draw conclusions, and build a concrete base of knowledge. That is why I felt it was so important to have a curriculum unit that is interactive, engaging, and motivates the logical, linguistic, spatial, kinesthetic, interpersonal, and intrapersonal intelligences. All kids learn differently. We as educators know that, but somehow we lose touch with it and find ourselves teaching to the masses.

The curriculum unit is broken down into six sections and spans over a two-and-a-half week period. In third grade, science is taught for forty-five minutes daily. (Each of the five sections is meant to take two days, but I understand that every classroom is different. Every single classroom is unique, and therefore works at different paces; what took my students two days may take your class one or three.) I start off the unit with the “opening act,” or the unit introduction. This is the time that the students begin to access prior knowledge and learn some basic core vocabulary and functions. The second section will be focusing on the “lead actors,” or the large bones and muscles. During this part of the unit, I take the time to begin introducing my students to various large muscle groups and bones and their locations and functions within our bodies. The third section is devoted to the “supporting actors,” i.e., smaller bones and muscles, and my students learn that even

though these bones and muscles are small in stature, their function is significant. The fourth part of this unit is when I teach my students that behind every great actor is a great director. This is when my students learn the important role the brain plays in the muscular system and the communication that occurs between those two areas. The fifth portion of my curriculum unit involves discussions about red and white blood cells and how they are produced in our bones. I teach my students that they are often overlooked and behind the scenes, but they still have an important job as warriors fighting infections and diseases. Our last section, or “curtain call,” is when I assess how much the children gained throughout the five week unit. It is also a time where we can go deeper into some topics like fractures and the history of the x-ray machine. It is the time I reflect on the data collected and make sure all my students are taking something striking, applicable, and concrete with them, before I take my final bow.

Throughout any unit I find a KWL chart to be the most helpful instructional tool. It is a very easy pre- and post-assessment tool. It measures what the students already know, what they want to know, and what they have learned. The KWL chart will be used throughout the unit. However, I find it to be the most important at the beginning. It is the data that will help plan differentiated re-teaching and extension activities for specific students’ needs. After the students express their background knowledge that they’ve already acquired, then I move into the next section of the chart. This is the part where they express what they want to learn about the topic. This once again is another valuable assessment tool. This helps me discover where their curiosity lies. This helps me pull in some areas that they find incredibly interesting to “hook” them into each lesson.

	K	W	L
Questions	What I already know about... 	What I want to know about... 	What I learned about... 
What do you know about your skeletal system?			
What do your bones do?			
What are your bones made of?			
What is a muscle?			
How do muscles			

move?

What are your
muscles made of?

Introduction: Opening Act

The opening act (unit introduction) is a great time for me to assess the knowledge my students are bringing to the table. Before I even have them brainstorm, or discuss what they think they know about our skeletal and muscular systems, I give them a handout that has two outlines of the body (you can Google an image). I have the students show me what they believe their skeletal system looks like inside of their body. After the students complete that body form, I have them illustrate what they think their muscular system looks like in the other body outline. This is a great way to see what they are visualizing in their heads. It is also a quick informal pre-assessment of their prior knowledge. After my students complete their illustrations, I have them share them in their groups and discuss their individual pictures. After the children have had time to share, I show them diagrams of the skeletal and muscular systems. I give them time to compare their image to a realistic diagram. This is also a great time to introduce them to diagrams and the text features that are included (title, labels, etc.)

Next, I introduce them to Stanley the Skeleton, a puppet. This is a character I created to help keep my student's attention. He is simply a cute little skeleton I picked up around Halloween time and use as a puppet to keep the kids engaged. Stanley is also extremely useful to keep transitions focused and quiet. Through Stanley I introduce my students into some of the basic vocabulary terms (bone, muscle, etc.) that will be used throughout the unit. I also always add those vocabulary words to my classroom word wall, so the kids can easily access them for their many activities.

Once the vocabulary is introduced, I like to hold a short lecture and discussion. I start by talking about the complexity and seemingly effortless way the skeletal and muscular systems work together and how it rivals any performance at the American Ballet Theatre in New York City. I tell the students that while impulses from the brain travel to the bones and muscles within our body, we react by making the impossible possible. From a gymnast doing flips in the air, to a runner sprinting across the finish line, these are all examples of our body performing. This is a time I like to show athletic video clips of amazing athletic accomplishments.

The goal of this introduction is to help students understand the amazingly complex systems they possess. No, this is not a conversation about the latest game console to be developed. It is a discussion used to uncover the concept that we possess our own gaming systems within our own bodies, how it works, and what it does for us.

I like to have the students guess how many bones we have in our bodies. I record their predictions on the board. Then I discuss that two hundred six bones make up our endoskeleton and how it works to support our body and keep our organs safe. I let them know that during the unit they will be investigating how the bones are made of connective tissue and how this tissue is found all over our bodies. I also teach them that they also investigate the “costume” of the bone by learning that its surface is covered with special cells composed of calcium compounds (this is what gives our bones their amazing strength and structure).

I then talk to them about how the bone’s outside appearance seems to be rather simple, but if they were to go inside they would see an entirely different world. In the interior bone, cells are forming, moving, and crystallizing to create something that can withstand tremendous amounts of stress without breaking. What is so interesting about our entire skeletal system is that despite how much it can support and absorb, it is extremely light and only makes up 18% of our body weight.

To close out my introduction day I end with a great cultural artifact. I use a video that I located on the Internet.^{CITATION} It is a rap called “My Bones.” It is a great way to wrap up the introduction and to spark their interest one last time with a beat that will most likely stay with them all day.

Lesson 1: The Lead Characters

The next section of my curriculum unit is teaching the students about the lead characters within our skeletal and muscular system. From the opening act the students are already bringing a lot of knowledge with them on the functions of both systems, thus we are able to jump straight into the curriculum. This lesson is opened up with the same rap “My Bones” that the students were exposed to in the opening act. I choose to supply them with lyrics, so that they can rap along.

After we are done rapping, I take time to have the students revisit their “W” column on their KWL charts. I have them carefully read the questions they have and to pay close attention in class. I do this because some of their questions may be answered and they can write the answer in the “L” column, because it is now knowledge acquired.

I like to have my students recall how many bones we have in our body. They usually get it correct and I confirm that we do have two hundred six bones in our bodies. I tell them that when they were born they had at least three hundred bones in their bodies and

^{CITATION} (www.sonsofhigherlearning.com 2009)

as they grow, some of their bones fuse together and new bones are created. Once all of this takes place, we are left with approximately two hundred six bones.

I then supply the students with a skeleton diagram (available from Google images). I also have Stanley come and visit the class. I have him make some jokes about bones. After we have a good laugh and the students are once again “hooked,” I ask them to look at the diagram closely and use highlighters to locate the largest bones. The students take a few minutes to highlight all the large bones they can locate. Once they have had time, I show them my diagram. We then go over the handout together. We identify, locate, and label the large bones (tibia, fibula, femur, humerus, radius, ulna, and the skull). I think the skull is one of the most interesting; I always make sure to tell my students that the skull was once twenty nine separate bones, but as time goes by the bones join together.

Once we have discussed the bones, their functions, and composition, I break the children into seven small groups of three (obviously your class may be different). I give each group a small write-up about their bone. It is their job, within their group, to come up with a skit that teaches the class about each bone’s location and role. Some students act as the bones, some students act like they are scientists studying the bones. Every group will interpret this task differently, but either way they will be entertained! This skit also serves as a terrific informal assessment. I have a checklist I use for each group to make sure they talk about the content areas that were required. Now, you can just give a third class a bone handout and tell them to create a skit. This requires some prep work. Most students should have been introduced to the genre of plays. However, if your class hasn’t been introduced to this topic, you may want to take the time to explain it. Go over the text features of a play and that it is written in parts. You will be surprised how quickly they will pick up on this. If you have a group (or groups) that are struggling, you may want to work with those students and give them a “skeleton” of a play that they can plug information into. That way the pressure of creating the actual skit is taken off of them.

After we discuss our bones we talk about our large muscles. Once again, the students are given a diagram of the human muscular system and they use highlighters again to locate the largest muscles they can find. The students always get a chuckle during the discussion when they learn that the largest muscle in the human body is the gluteus maximus. I make sure my students know that its major function is hip extension. This the time I introduce some gross motor activities to my class. I usually have my students stand up and extend their leg behind them. I tell them that because of the gluteus maximus we are able to do that. ^{CITATION}

We then refer back to our diagram and start discussing the latissimus dorsi muscle that is located in the middle section of our back. The best way for my students to understand

^{CITATION} (World Book Inc. 2003)

its location is to tell them when we wake up in the morning we often arch our backs to stretch. I have everyone mimic the motion so that they can feel this muscles location. I then let the students know that ‘latissimus’ means ‘widest’.^{CITATION} I also make sure the students understand that this muscle’s function is for moving the arms in circles and also moving the shoulders backwards. I once again have the students practice these gross motor skills.

I close out the lesson talking about how muscles make it possible for us to move and that the skeleton makes it possible for us to stand and not be a blob. I put on some music and let the kids dance and I tell them as they dance to pay close attention to the way their bodies feel. Can they feel muscles moving? Can they locate muscles that are being used? During this “dance party,” Stanley often makes an appearance, and I guess you could say throughout this unit he is a lead character.

Lesson 2: Supporting Actors

It was Konstantin Stanislavsky that once said, “Remember: there are no small parts, only small actors.”^{CITATION} I like to use this quote to start the third section of my curriculum unit. I have Stanley make an appearance wearing a Shakespearean style hat and he says the quote to the class in his best old English accent. I then have the students make predictions about how that quote can go along with our skeletal and muscular system unit. I remind them that yesterday we talked about the lead actors, or the large groups. It usually doesn’t take them long to figure out that today we are going to be talking the supporting actors, or the smallest bones and muscles in our bodies.

Once again we go back to our diagrams and I have Stanley make the obvious jokes as the students get prepared to start. Today they use a different colored highlighter to begin identifying the small bones on their skeleton diagram. Once they have had time, I ask them to stop. We begin comparing and contrasting our diagrams and seeing what areas we found the smallest bones in. My students always identify the fingers and the toes. So, that is typically where we start.

I start the discussion with discussing the composition of our hands and wrists. I let the students know that it is made up of five long bones called metacarpals. I then let them know that the bones of the fingers are called phalanges. These are connected to the metacarpals. Lastly, I teach them that in each finger there are three bones and in the thumb there are only two. The students are often surprised to learn that there are twenty

^{CITATION} (World Book Inc. 2003)

^{CITATION} (Stanislavsky n.d.)

seven bones in their hand. Then we talk about our wrists and how they are made up of eight small bones that fit together like an interlocking puzzle. Next, I discuss the carpal bones. I tell the students that they do not always have eight carpal bones in their wrists. I tell them that when they were born they had zero carpal bones but as they got older they gained more bones and now have as many as eight. ^{CITATION}

To wrap up the idea of all the small bones in their hands, I have the students trace each other's hands. Once they trace their hands, I have them use the diagram to draw the bones inside their traced hands. I sometimes find it easier to put my children in pairs. This way they can help trace each other's hand. It just seems to work better.

We move on to the next obvious place, the feet. I like to start with the center of the foot where there are five bones called the metatarsals. I tell my students that these bones are connected to the toe bones which are also called phalanges. We use our little, pinky toe to keep our balance and we use our big toe to push off on when we walk or run.

The following activity is similar to the art activity the students did with their hands. The students will work together to trace each other's feet and then they will take their foot outline and, while referencing the diagram, fill the outline in with the bones of the foot.

Once I talk about these two areas I then discuss with them all the other small bones and their functions within our skeletal system (vertebrae, ribs, sternum, collar bone, and clavicle). I allow the students to choose their favorite bone we discussed today and create a short monologue that tells the bone's function and location. We talk about characters we've see that are small (Tinkerbell). We discuss what does a tiny character sound like, how do they carry themselves, etc. I ask them to keep that in mind when they are performing their short monologues. Once the students have time to create and rehearse their short monologues, I select some students to share. This once again serves as a great informal assessment tool.

We begin discussing the smallest muscles in our system. I share with the students that the smallest muscle in the entire body is the stapedius muscle and it is located in the middle ear. The stapedius muscle is 1.27 millimeters long. This is a great time to pull out metric rulers and have the students build a concrete idea of roughly how small the stapedius it. I then share that the stapedius controls the tiniest bone in the body, the stapes or stirrup bone. ^{CITATION} The stapes and two other bones conduct sound vibrations through

^{CITATION} (Parker 2004)

^{CITATION} (World Book Inc. 2003)

the middle ear making hearing possible. Once again, I emphasize the important role this muscle plays.

I like to talk to my students about what is considered a small muscle but may have the greatest impact. This is where I have the students smile and I tell them they are using very small muscles in their faces called the zygomaticus.^{CITATION} Even those small muscles can brighten someone's entire day.

I wrap up this part of my curriculum unit by revisiting the quote by Mr. Stanislavsky. I use it to remind my students that although the bones and muscles we discussed were small, they have a big impact on how our skeletal and muscular systems operate.

Lesson 3: The Director

This section of my curriculum unit discusses the director behind all of these great actors. I of course am talking about the communication between the brain and muscular system. I open this part of the unit with the students looking more closely at the muscular system and the different types of muscles as well as various other functions they serve.

I tell my students that one of the most amazing things about the human body is the incredible range of movement and mobility it has. My goal is for them to understand how the day to day activities we accomplish are due to our 600 muscles and their extraordinary and fascinating ability to convert chemical energy: energy stored in nutrients, into mechanical energy: energy of movement. Muscles are often viewed as the "machines" of the body. We will also be looking at how our muscles help move food from one organ to another, and how they carry out our physical movement. There are three different kinds of muscles in our body: cardiac, smooth, and skeletal.^{CITATION}

Through my discussion my students will uncover how cardiac muscles work with their heart and how they make it possible, through contractions, to pump their blood throughout their body.

My students and I will also examine smooth muscles, or involuntary muscles, and how they work even when we are not trying. We talk about how smooth muscles are found within the walls of hollow organs. We also discuss why it is important that they work on their own, without us consciously thinking about what we need them to do.

^{CITATION} (World Book Inc. 2003)

^{CITATION} (Flash Anatomy 1993)

We will also investigate skeletal muscles, or voluntary muscles. These are the muscles we decide when and how they move. We will discuss how they are attached to our bones by tendons which allow them move. The skeletal muscles are like puppets on a string and the puppeteer in this performance is the brain. As soon as I mention the word puppet Stanley makes another appearance. He talks about how muscles and the brain talk back and forth. Stanley teaches the students that when they decide to move, the motor cortex sends messages to the muscles. The muscles receive the message and send it back to the cerebellum. Then the cerebellum begins orchestrating the movements they want their body to perform.

This is a perfect time for another skit and I take full advantage of it. The students will work together to create skits depicting the communication between the brain and the muscles. The students may incorporate singing, gross motor movements, or visual aids into their skits. The students are only limited by their creativity. I allow the groups to prepare and gather things from home (props, costumes, etc.) that evening, so they are ready to perform the following day. Once again, these skits serve as review and re-teaching for students who are watching as well an informal assessment for the students who are performing. I'm able to use a rubric to keep track of what they include and the knowledge they have constructed.

Lesson 4: The Backstage Crew (aka "Techies")

The next area of my curriculum unit deals with the backstage crew. This is the part of the unit where I introduce the students to everything else that is going within the skeletal and muscular system. This is where I share all the details revolving around the red and white blood cells, how bones heal, and how the muscles and bones are living organs and not just there.

Stanley the Skeleton serves as my launching point for this day. When Stanley (me) addresses the class, he tells how he never gets a day off because red and white blood cells, as well as platelets, are always being produced inside of his bones. Stanley teaches the students how red blood cells play a vital role within our bodies by using a PowerPoint presentation. The students also learn how the red blood cells deliver oxygen and pick up the unwanted carbon dioxide in their bodies. I also discuss how the white blood cells are our body's warriors fighting off foreign organisms that invade our body.

I realize that what many students do not know is that our bones are considered living organs. The reason for this is because they are made of nerves, tissue, and muscles. These are all things we will be discovering as we go deeper into this section of our unit.

This is the time to add more words to the word wall. I typically add vocabulary words like: nerves, tissue, oxygen, carbon dioxide, etc. As I go through and teach my students

the ins and outs of these areas, we begin to introduce some poetry ideas. I use inspiration from Dr. Seuss to create poetry involving key poetic elements like rhyming, alliteration, and metaphor. The students then create rough drafts of their poems that depict a battle between an infection (the name of which they create ala Dr. Seuss) and the white blood cells. As students complete their rough drafts I hold a writer's conference with small groups and lend suggestions and tips on their poems. This is also a time to help them work through and make some minor mechanical corrections. Once they are done conferencing, they can then begin the publishing phase of their poems. They also illustrate their poems. The poems made a great bulletin board display.

If you find that your students are having difficulty writing poems using Dr. Seuss' model. I would suggest picking one form of poetry (limericks, haiku, etc). Teach the one specific form and model an example of what you are expecting from your students. I've found that limerick poems are by far the easiest for most students to master quickly. Plus they often make for a very fun poetry read!

Closing: Curtain Call

Finally, we reach the end of the unit, or the curtain call, of the curriculum unit and this perhaps is one of the best parts of the entire unit. It is my opportunities to assess my students' newly acquired knowledge as well as extend and elaborate on some concepts we touched on throughout the unit. During this section of the unit, I administer a post-formative assessment to have concrete data to show their growth when compared to the data collected during the pre-assessment.

I find that every time we talk about bones, my students are always curious about x-rays, so I use the closing of my unit to extend on something that they find interesting. I like to tell them about the history of the x-ray, how the x-ray is used, and allow them to view and investigate some x-ray films.

I start by showing them pictures of two men, A.T. Still and W.K. Roentgen (once again Google clip art). I ask them to make some predictions about these two men. I facilitate this conversation by asking questions like: Who do you think these people are? Do you believe they are from long ago or present day? I then write their names on the board and divide the classroom into two groups and assign each group a gentleman's name. I give them a couple of research tools and I allow two members from each group to get online and hand out books and encyclopedias to the remaining group members. I give the two expert groups time to research, discuss, and work together to create a brainstorm list about their person on a piece of chart paper. Once each group has several facts collected for their person, I direct their attention to a Venn diagram at the front of the room. This when I facilitate more conversation with questions like: How did A.T. Still and W.K. Roentgen teach us more about our skeletal systems? Did they change how we

live today? If we didn't have x-rays, how would the medical field be different? While the students discuss and share all of the information regarding their person we fill in the Venn diagram making sure we put the information in the appropriate section of the diagram.

Once the diagram is completed, I share some of the history of the two men with them. I tell the students that Andrew Taylor Still was the founder of osteopathic medicine in 1892. I always make sure that I tell the students that osteopathy means, 'the knowledge of bones'. The first school that focused on osteopathic medicine was located in Kirksville, Missouri. Andrew Taylor Still created the job of a osteopath physician. Dr. Still believed a body had the ability to heal itself if everything within that body was in line. With this belief Dr. Still practiced a method called bone setting. He believed if he adjusted the bones and them in line, the body would work at its maximum potential and heal itself.
CITATION

Then I discuss the history of Roentgen, a famous scientist responsible for discovering the first x-rays in 1895 in Germany. Now, like many scientists, Roentgen's discovery was an accident. He was working with another form of ray called a cathode ray. While he was conducting his experiment, he noticed a bright glowing screen on the table across his lab. He tried to block the ray with a piece of wood, but the growing screen continued to glow. He decided to call this ray the x-ray because "x" in math represents the unknown. Soon the medical field learned about his discovery and they found that the rays couldn't penetrate bone making it useful for doctors when examining fractures.^{CITATION} Now, we find x-rays in many places besides hospitals and doctors' offices. I always have my students brainstorm other places they have seen x-rays used. They usually come up with places like airports, science labs, super heroes etc.

After we discuss all the ways these two men changed the way we view our skeletal systems, we then talk about diseases and ailments that sometimes affect our skeletal and muscular systems.

I like to open the discussion by showing the class two x-rays of a femur - one with a fracture the other without. I have the students examine each and compare and contrast. The class automatically notices the "crack" running through the one femur. I tell them that that "crack" is called a fracture. I talk about how fractures occur when the bone is put under stress or suffers a high force impact. I tell the students that once the bone breaks it instantly starts healing itself by beginning to build minerals up around the break. This, works as almost a thread that mends and puts the bone back together. I then give small groups an envelope with a picture of a bone cut up into small puzzle pieces. I tell them

CITATION (Trowbridge 2007)

CITATION (Garcia 2002)

they are doctors and they are going to heal a fractured bone. This is a fun way for them to build teamwork skills and communication.

The two last things I do with my students before taking the final bow is complete their KWL charts and have them fill out a final reflection. They fill out the “L” column and share all of the concepts, ideas, and terms they have learned throughout the course of this curriculum unit. I use the “L” column as one last way to wrap-up and give an overview of unit. I also use this as an informal assessment to see the knowledge they have constructed throughout this performance. As far as the reflection, I pose the following questions to them:

1. Tell me about the activities you did in this unit?
2. Which activity was your favorite? Why was it your favorite?
3. Is there anything in this unit that has importance in your life? How will you be able to use what you learned in the future?
4. Is there anything we didn't do that you wish we had?

As you can see throughout this unit, my students are given so many opportunities to act, sing, draw, and create skits that illustrate the functions in our skeletal and muscular systems. In doing so, my students will build connections and make a once complex subject matter relatable through the arts. This curriculum unit lends itself to countless performance opportunities. Our bodies are the stage and our bones and muscles the performers. As William Hazlitt, a famous British writer once said, “If you give an audience a chance, they will do half your acting for you.”^{CITATION} This is the opportunity that this unit will offer my students. They will become teachers as well as creating an experience that will engage them, build content knowledge, and hopefully spark a love for the stage.

Teacher Resources

"CanTeach: Science: Life Science - I Know, I Wonder: An Introduction to Bones."

CanTeach - resources for educators. 19 Oct. 2009

<<http://www.canteach.ca/elementary/life7.html>>.

"Crayola® Coloring Pages - Human Skeleton." Official Crayola Site - Free coloring pages, crafts, lesson plans, games and more. 19 Oct. 2009

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^{CITATION} (Hazlitt n.d.)

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