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Education 330
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Dr. Blunck
Reflection #3

Standard 1: *The teacher understands central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches, and can create learning experiences that make these aspects meaningful for students.*

- As a result of the Professional Inquiry Project, I have become an “expert” on the characteristics, lifecycle, basic needs, and environments that support various plant life. I have also learned a great deal concerning other various environmental and space related concepts.
- I have learned that constructivist teaching, teaching from whole to parts, is an effective method for teaching science.
- I have learned that the “biggest” theme in science is systems, or how an aspect of the natural world works as a whole.
- I have learned that teachers must provide students with real world applications in order to make experiences more meaningful.
- I have learned that students must perform “true inquiry,” developing their own questions, developing ways in which to test their questions, and lastly testing those questions in order to take part in a true scientific investigation.

Standard 2: *The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.*

- I now have a basic knowledge of the various levels of understanding having discussed Bloom's Taxonomy beginning with knowledge, comprehension, application, analysis, synthesis, and concluding with evaluation.
- I have learned the importance of individual, group, and written work, as well as oral discussion in order to better stimulate intellectual and social growth.
- I have learned that models frequently influence children's behaviors, and therefore, have learned that the teacher must model desired characteristics in order that his or her students act and/or work accordingly.

Standard 3: The teacher understands how children differ in their approaches to learning, and creates instructional opportunities that are adapted to diverse learners.

- I have learned about the various types of learners including audio learners, visual learners, and interactive learners, and have learned that the teacher must work to create lessons that all types of learners can benefit from.
- I have learned that some students benefit more from group work than others, and that the teacher must provide time for both individual and group work in order to meet the needs of all students.

Standard 4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

- I have learned that the teacher must combine lecture with both active inquiry and hands on activities in order to increase critical thinking and performance skills.

- I have learned that students must generate their own questions, think for themselves and work to solve their own problems (with assistance) in order to increase the development of critical thinking and problem solving skills.

Standard 5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

- I have learned teachers who teach with enthusiasm often motivate students to learn and actively engage in material better than those who do not.
- I have learned that students seeking to answer their own questions will likely be more motivated and actively engaged than those who are not.
- I have learned that to encourage social interaction, teachers must create a warm and welcoming environment where students feel free to question, discuss, and have friendly debates concerning class materials.

Standard 6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

- I have learned that it is necessary for the teacher to effectively project their voice in order that all the class may hear.

- In addition to one's voice, I have learned that it is necessary for the teacher to aid in learning using such visual cues as demonstrations and gestures in order to foster active inquiry.
- I have also learned the importance of media and technology in the classroom. I have learned to use such media techniques as movies as well as the technology associated with the computer. I have learned how to build a class website and how to include student and parent interaction within the website. In this way, students, parents, and the teacher can collaborate together to most effectively educate our youth.

Standard 7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

- I have learned that teachers must prepare to teach to a diverse group of children, and must develop lessons accordingly, providing activities that support all types of learning: audio, visual, and manipulative.
- I have learned how to develop lessons according to Maryland State Performance Assessment Outcomes and National Science Education Content Facets in order to best meet the desired state and national curriculum.
- I have learned the importance of providing students with practical uses for newly acquired knowledge as well as implications concerning the greater community around them.

Standard 8: *The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.*

- I have learned that teachers must assess their students in many and various ways including both formal written tests, as well as informal types, for example, procedural, behavioral, and critical thinking assessments.
- I have learned that the teacher must develop their assessments with the students or at least notify students of expectations. In this way, students know what is expected, and can work to meet those expectations.
- I have learned the importance of monitoring student/class progress. Teachers must record progress and assess their students continuing intellectual, social, and physical growth, as to measure the effectiveness of their teaching and ensure that growth has actually occurred

Standard 9: *The teacher is a reflective practitioner who continually evaluates the effects of his or her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.*

- As demonstrated through our reflective logs, I have learned that it is necessary that teachers continuously monitor and evaluate their own effectiveness as a teacher. This can be done by monitoring student and/or class progress over time as seen through their work. Teachers then can change and/or rework those lessons found to be less than effective.

- I have learned the importance of seeking out opportunities to grow professionally as demonstrated by the Professional Service component and GLOBE training within the course. I have learned that teachers must forever work to extend their resources and search to find experiences that will improve their skills.

Standard 10: The teacher fosters relationships with school colleagues, parents and agencies in the larger community to support students' learning and well-being.

- I have learned the importance of developing relationships and working with ones instructors. I have learned the importance of making appointments and working with one another in order to improve ones work.
- I have learned the importance of using the larger community as a resource. I have learned that agencies outside the school can often donate resources and/or work with the children themselves to support student learning, for example, the Maryland Science Center.
- I have also learned the importance of student involvement in the larger community around them. Students can donate their time and knowledge to better the community outside the school.
- I have learned the importance of working together as a team of faculty and staff within a school. I have learned that teachers can share ideas and benefit from learning one another's failures and successes. As a team, teachers can work to support the needs of all students better than they could if working alone.

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A

INTASC Standards Reflection

1. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches, and can create learning experiences that make these aspects of subject matter meaningful for students.

- The development of the 2 week lesson plan has been very helpful for my understandings of Environmental Education.
- The experiments that we have conducted through the Globe Program have given me a new perspective in learning and teaching. The knowledge that I have gained through Globe will help me teach students through their own experiences in experimentation.

2. The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.

- In order to begin planning our 2 week lesson plans, we had to consider what grade we were going to teach. Grade appropriateness is extremely important when deciding how or what to teach your students.
- When I become a teacher, I hope to have a classroom that promotes growth in all areas. It is very important that students not only gain new knowledge from each lesson, but that they also learn how to interact socially and evaluate their personal experience.

3. The teacher understands how students differ in their approaches to learning, and creates instructional opportunities that are adapted to diverse learners.

- Students do not all learn the same way, so teachers should plan to teach in many different ways in order to welcome every student into the learning process. Visual, auditory, and tactile/kinesthetic learners benefit from watching, listening, or physically becoming involved in their lesson.
- Instruction can be given verbally, it can be written on paper or the board, or students can have jobs that create opportunities for them to be physically involved with objects or goals for the day. Students can be given responsibilities that help them stay on task depending on their learning style.

4. The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

- Concepts that are addressed in class should be made in reference to student interests. Student involvement in critical thinking tasks, use of knowledge to problem solve, and benefits from performance should have a positive effect on student understanding.
- Performance should be rewarded or reinforced by teacher to promote student growth in achievement. Problem solving skills can be useful to all subject areas. In a science lesson students can solve problems in the environment, adaptation of species, or effects of pollutants on life.

5. The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

- When planning a lesson, arrangement of desks or number of students in group work may be crucial to a productive classroom setting. Larger projects may be best with three or four students in a group. While small projects can be given to individual students to support their individual understanding.
- Classroom discussion is important for the teacher's assessment of student learning, but other assessments may be more accurate for testing student knowledge. When working in small or large groups, teachers can become involved in group work to see how an individual student is doing in the class. Students who are not comfortable taking tests or talking in front of a class may be evaluated more fairly in groups.

6. The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

- Verbal guidance should be clearly stated at the appropriate times. Every day students should become familiar with receiving instruction at the same times. This does not mean that the teacher has to watch the clock, it may be that the teacher usually tells the students to get out a particular book or folder after each class.
- Nonverbal guidance can be seen either on the overhead, on handouts, or on the tv if possible. But, like the verbal communication, nonverbal communication should also be a routine for the teacher and students. Students should feel comfortable with the layout of the day because the instruction they receive has become second nature.
- All verbal, nonverbal, and media communication techniques can be tried in the classroom, even if a teacher feels that they may not work for his/her classroom. The student's reaction could be positive, so teachers should experiment with various techniques for the benefit of their own personal growth.
- The creation of a web page was very helpful to me because I was able to use a program that I will some day use to create a web site for my students, parents, and colleagues to communicate with me about problems, concerns, or insights.

7. The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

- Concepts that are taught in the classroom can be relevant to the students, the community, and the curriculum goals. The teacher's job is to try to incorporate all of the above into each lesson. Once the teacher has become accustomed to using the three areas in each lesson, he/she will plan lessons without concentrating so hard on them.
- The needs and interests of the students can come from the communities they live in. Whether the community is in a rural or an urban area is important to the way a lesson is taught in the classroom. Students must be able to relate to the concept, which means the teacher should make sure his/her lessons do not have cultural bias.
- Teachers can go out into the community or ask parents to inform them of community events and organizations. Facts about the community will allow students to feel comfortable in the classroom. Community organizations can be invited into the school to become part of a lesson.

8. The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

- Assessment can be carried out in a variety of ways so that teachers can correctly evaluate the progress of his/her students. The standard tests and quizzes may not be the best assessment for students who do not test well. Students can show improvement in their written assignments, group work, projects, and homework.
- Teachers should consider various aspects of the learning process when evaluating student growth. Many factors can be used in grading student achievement, so that all students are graded fairly depending on their better areas of study.
- Teacher may learn to incorporate different subject areas or learning opportunities for students who may benefit from a particular method of learning. If students excel in math, teachers can use some math concepts in science. Students can be required to learn a particular concept, while teachers work to reach their interests across subjects.

9. The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

- During the semester, I have continually evaluated my choices and actions both inside and outside the classroom. I have learned how to work well with my fellow teachers and have become comfortable with constructive criticisms. Understanding weakness in an area can lead to a positive experience in future attempts.
- Students have shown me how to teach them in ways that I wouldn't normally decide on my own. The students that I have tutored constantly evaluate how I am teaching them. Their viewpoints as learners help me broaden my knowledge of teaching as well as communication.
- The most important aspect of teaching is the ability to know how and when you have reached your goals. Confidence in a subject area can only come from your ability to evaluate your performance and the success of your students.

10. The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

- The teachers that I have been able to work in field placements have given me opportunities to talk about classroom decisions, student problems, and my personal growth as a teacher. The relationships that I have developed with them have helped me understand the responsibilities and behaviors that I will need to present in my classroom.
- My motivation to become a teacher grows with every education class that I take because I find areas where my strengths and talents can benefit classroom experience. In this class, I have been able to see how hard I will have to work to become a good science teacher. Science is not an easy subject for me, so I will have to spend more time planning and studying the material for my students.

INTASC Core Standards Achieved in EDUC 388:

The teacher...

Principle #1:

...understands central concepts, tools of inquiry, and structures of [science instruction], and can create learning experiences that make these aspects of the subject matter meaningful for students.

- Researched and prepared two week block plan that uses the frame of an urban garden to teach ecology concepts and inquiry skills.
- Extensive reading in the *National Science Education Standards (NSES)* and the *Globe Teacher's Guide*.

Principle #2:

...understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.

- Extensive class discussion about supporting young people in forming an exploratory orientation to science and the natural world, and assignments such as "Organize Handwashing for a Class of First Graders after Soil Analysis," provided much food for thought concerning how children learn and develop.
- In researching my two week block plan, I paid close attention to the Maryland Learner Outcomes for grade 5 and the NSES "changing emphases."

Principle #3:

...understands how students differ in their approaches to learning, and creates instructional opportunities that are adapted to diverse learners.

- While preparing my two week plan, I researched specific and general strategies for working with students with special needs.
- I saw extensive modeling in EDUC 388 of a teaching style that is well adapted to diverse learners, with frequent changes in activity, chances at individual, group, and whole class interaction, and hands-on activities.

Principle #4:

...understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

- Our instruction in the *Globe* program and materials exposed us to a wide variety of interesting and engaging approaches to various science concepts and skills, especially to activities that ask students to extend their thinking, critique a certain approach, or suggest solutions to newly encountered problems.

Principle #5:

...uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

- The microlesson introduction I did with Justin, early in the semester, provided a good opportunity to plan for and evaluate our success at engaging a group of people and facilitating group work.
- Flavio's activities were also an excellent modeling of this ability, both when he shared his insight into the motivation and perceptions of young children and simply through his masterful orchestration of activities that had even jaded college students actively and wonderingly participating.

Principle #6:

...uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

- EDUC 388 was the first education department class that offered instruction in web page construction. Though we "only" learned a template approach, I am confident that I can build an attractive and useful web page for my class, and assist my colleagues in doing the same.
- Similarly, Dr. Blunck's extensive use of online resources, with the data projector, reminded me of the importance of including such elements in my own instruction (all too

often have I sat through overhead projector lectures on the importance of using up-to-date technology).

Principle #7:

...plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

- My two week plan is directly cued to Maryland Learner Outcomes, and takes its overall approach from the philosophy and recommendations espoused in NSES.
- My block plan is also based on my experience observing science instruction among upper elementary students in the inner-city school in which I will most likely end up working.
- The assigned reading in *Science and Children* magazine opened my eyes to a rich resource to help current on my knowledge of subject matter and the best ways of teaching it.

Principle #8:

...understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

- Our extensive discussion of rubrics and what the priorities of grading/assessing should be, as well as the various and creative pre- and post-assessments used by Dr. Blunck, has helped to focus on the role of assessment as an instructional tool, rather than as an end in itself.

Principle #9:

...is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

- In EDUC 388, I reflected fruitfully not only on my own science education, but also on my growth in EDUC 388. Finally, "thinking in print" about the tutoring program with which I have been involved this semester helped me focus once again on my true motivations for going into teaching, and what I hope to accomplish.

Principle #10:

...fosters a relationship with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

- Through Dr. Blunck's modeling of this (by inviting Flavio), I also began a relationship with this representative of the Maryland Science Center.
- Group work in class exposed me to the opinions, view points, and expertise of my fellow teacher candidates.
- My status as a certified Globe teacher will allow me to bring my students into a relationship with an international community of other students, teachers, and scientists.

INTASC CORE STANDARDS

1.
 - Focus on an inquiry-based two week lesson plan.
 - Discussed different ways of incorporating inquiry and the constructivist teaching approach into lesson plans.
 - Practiced by being involved in Jennifer's lesson on density/Fabio's lesson on Hubble.
 - Readings
 - Perrone -1994 - students must be partners in there education.
2.
 - Constructivist learning discussions and book.
 - Auditory, visual and kinesthetic (visual-motor) all demonstrated and discussed in class.
 - Discussions on how to motivate students.
 - We were encouraged to support each other in class.
3.
 - Discussions about accommodations for special learners.
 - Jennifer gave us readings and discussed 504s and IEPs.
 - Discussed classroom management techniques.
4.
 - Fabio's lesson on Hubble - use the MD Science center/NASA Goddard.
 - Discussed the importance of being an interdisciplinary instructor.
 - Discussed the importance of being a flexible teacher and being prepared to teach out-of-field if necessary.
5.
 - Discussed cooperative learning/labs.
 - We demonstrated cooperative learning in class.
 - Fuzzy questions/open-ended questions.
6.
 - Demonstrated in class.
 - Watched videos.
 - Went outside to conduct field experiments and we had to agree on data and measurements collected.
 - Student interaction was encouraged in each class.
 - Demonstrated/trained on Power Point.
 - Educated on web page design.
7.
 - Demonstrated in class in many ways.
 - Usually student driven - yet instructor generates analysis synthesis.
8.
 - Formal - writing papers and two-week lesson plan.
 - Informal- observation of group and individual discussions.
 - Readings and discussions on formal and informal assessment.
9.
 - This assignment and other reflective papers.
 - Discussions and ideas of how to locate resources, i.e.: other teachers and web sites.

- Discussed career development - continuing our education by going on in college and by going to continuing education seminars.
- NSTA.
- Talked about the importance of being metacognitive in our teaching methods and strategies.

10.
 - Learned how to design a teacher web page.
 - Parent/teacher conferences.
 - Open communication with parents.
 - Discussions about getting involved in the coaching, dances and other school related extra-curricular activities.
 - Discussions about incorporating community projects into lesson plans.

**Reflective Paper Three: A review of the class with the
INTASC standards**

Principle #1: The teacher understands central concepts, tools of inquiry, and structures of disciplines he or she teaches, and can create learning experiences that make these aspects of subject matter meaningful for students.

*In this class this standard was demonstrated in many ways. The following ways are just a few of my favorites.

- We were not just told how to do an opening but we also had to get into groups and demonstrate what we had learned.
- We were not just told how to discipline our students but you also disciplined us when we acted out.
- We didn't just learn from books the atmospheric, weather, hydrological, and soil protocols but we actually had to participate in them as if we were ourselves the students.

*Thanks to your demonstration of this standard I not only learned the central concepts of teaching, the tools of inquiry, and structures of discipline in this field but also you made this experience meaningful for me because you made me act them out myself.

Principle #2: The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.

*This is a standard that has to be handled with great finesse. In the following ways I watched you demonstrate it.

- To enhance our social development you had us work in groups on many assignments, but not just that, you then had us switch those groups around so as that we were constantly getting to know the whole class.
- To enhance our intellectual development you constantly pushed us with papers to write and questions to answer. We also had many protocols to learn and understand.
- To enhance our personal development you made sure we understood things like what kind of toothpaste to use and what is the best kind of toilet paper.

Principle #3: The teacher understands how students differ in their approaches to learning, and creates instructional opportunities that are adapted to diverse learners.

*There are many different kinds of learners out there and I'd like to think that you taught to each one of their needs. These are some of the ones that I saw that I believe to be most critical that you paid attention to.

-Visual learners: You made sure that we didn't just hear things but also got to see how things worked. You used many demonstrations to do this.

-Auditory learner: You demonstrated that students sometimes have to ask questions over and over and hear those answers repeatedly before they finally understood. You answered those questions for us continuously and explained things to us in a lot of different ways.

-Kinesthetic Learner: You didn't just do everything for us. You actually had us do hands on work. This is very important for children because discovery learning helps them remember things better.

Principle #4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

*Sometimes for students to learn they have to have something gone over in many different ways before they finally grasp the concept.

-Critical thinking: You would ask us brainteasers and have us think about it for a bit before responding. You also made us come up with the questions which made us think even harder.

-Problem Solving: You gave us a variety of techniques to figure out a solution to a particular problem. We worked by ourselves, we worked in-groups, we worked using examples, etc.

-Performance skills: You continually had us demonstrate our abilities. We had to write papers, lesson plans, and introductions. We had to do experiments and create experiments. We learned a lot.

Principle #5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

*You continually pushed us to do our best and work with others.

-Positive social interaction: You made us work in-groups for a variety of projects. Then when you thought we weren't interacting enough you forced us to work with different people in different groups so that in the end we knew the whole class.

-Active engagement in learning: We didn't just sit on the sidelines. We went out and looked at the clouds ourselves checked the turbidity of the water, write our own lesson plans, come up with our own thoughts for class. We were constantly active in our learning.

-Self-motivation: You gave us assignments without set guidelines and forced us to motivate ourselves to create those guidelines and create our own ideas. We had to do it by our selves and motivate ourselves. This really helped the learning process.

Principle #6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

*There are a lot of ways that a teacher can get the class to participate. These are some of the ones I saw you demonstrate.

-The five-second rule: After you asked a question you gave us time to ponder the question, thereby getting a better response from the classroom. Instead of being quick to answer your own question, waiting for a student to answer a question no matter how uncomfortable it is really helps class interaction in the long run. It's a non-verbal communication technique and it does the trick.

-Magazines and Video's: By incorporating these into the classroom you gave us other people's ideas that we could evaluate and build off of. Once again a very effective technique for encouraging class participation.

-Open ended questions and broad statements: By using this technique you can prompt the class to respond. If one just asks a direct question then those who don't know the exact answer feel afraid to respond, however if the question is broader the students feel more comfortable to respond.

*And finally if nothing else works, it never hurts to call on students which you did demonstrate.

Principle #7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

*As we went through the course it became very obvious to me that you knew your material.

-When we went outside to explore you knew the area you were around and it's history so that you were able to answer our questions.

-When we were looking at the atmosphere you knew exactly what it was like but you still let us decide for ourselves.

-When we were planning the openings to teach you knew exactly what a good opening should consist of and demonstrated it on several occasions.

Principle #8: the teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

*You did grade our papers and give us formal evaluations and grades. However at the same time when we were setting up rubrics you let us have a hand in deciding how we were going to be graded. This helped us feel like we had a hand in our grading process.

*You didn't always give us direct grades though. When we were demonstrating our openings you had the class evaluate us very informally. Also when we turned in our first draft of our two week lesson plan you made sure that we understood that it wasn't about the grade but instead about the comments for that part of the assignment.

Principle #9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

*You were constantly looking for our input on how our grading system worked.

*You encouraged us to use a web page and set up a web page yourself so that you could gather information from other sources on how your classroom teaching was going.

*You work with globe and that demonstrates your need to expand your teaching.

Principle #10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well being.

*You work with globe.

*You work with space link.

*You work with grad students to help you in your classroom.

*You work with after school tutoring.

*You have web page upkeep.

Reflection Paper #3

Principle #1 – Central concepts, tools and inquiry

1. Inquiry, Inquiry, Inquiry
2. Allow students to explore topics that they are interested in
3. Make learning experiences meaningful by connecting with real life

Principle #2 – Intellectual, social and personal development

1. Create an environment where the class is a community
2. Work together with students to achieve goals
3. Allow pairing and group work
4. Lessons should be age and level appropriate

Principle #3 – Differing Approaches

1. There is more than one way to approach a topic
2. Be creative and innovative
3. Cater to the multiple intelligences and learning styles

Principle #4 – Variety of Instructional Strategies

1. Always plan ahead for the necessary accommodations that must be made
2. Be prepared to make adjustments for special needs of individual learners

Principle #5 – Motivation

1. Engage students in learning that is interesting and innovative
2. Build lessons based on their individual interest and curiosity to increase motivation

Principle #6 – Communication

1. Keep principal and other teachers involved and updated
2. Create a class website to keep parents up to date
3. Encourage dialogue with and among students

Principle #7 – Instruction connection with students' lives

1. Build lessons based on students' interest and growing curiosity
2. Approach real life situations and problems
3. Allow students to play a role in the decision making process
4. Constantly connect with real life

Principle #8 – Assessment

1. Assessment should fit the assignment and learning
2. Create several different options to meet students' needs and learning styles
3. Pre-assess accordingly to gain an idea of where students are at

Principle #9 – Teacher Reflection

1. Evaluate after each lesson
2. Allow students to give feedback
3. Think about what works and what did not work and make appropriate adjustments

Principle #10 – Relationships

1. Build partnerships with local businesses to get projects done
2. Keep parents actively involved as partners in learning
3. Do not always work alone, form teams with teachers
4. Always gain proper permission from principal

How does what you have learned in this class relate to the INTASC Core Standards?

Principle #1: The teacher understands central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches, and can create learning experiences that make these aspects of subject matter meaningful for students.

- Science Lesson Introduction-We developed and taught a science lesson opening to the class in which we had to gain the student's attention.
- Pre and Post Map of Lesson-We had to create Pre and Post maps for the 2 week lesson we are preparing. We had to write what we knew about the topic and then what we learned about the topic after planning the lesson.
- Two Week Block Plan and Full Lesson- We created a block plan on a subject of our choosing in which we learned detail information of that particular topic.
- Space Link-We learned how to create learning experiences for the children and how to make the content meaningful to them.
- GLOBE- We learned how to complete the GLOBE program and how to adjust it to different grades.

Principle #2: The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social and personal development.

- Science Center-There is a "Docking the Shuttle" game at the Science Center. When teaching the children (children of different ages, intellectual abilities and backgrounds)how to do it, we had to try different teaching strategies and figure to which one worked best for which kid and use that way to explain how to complete the game.
- 2 Week Block Plan- We had to have a section in which we talked about the different adjustments or strategies we may have to make according to the individual abilities if the students.

Principle #3: The teacher understands how students differ in their approaches to learning, and creates instructional opportunities that are adapted to diverse learners.

- Science Lesson Opening- We had to be prepared for different questions or lack of understanding in what we were teaching. We attempted to present the information in different ways such as visual (pictures and book) and verbal (explaining).
- Two Week Block Plan- We had to write a paragraph about the adjustments and changes we may have to make in our lessons according to the different learning styles of the students.
- Space Link- We had to adjust our approach to teaching if they children did not understand what we were saying. We had to think of another way to present the information to them so that they would understand.

Principle #4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

- Science Lesson Opening- We asked the students questions as well as gave them visual aids.
- Two Week Block Plan-We learned how to create inquiry based lessons.
- Inquiry Science Movie- We saw how a class used inquiry science to develop a test to determine what type of toilet paper is best to use to keep from clogging toilets and what the best type of tooth paste is to clean your teeth.
- GLOBE- We learned how to instruct the students to complete the GLOBE tasks.
- Space Link- We learned how to use different instructional strategies to encourage the children to complete the activities.

Principle #5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning , and self-motivation.

- Space Link- We motivated the students to not only participate but to complete the different activities in the center.
- Lesson Introduction- We motivated the students to complete the activities (example. By saying it was a contest to see who could find the most bugs)
- Two Week Block Plan and Full Lesson- We had to find ways to grab the students interest so they were excited about completing the lessons.

Principle #6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

- Science Lesson Introduction- We designed and taught a lesson introduction in which we were supposed to foster inquiry and interaction.
- Two Week Block Plan and Full Lesson- We designed a block plan and full lesson in which we were supposed to encourage students to come up with their own ways for testing concepts.
- Space Link- We encourage the children to find answers to their questions and to interact in the center.

Principle #7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

- Science Lesson Opening- We picked a topic that we were fairly knowledgeable about and then found more information on it. We picked the topic thinking it would be interesting to the students.
- Two Week Block Plan- We had to check with and explain how our lessons met the curriculum goals. We had to become knowledgeable on the topic and make the content interesting for the students to learn.
- Pre and Post Concept Map- We had to create a map of what we knew before as compared to what we knew after planning the lesson.
- Space Link- We got a chance to spend time becoming familiar with the activities before we were expected to teach them to others.

Principle #8: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

- Science Lesson Opening- We asked questions about the information the students were supposed to be gaining.
- Two Week Block Plan- We had to have an assessment for each day of the unit.
- Space Link- We watched and complimented and critiqued the students progress with the activities. If they had trouble with something we asked questions and figured out what they were thinking and then tried to point them in the right direction.

Principle #9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

- Lesson Openings- We were critiqued by our peers and we critiqued their lessons as well. We also were evaluated by the professors and did a self evaluation.
- Space Link Workshop- While volunteering at Space Link, we got a chance to participate in a Teacher Workshop about oil spills.

Principle #10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

- Flavio-We spent time with Flavio, who we can get information on what is going on at the Science Center.

- Globe-We learned how to access and use the GLOBE web site in which we could not only interact with the scientists in charge but with other teachers/schools as well, who could offer ideas and advice to us. We also completed the GLOBE program in which we learned how to use the GLOBE equipment and how to contact the people in charge.
- Web site-We learned how to create our own web site, which will be a good way for other teachers and parents to stay in tune with what the students are doing in class.
- Soliciting Donations-We talked about getting people of the community to donate materials needed for projects/experiments.
- Teachers-We got to know the other students in the class, who will soon be teachers and can offer us ideas and support.

#10

Reflective Log 2

Change in Personal Beliefs about Science Teaching

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Education 330

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A sign of growth and learning is change. When one is truly gaining from an experience, it is only natural to see signs of change. Education 330 is a class that has made alterations in me and my way of thinking about teaching in general, science teaching in particular. As the semester progresses and I begin to reflect, I have made noticeable adjustments in my beliefs and attitude towards teaching science.

Initially, I possessed considerable concern about the idea of being responsible for teaching science. Science has always been a subject matter that I approach with skepticism and caution for several reasons. I have never really enjoyed science and as a result, have never been extremely good at it. In addition, I often worried about how I would instill in my students a love for science, a topic that I absolutely dreaded. Also, I knew that I would have to teach the topic in such a way that the students not only grasped the concept, but also could extend it and actually benefited from it. I believe that the whole idea was overwhelming to me because of everything that would be expected of me and because so much was at stake. At the beginning of the semester, I did not feel comfortable in my knowledge of science or my abilities to successfully teach my students. However, I was aware that this would be one of my duties as an elementary school teacher.

A majority of my worries regarding science teaching were also attributed to the fact that I lacked real exposure to and knowledge of how to teach the subject matter. I did not know many effective techniques that could take science learning farther than just standard textbooks. I also felt that I did not know enough about science – not enough to actually attempt to instruct others on the topic. It has always been my belief not to expect

my students to do anything that I could not do. But when dealing with science, my theory would not hold up.

At the start of the semester and Education 330 class, I was looking forward to gaining valuable information and experience that would enhance my knowledge of not only science but also ways to convey the ideals and principles to my students. It was my first methods class and I desired opportunities to extend many of the theories that I learned in previous education class to the actual subject matters that I would be teaching. In spite of my high hopes and the prospects of the course, I entered the class hesitant. I was nervous about what the expectations of me may be. I still felt unsure about my capabilities as far as science teaching goes. However, fairly early on in the class, I realized that this would be both a beneficial and different experience for me.

At this point in the semester, my beliefs about science teaching have changed drastically due to the skills and information that I have learned in Education 330 class. While I recognize that there is still much to be learned, I no longer feel the sense of unawareness and lack of experience that I did initially. Presently, I have a greater understanding about the science content for elementary students, teacher and student motivation and the roles that they play and also practical techniques and strategies for optimizing the scientific experience.

I stated earlier in this paper that most of my reluctance towards teaching science stemmed from the fact that I did not feel that I knew enough about the topic. As a pre-service teacher candidate, I understand the importance of teaching the content; no matter what subject one might be dealing with it. Even though I may have creative ideas and plans for science, I still recognized that content must be the center of my lesson. A major

So imp
critical
ideas

component of Education 388 class is GLOBE (Global Learning Observations to Benefit the Environment) training and the volunteer work at the Maryland Science Center.

Through this two programs or projects, I have gained valuable insight on several scientific topics such as planets, the Hubble Space Mission, weather patterns, the solar system and much more. In addition to the information, the work through these two efforts provides me with hands on experience. I know feel more confident and comfortable with the amount of scientific subject matter that I know, the degree of this knowledge and the variety of topics that it involves. I know feel that I aware of more and thus will be able to more effectively instruct my students on the subject matter.

Previously, I did not realize the huge impact that both student and teacher motivation has on the learning impact. However, I now truly believe that if my students are not interested in the subject and if I am not interested and excited about teaching, little learning will take place. Science is one subject area where motivation is going to especially important for me. Because it admittedly is not my favorite subject or area of expertise, it may be a little difficult in the beginning for me to get engaged in the topic at the level that as a teacher, I would normally like to be. In this case, my motivation will be imperative to the way my students perceive the topic and the extent to which they get involved and take away from the topic. In addition, science is a subject matter that many students do not feel can be exciting, interesting, and fun. However, I have learned from Education 330 class and I now believe, that the exact opposite is the case. Not only can science be fun and exciting, it should be. As a teacher, I will attempt to remember this and definitely take this into account when planning and teaching my science lessons.

*You must
always
remember
this idea*

In addition to theoretical information and knowledge, I have gained practical skills and techniques that have assisted in changing my views on science teaching. I believe that I now know more about the types of strategies and techniques that are best to use for science teaching. I have seen some of these demonstrated and also have received first hand experience creating and using such techniques myself. I feel more prepared and capable of conveying the science information and skills in a manner that is conducive to learning.

no true

Lastly, my greatest area of change has been in my personal views and appreciation of science as a discipline. I think that probably the most important thing that I have learned thus far in Education 330 is that I can not truly instill in my students a love of a topic until I first love and enjoy it myself. This has nothing to do with how much I know about it or how competent I am in performing tasks and experiments. This deals with my personal deep held beliefs and attitude. I realized that as long as I continue to view it as an unconquerable and unattainable topic, I would never enjoy science and miss out on a lot. I have decided, instead, to begin to cultivate my own interest and appreciation of the topic. I have begun to actually seek out opportunities to add to my science knowledge and toolbox. My attitudes and beliefs about the material that I will be teaching are going to interfere with the way I approach the subject, no matter how hard I may try to keep them separate. If I want my students to love learning and enjoy it, as the teacher, as the model for their present and future actions, I have to do the same.

We all hold preconceived notions and beliefs about a wide range of issues and topics. For me, science was something I viewed as beyond difficult, uninteresting and generally boring. However, my insights and beliefs on science teaching have changed

drastically as a result of Education 330 class. I am no longer so intimidated about the task of teaching science. I now feel better equipped and prepared to not only teach science, but to plant the seeds of love and appreciation for science in the hearts and minds of my students.

Sharelle Stagg - A -
Strong reflection - now
think of way to operationalizing
your beliefs.