

Second Practicum Assignment

Science Instruction

A. Lesson Planning

1. In cooperation with the sixth grade science teacher, I was able to design a lesson to introduce the levels of organization in our human body: cells, tissues, organs, organ systems. This is the first lesson in a sequence of lessons on the human body. This lesson is a science lesson. This lesson fits into the regular class curriculum as the students are starting a new unit on Human Biology and Health. The lesson involves a hands-on activity. A discussion time is included near the end of the lesson to summarize and bring together what students learn from their experience.

2. Lesson Plan:

Date: December 2, 2002

Unit Name: Human Biology and Health

Grade Level: Grade 6 (could be adapted to grades 7 and 8)

Lesson Topic/Name: Levels of Organization

The purpose of this lesson is to show students the organization of the human body. Similar cells are organized into tissues. Different types of tissues are combined to form organs. And the organs are grouped into organ systems. This lesson has been designed to allow students to start thinking about the levels of organization within the human body. It also prepares students for the later lessons that deal with the basic structure of all living organisms and the individual systems of the human body.

Concept(s) or skill(s) to be taught:

- Students will identify the levels of structural organization in the human body.
- Students will define cell, tissue, organ, and organ system.
- Students will compare and contrast the difference between cells, tissues, organs, and systems.
- Students will construct models of cells, tissues, organs, and systems.
- Students will demonstrate their understanding of the levels of organization.
- Students will recognize that all structural parts of our human body are interrelated.

Goals/Aims/Objectives	Essential Academic Learnings
<ul style="list-style-type: none"> • Students will develop an understanding of levels of organization in the human body (synthesis). • Students will identify that the human body is a multicellular structure with four levels of organization (comprehension). • Students will recognize that levels of organization can help us understand the structure and functions of the human body (knowledge). 	<p>1. The student understands and uses scientific concepts and principles. To meet this standard, the student will:</p> <p>1.2 recognize the components, structure, and organization of systems and the interconnections within and among them</p> <p><i>Systems</i></p> <ul style="list-style-type: none"> • BM1: identify the parts of a system, how the parts go together, and how they depend on each other. • BM2: describe how the parts of a system interact and influence each other. <p><i>Structure and organization of living systems</i></p> <p>BM1: know that living things are composed of parts made of cells. BM2: know that specialized cells within multicellular organisms form different kinds of tissues, organs, and organ systems to carry out life functions.</p> <p>2. The student knows and applies the skills and processes of science and technology.</p>

<ul style="list-style-type: none"> • Students will identify the levels of structural organization in the human body (comprehension). • Students will distinguish the differences between cells, tissues, organs and organ systems (analysis). • Students will assess their understanding of levels of organization through individual and peer reviews and sharing of their models (evaluation). • Students will apply their understanding of the levels of organization to their study of systems (application). 	<p>To meet this standard, the student will:</p> <p>2.1 develop abilities necessary to do scientific inquiry</p> <p><i>Questioning</i></p> <ul style="list-style-type: none"> • BM1: ask questions about objects, organisms, and events in the environment. • BM2: generate questions that can be answered through scientific investigations. <p><i>Explanation</i></p> <ul style="list-style-type: none"> • BM1: use data to construct reasonable explanations. • BM2: use evidence from scientific investigations to think critically and logically to develop descriptions, explanations, and predictions. <p><i>Modeling</i></p> <ul style="list-style-type: none"> • BM1: model objects, events, or processes by representing them with concrete objects, metaphors, analogies, or other conceptual or physical constructs. <p><i>Communication</i></p> <ul style="list-style-type: none"> • BM1: record and report observations, explanations, and conclusions using oral, written, and mathematical expression. • BM2: communicate scientific procedures, investigations, and explanations orally, in writing, with computer-based technology, and in the language of mathematics.
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Background Knowledge

Each body system and its function will be addressed in detail in the next lessons. For the purpose of this lesson, the students just need to be aware that the cells are organized into tissue, that tissue forms organs, and that organs form body systems.

How will learning be assessed?

The teacher will observe and listen to the students as they work in their groups to construct their models.

The teacher will observe the students' participation, individually and working with the group.

Discovering Levels of Organization activity sheet will be corrected in class.

Notes taken on the *Levels of Organization* hand-out and the vocabulary will be graded.

The construction of their models will be assessed on their understanding of levels of organization.

Through the process of inquiry, the teacher will assess the students' understanding.

Students will assess and reflect on their own scientific accomplishments.

Students will develop a flow chart using the new vocabulary to show they understand the levels of organization in the human body. Students will explain how this concept applies to a human system.

Resources, Materials, and Preparation:

- Construction paper: yellow, green, blue, red
- One small triangle (cell) per group
- Scissors
- Tracing paper
- Glue
- Marking pen
- *Discovering Levels of Organization* activity sheet
- *Levels of Organization* hand-out
- *20 Little Known Facts About The Human Body* hand-out
- Vocabulary Words

Cell: the smallest unit of living substance; building block of living things.

Tissue: group of similar cells that perform the same function.

Organ: group of different tissues that have a specific job.

Organ system: group of organs that work together to perform a specific job.

- List of pre-determined groups

Motivational Hooks:

1. Start the students with the *20 Little Known Facts About the Human Body* worksheet (see appendix A). Have the students read the 20 interesting facts. Give the students about two minutes to glance over the facts and as they find some of the more interesting facts, possibly things they didn't know, then invite them to share with the others. This is a good activity to get the students thinking about our human body and promotes good discussion.

2. Questioning Phase: Think of something that is familiar to you, such as a bicycle. What are some subsystems that make up the bicycle? What can you tell me about it? (gears, wheels, support frame, brakes, etc)

Think about the parts of a car. Why would it help a car owner to have an understanding of the parts and workings of a car?

If you were to study the operation of a car, what parts or systems would you consider? (engine, braking system, steering system)

How does this relate to the human body and levels of organization? What makes me who I am? (cells)

As students begin to see the relationship among the subsystems in a familiar object, they can connect that to how the human body is a system composed of interrelated subsystems.

<p>Time 10 min</p>	<p>Opening the Lesson Questions posed: What do we know about levels of organization in the human body? What do we want to learn? What have we learned? (K-W-L) Explain that understanding something as complex as the human body can be a difficult task. To help scientists in their work, it is customary to think of the body as made up of systems. The systems are made up of organs, the organs are made up of tissues, and the tissues are made up of cells. ASK: 2. If your body is made of billions of cells, where are all these cells? Are they just scattered everywhere, or are they grouped together? What do they form? (This will help students understand how tissues are formed.)</p>
<p>Time 20 min</p>	<p>The Body of the Lesson Activity: In multicellular living things, the work of keeping the living thing alive is divided among different parts of the body. Each part has a specific job to do. And as the part does its specific job, it works in harmony with all the other parts of the body. The groupings of these specific parts within most multicellular living things are called levels of organization. The levels of organization in a multicellular living thing include cells, tissues, organs, and organ systems. Write these words on the board: cells, tissues, organs, body systems. Ask students: How do these relate to one another? Let's find out. Activity In this activity the students will discover how cells, tissues, organs, and organ systems are organized. As they are doing their activity, guide students to an understanding that cells form tissue, tissue forms organs, and organs form a system. Procedure Put the students into groups of three (see pre-determined group list) 1. The students will trace the small triangle and make four identical triangles on yellow construction paper. Label each triangle with the word CELL. 2. Place the four yellow triangles on the sheet of green construction paper to form a larger triangle. Glue the yellow triangles in place on the green construction paper.</p>

	<ol style="list-style-type: none"> 3. Make four identical triangles from the green construction paper. Label each triangle with the word TISSUE. 4. Place the four green triangles on the sheet of blue construction paper to form a larger triangle. Glue the green triangles in place on the blue construction paper. 5. Make four identical triangles from the blue construction paper. Label each triangle with the word ORGAN. 6. Place the four blue triangles on the sheet of red construction paper to form a larger triangle. Glue the blue triangles in place on the red construction paper. 7. Make four identical triangles from the red construction paper. Label each triangle with the word ORGAN SYSTEM. <p>Students will use the <i>Discovering Levels of Organization</i> activity sheet (appendix B) to answer a group of questions related to this activity and their models. Invite the students to share their answers. We will go over the answers as a whole class. Students correct their work.</p> <p>Students will then receive the <i>Levels of Organization</i> hand-out (appendix C). Write the definitions of the vocabulary words on the board. Students need to copy these definitions in the allotted space.</p>								
Time 15 min	<p>Closing the Lesson (Debriefing) Put the following chart on the whiteboard.</p> <table border="0" data-bbox="224 905 695 1056"> <tr> <td>Cell</td> <td>Person</td> </tr> <tr> <td>Tissue</td> <td>Family</td> </tr> <tr> <td>Organ</td> <td>Community</td> </tr> <tr> <td>System</td> <td>Nation</td> </tr> </table> <p>Point out that the chart shows levels of organization, going from the smallest unit to the largest unit. Ask: How many levels of organization are shown in the chart? Using a student, illustrate the hierarchy shown in the right column. Ex. Randa is a member of the Shoeb family. Her family is part of the city of Tacoma., which is part of the US.</p> <p>Cells form tissue (muscle tissue, nerve tissue). This tissue forms organs. These organs work together as a system. Use the muscular system as an example of the left column. Muscle cells form muscle tissue. Muscle tissue forms a bicep, which is an organ of the muscular system. Muscular systems join to form a body system. Use the circulatory system as another example of the left column. Muscle cells form muscle tissue. One type of muscle tissue is the heart. The heart is one organ in the circulatory system, which also includes the blood vessels and blood.</p> <p>Write these words on the board: TISSUE, SYSTEMS, CELLS, ORGANS. Have students construct a Flow Chart on their <i>Levels of Organization</i> hand-out using the words to show they understand how cells form structures. Have them explain how this concept applies to a human system (what have we learned).</p> <p>Connect to next lesson: Write the figure 50, 000,000,000,000 on the board. (Fifty trillion, or fifty thousand billion) Explain that there are approximately 50 trillion cells in the human body. They will use microscopes to look at human cells.</p>	Cell	Person	Tissue	Family	Organ	Community	System	Nation
Cell	Person								
Tissue	Family								
Organ	Community								
System	Nation								

Adaptations to Diversity/Differences:

The classroom will be organized so that all students have equal opportunity to participate in the learning activities.

The teacher will monitor the participation of all students, carefully determining if all members of a collaborative group are working with materials or if one student is making all the decisions. This will be most important where social issues of status and authority may be a factor.

The teachers' enthusiasm and interest of scientific understanding and inquiry will instill in the students some of these same attitudes.

Students' with physical disabilities will require modified equipment.

Students' with limited English ability will be encouraged to use their own language as well as English and to use forms of presenting data such as pictures and graphs that require less language proficiency.

Students with learning disabilities will be given more time to complete the science activities.

Provide expectations both verbally and visually for different learning styles.

Your Reflection on the Lesson:

Was the time period appropriate for the lesson?

Were the students motivated by the classroom activity?

Was enough background information given to the students?

Are the students prepared to delve into learning about the systems of our human body?

Do the students have an understanding of the levels of organization in the human body?

(appendix A)

Name _____

Date _____

20 Little Known Facts About The Human Body

1. A human being loses an average of 40 to 100 strands of hair a day.
2. A cough releases an explosive charge of air that moves at speeds up to 60 mph.
3. Every time you lick a stamp, you're consuming 1/10 of a calorie.
4. A fetus acquires fingerprints at the age of three months.
5. A sneeze can exceed the speed of 100 mph.
6. Every person has a unique tongue print.
7. According to German researchers, the risk of heart attack is higher on Monday than any other day of the week.
8. After spending hours working at a computer display, look at a blank piece of white paper. It will probably appear pink.
9. An average human drinks about 16,000 gallons of water in a lifetime.
10. A fingernail or toenail takes about 6 months to grow from base to tip.
11. An average human scalp has 100,000 hairs.
12. It takes 17 muscles to smile and 43 to frown.
13. Babies are born with 300 bones, but by adulthood we have only 206 in our bodies.
14. Beards are the fastest growing hairs on the human body. If the average man never trimmed his beard, it would grow to nearly 30 feet long in his lifetime.
15. By age sixty, most people have lost half of their taste buds. By the time you turn 70, your heart will have beat some two-and-a-half billion times (figuring on an average of 70 beats per minute.)
16. Each square inch of human skin consists of twenty feet of blood vessels.
17. Every human spent about half an hour as a single cell.
18. Every person has a unique tongue print. Every square inch of the human body has an average of 32 million bacteria on it.
19. Fingernails grow faster than toenails.
20. Humans shed about 600,000 particles of skin every hour - about 1.5 pounds a year. By 70 years of age, an average person will have lost 105 pounds of skin.

Submitted By: The Mad Scientist

(appendix B)

Discovering Levels of Organization – Activity

Observations

1. What is the color of the smallest triangle? _____

What are the words on this triangle? _____

2. What is the color of the largest triangle? _____

What are the words on this triangle? _____

3. Which triangles made up the triangle called **TISSUE**? _____

4. Which triangles made up the triangle called **ORGAN**? _____

5. Which triangles made up the triangle called **ORGAN SYSTEM**?

Analysis and Conclusions

1. Did the triangle called **ORGAN** also contain cells? Explain your answer.

2. Did the triangle called **ORGAN SYSTEM** also contain cells? Explain your answer.

3. Write the levels of organization in order from largest to smallest. Start with the largest.

(appendix C)

Levels of Organization / Human Body

In unicellular (single-celled) organisms, the single cell performs all life functions. It functions independently. However, multicellular (many celled) organisms have various levels of organization within them. Individual cells may perform specific functions and also work together for the good of the entire organism. The cells become dependent on one another.

Multicellular organisms have the following levels of organization ranging from **simplest** to most **complex**.

Level 1: Cells

These are the basic unit of structure and function in living things. They serve a specific function within the organism.

Examples-blood cells, nerve cells, bone cells, etc.

Level 2: Tissues

Tissue is made up of cells that are similar in structure and function and which work together to perform a specific activity.

Humans have 4 basic tissues: connective, epithelial, muscle, and nerve.

Examples-blood, nervous, bone, etc.

Level 3: Organs

Organs are made up of tissues that work together to perform a specific activity.

Examples-heart, brain, skin, etc.

Level 4: Organ Systems

Organ systems are groups of two or more organs that work together to perform a specific function for the organism.

The Human body has 11 organ systems.

Examples-circulatory system, nervous system, skeletal system.

B. Teaching the Lesson

3. Due to the lack of a video camera available during the time of my lesson, I was unable to videotape my lesson.
4. My mentor teacher was able to take notes and gave me some feedback on my teaching. I gave him a list of questions to answer (see enclosed feedback form).

5. My notes on the lesson:

It is interesting to note that in teaching a lesson in which I am not strong in the content area, the level of anxiety does tend to be quite a bit higher. However, I did feel that this lesson went well. The motivational hook, sharing of the facts about the human body was a fun way to get them thinking about the human body. I had them raise their hand when they found a certain fact to be interesting and then they got to read it out loud. There were a lot of ooh's and aaah's during this time!

The K-W-L brainstorming session worked well to get the students focused on the content area.

The questions and concepts they came up with on levels of organization were excellent. I had not given them a pre-test on these concepts, since their science teacher told me that this was their first lesson in this unit on the human body. I think, if I would have had more time, I still would have liked to have done a pre-test with them on these concepts.

The activity then went well. The instructions were clear. I actually modeled one of the formations for them to get them started. They worked well in their groups and the models that were constructed depicted the cells, tissue, organs, and organ systems. As they worked, I offered help where needed and was able to respond to students' questions as needed. They wanted to share their models, so we displayed them on the board and they will later hang them up in the classroom. They were proud of the work they had accomplished. The students seemed motivated to learn about the levels of organization by the classroom activity.

The de-briefing session went well. They understood the concepts since they were able to tell me what they had learned and depicted their learning in their flow chart. I connected it to their learning for the next lesson with my number of cells in our body question, and that was a good way to end the lesson. It gave them something to look forward to!

As always, the time period never seems like it is enough time, however we were able to get through the main tasks of the lesson, but at times felt a little rushed.

As far as background information, since this is the beginning of their unit on the human body, we really didn't have any previous lessons to tie it into. I did present them with some questions and examples related to systems and we brainstormed levels of organization in the human body as a class before they actually started on the activity.

The students are now prepared to delve into learning about the systems of our human body and have an understanding of the levels of organization in the human body.

C. Analysis and Reflection

6. *Brief overall summary. Summarize tasks or problems posed in your lesson.*

The focus of this lesson was on levels of organization in the human body. It was the first lesson in a sequence of lessons studying the human body. The purpose of this lesson was to introduce cells, tissues, organs, and organ systems and their levels of organization and functions in the human body. The first task I set out to do was to motivate the students, to develop their curiosity and desire to learn more about the human body, really to get them started on this unit with a focus and an interest. The fun facts informational sheet really got the students curious and interested and they had fun talking about some of the most interesting “fun facts”. The next task was to get them to think about the idea of a system and the parts that make up a system and their function as parts of a whole system. I related this to a car, bike, others, and let the students come up with their own ideas. Following that, I introduced the term levels of organization and how it relates to the human body. In the K-W-L process of brainstorming, the students actually came up with the main concepts that we were going to discuss--cells, tissue, organ, organ systems. The students were engaged in the activity and were able to apply their models to their learning. To debrief, we spent some time discussing levels of organization, gave examples of varying levels of organization in addition to actually going through an example of depicting the muscular system. Finally, I connected what they had learned in this lesson to their next lesson on cells and then the various human body systems.

7. *How does this lesson fit with the image of reform-based classes? How was it similar and how was it different than you had planned (or hoped)? How does your lesson fit with the Principles of teaching mathematics that you read about in the Principles and Standards for School Mathematics or the teaching principles from the National Science Standards? How does it compare to the usual instruction in this class?*

I believe that my lesson fit with the National Science Standards well. National Science Standards state that “in the middle-school years, students should progress from studying life science from the point of view of individual organisms to recognizing patterns in ecosystems and developing understandings about the cellular dimensions of living systems. Students should expand their investigations of living systems to include the study of cells” (National Science Standards). My lesson dealt with this very concept.

“Students in grades 5-8 also have the fine-motor skills to work with a light microscope and can interpret accurately what they see, enhancing their introduction to cells and microorganisms and establishing a foundation for developing understanding of molecular biology at the high school level” (National Science Standards). My lesson also set them up and prepared them for using microscopes to enhance their introduction to cells and help in establishing a foundation for developing their understanding of the human body.

“This period of development in youth lends itself to human biology. Middle-school students can develop the understanding that the body has organs that function together to maintain life. Teachers should introduce the general idea of structure-function in the context of human organ systems working together (National Science Standards). My lesson focused on these concepts and gave them a good foundation to build upon in their sequence of learning about the human body.

This lesson addressed the science standard content area of *systems, order, and organization*. The goal of this standard is to think and analyze in terms of systems. That was the focus of my lesson. “Types and levels of organization provide useful ways of thinking about the world. Living systems also have different levels of organization--for example, cells, tissues, organs, organisms, populations, and communities” (National Science Standards).

In addition the Science standards rest on the fact that science is an active process. Learning science is something that the students should do, experience “hands-on” and “minds-on”. The goal of my lesson was to actually have them create their own models of cells, tissues, organs, and organ systems. Inquiry was central to my lesson, since the students were asked to describe their models, ask questions, construct explanations, and communicate their ideas to others. In this way the students were actively developing their understanding of science by combining their scientific knowledge with reasoning and thinking skills.

I am not sure how my lesson compared to the usual instruction in the class, since I am not normally in this science class, but was just invited to teach this one lesson. From what I have observed, however, in the few times that I have been able to pop in to the class, the students are actively engaged in their learning and are “doing” science. Fieldtrips are often planned, taking them out into their environment, guest speakers are brought into the class, as well as lab investigations done in class and out of class.

8. Summarize strategies you saw used for each task.

Strategies that I used are mentioned above in the National Science Standards. I focused on actively engaging the students in my lesson. I provided them with varying teaching methods, lecture, activity, group work, etc., in order to address the varying learning styles of the students.

9. Analyze what the students seem to know and understand as they worked on each task, as well as what knowledge or skills seem to be lacking. Describe specifically what observations led to each inference about understanding (or lack of understanding).

Since this is an introduction to the students’ learning about the human body, the material introduced was new to many of them. However, it was evident that some of the students had been exposed to this content before, or at least had some understanding of the concepts being taught. Specifically, I observed the students during the activity, with their questions and their analysis of their models. It was evident, through the activity and then of course in answering the questions related to the activity that the students were able to understand the concepts. I do not believe that any of the students walked away not understanding what had been taught. That is my own personal assumption based on each of the tasks, however again, I am not in a position to go back and test their understanding. My observations that led to inferring about their understanding included observing and listening to the students as they worked in their groups to construct their models, their answers on the activity sheet, their work on the *Levels of Organization* hand-out and the vocabulary, our discussion and the questions that I addressed, the flow chart at the end of the class that I had the students draw.

10. Describe what you learned about students’ thinking.

I learned that the students were aware of the basic unit of a living organism; however they did not seem to necessarily be aware of how cells, tissues, organs, and systems all connected. The students seem to develop the understanding that the body has organs that function together to maintain life, however in context of systems working together and how they are all connected; I feel that they would need to come to more of an understanding of that concept.

It was also interesting to note that some of the students are able to see the “big” picture when we talked about the concepts in the lesson and are able to make the connections to their learning and how they will apply what they learned to the sequence of lessons yet to come.

I also learned that it is extremely important to focus in on one topic at a time. Going into more depth rather than bombarding the students’ minds with too many concepts. Therefore, the students grasp the concepts taught and one is able to build a solid foundation for their learning.

11. Describe what you learned about students working together in groups, and reflect on your strategies for encouraging discussion and managing a group of students.

The students worked well in their groups. I had spoken with the science teacher and he recommended names of the students for each group, so I had them in pre-determined groups, which for the purpose of the lesson worked well. I went over some basic rules, expectations of group work before I actually split them into their groups. I tried to make sure that I was able to get to all the groups to monitor their work, and to make sure that all the individuals in each group were on task, and that they were sharing the responsibilities.

12. What was your favorite part of the activity? Why do you think that part went well?

My favorite part of the activity was when the students had their models completed and I let some of them share them with the class. They were proud of their work, and the brief discussions we had at the beginning of the lesson on levels of organization all seemed to make sense. I think especially for visual learners it was powerful to see how the cells, tissues, organs, and systems all tie in together and their size (smallest to largest/vice versa)

13. Were there children who were better served by the format or content of this lesson than others? Were there children who were “left out” or not engaged in this lesson? How could you tell? What might you do differently next time? Were the adaptations you made for students with special needs appropriate and adequate? How could you tell?

I believe that the majority of the students were engaged and shared their roles well in their groups. Since this lesson had several different methods of instruction, it catered to the varied learning styles in the class. I don't believe that there were students who were “left out”. The only part of that would be when they wanted to share their models, and due to the time constraints of the lesson, we were not able to have everyone share. We did say that if there is time, next lesson, that the science teacher would let them share their models.

Some of the adaptations that I had set out to meet in my lesson, due to time constraints and equipment (lack of), I did not meet. Ex. using an overhead for writing the instructions, I demonstrated what I wanted the students to do. There were no English learners in the class and no one with any physical disabilities. I tried to give students that were struggling with some of the questions more time, but it was helpful to have them working in groups because they were able to discuss their thoughts and come up with their own answers. In addition to this, we spent some class time going through the questions and I was able to answer any questions the students had.

14. How did the transitions, or changes between one part of the lesson and the next go? If smoothly, what about your instruction facilitated a smooth transition; if not what were the problems and how would you address them if you could do an “instant replay?”

The transition between the motivational hook activity and the brainstorming was somewhat of a challenge, due to the fact that the students were engaged in this activity and we were having some great discussions, (a good thing by the way) and they would have like to spend more time on it, which I would have definitely chosen to do had I had more time, or knew that I could continue with this lesson the next class. Once we started with the brainstorming, they came up with great ideas. Then the transition to the activity, I believe worked well, since I had already put some thought into their groups and briefly went over my expectations once they were in their groups. Again, I felt like I was rushing them when we transitioned from the activity to the closure of the lesson. They all wanted to share their models, which was not possible. If I could do an “instant replay”, I would just like to have a little bit more time with the students.

15. What changes did you make from your original plan as the lesson unfolded? What prompted you to make those changes?

As the lesson unfolded, I planned on using the overhead, but changed that due to the fact that I felt it would take away from the time of the lesson. I had written out several other open-ended questions that I wanted to pose to the students, but was not able to get to all of them. As far as the time spent on each section of the lesson, I don't

think we spent as much time as I had originally planned (15 min) on the debriefing. I believe it was probably closer to 10 min.

16. What surprised you, or differed from your expectations?

I guess going into the lesson, not really knowing what previous knowledge the students had on this topic, I was pleasantly surprised to see that many of them had covered similar concepts before, and therefore were able to bring their previous learning and understanding to the whole group discussion. I initially thought that I'd be fine on the time factor, but was amazed at how quickly the period passed.

17. What else do you want to understand about these students? What questions do you wish you had asked?

I would like to have done a pre-test on their knowledge on this human body unit. I would also be interested in seeing how they will connect this lesson to the next lesson and then to the sequence of lessons that the science teacher has planned. I think I really asked a lot of questions, had many more that I was not able to ask. I also believe that the questions that were posed to the class instigated good class discussion.

18. What would you do differently if you were to teach this lesson again? Why?

If I was to teach this lesson again, I would definitely read up a lot more on the content area. Since many of the students had good questions, and due to the fact that this is not my content area, I felt a little disabled in not being able to answer their questions, some of which I thought, had I been more informed and knowledgeable about this topic, I probably would have been able to answer them. Those questions, luckily, I was able to direct to the science teacher, who answered them well.

19. What did you learn about yourself as a teacher? What do you feel you need to work on to improve your teaching?

I learned that in order to teach a lesson well, it is important that I am confident in the content that I am teaching. If I teach science, I will need to spend more time on the content of what I will be teaching. I will have to do a lot more reading up on the information, research, questioning, exploring the topics that the students are expected to know, in order to have a better grasp on the lessons taught. (I don't believe I will be teaching science, however it is something that I would definitely see as a challenge). I also found out how much work is involved in setting up a science class activity, between having the materials necessary, demonstrating, and facilitating the activity.

20. Outline the next lesson you would teach to the same group of students, based on what you feel the students are ready to learn, what you learned about them in your lesson, and what you learned about your own teaching style.

Based on their understanding of the levels of organization, and the cell being the basic unit of all living things, my next lesson would focus on the smallest unit, the cell. It would be a laboratory investigation looking at human cheek cells. We would actually use microscopes and I would probably spend some time explaining how we use microscopes and taking care of them, and then would have them actually read through the complete laboratory procedure and then follow it step-by-step. After they have completed the procedures for the lab, then they would address questions in their analysis and conclusions. If time allowed, I would have some other types of human cells available for the students to look at, such as muscle, blood, or nerve. I would also try and incorporate some math with the number of cells in our human body and the concepts of ratio and proportion.

(enclosed feedback form)

**Feedback Sheet on Levels of Organization
Reviewed by Mr. Steve Boyer
Grade 6-Science Class- December 2, 2002
Introduction to the “Human Body” Unit**

1. How did the introduction spark students’ interest in the topic?

Presented very interesting and little known facts.

Kids are interested in their developing bodies, and many of the facts addressed this interest. Good introduction to the lesson.

2. What do you think the goal of the lesson was?

To address the levels of organization in living organisms (human body) and provide an introduction to the Body unit.

3. What could I have done to make the instructions more clear?

A good hands-on activity. We both discussed the cheek activity as a possibility for this lesson, but the time constraints did not allow us to do this one and we will do it as a class for the next two lessons. We will also include a lab report/investigation on cells.

No suggestions as I thought your instructions were quite clear. You might include written instructions for overhead as a supplement, as some students have trouble with oral directions.

4. Did students understand what they were supposed to do? How could you tell?

I believe so. The quality of the questions indicated that the students were following the discussion and the lesson.

Great follow up discussion to close lesson and check understanding.

5. During the activity, was I able to respond to students’ questions adequately? How could I have asked more open-ended or thought provoking questions?

I thought your questions went quite well. My only suggestion would be to extend the questioning and discussion related to the “20 Interesting Facts.” This was a very strong part of the lesson.

6. Other comments?

This was a good lesson that could be linked to related lessons, such as the levels of organization in nature. Today’s lesson dealt with levels in living things. “Levels” could be extended to nonliving world at micro- and macro-mega-scope levels. (eg. atoms, subatomic particles, on one hand and ecosystems, solar system, galaxy, etc. on other)

(Note: all answers are direct comments and quotes from the science teacher)