I. Introduction

My final project is a set of curricular materials to be used for differentiated instruction in an eighth grade science classroom. The topic of the unit is astronomy, which I feel is my weakest area of science. The creation of these materials correlates with my school’s current movement towards standards-based units. The materials I’ve created allow for differentiated instruction based on student ability and the theory of multiple intelligences. Although this is the goal of the work we are currently doing at my school, we are only in the beginning stages in creating these units. In a way, I’m ‘working ahead’ of my building by creating this set of materials. I believe that the idea of differentiated instruction is vital to making ‘adequately yearly progress’ with all students.

II. Standards-Based Units

During the past year, my school has had several professional development activities focused on the creation of standards-based units. An additional advantage to this work is the fostering of collaboration within the various departments of teachers. This has allowed for sharing of ideas, activities, and assessments between teachers of the same subjects. Although one would hope that this type of collaboration would be encouraged in every school, it often doesn’t happen naturally.

Part of the reason for the emphasis on collaboration is the amount of work that goes into creation of a standards-based unit. The idea is to create a month long unit that addresses between 2-5 standards. These standards are used to create an essential understanding, essential questions, a vocabulary list, and an authentic assessment. The authentic assessment is completed at the end
of the unit by every student. The goal would be for every student to have mastery of the month’s standards and demonstrate their knowledge through the application involved in this assessment. In addition, learning activities used along the road to mastery are compiled to reach students at various levels of learning.

III. Differentiation by Ability Level

There are four types of activities involved in the standards-based unit. The “Learning Activities” (Step 1) would be general activities/assignments that the entire class experiences in order to be introduced to the concept or idea. Every student would experience these regardless of their ability or readiness. At this point, the teacher would assess which students have mastered the standards and which have not. Those who have mastered the standard will move on to “Rethinking Activities” (Step 3). These activities/assignments would allow the students to apply their knowledge in different ways to demonstrate understanding. The students who have not mastered the standards after Step 1 would move into Step 2, “Practice Activities”. These activities would allow the students to experience various ways of looking at the standard in order to gain a better understanding and eventually mastery. The “Enrichment Activities,” which make up Step 4 of the unit, would be reserved for students who demonstrate mastery of the standards before Step 1 or need more advanced activities than Step 3. This would encompass the gifted students within the classroom.

The increased collaboration among teachers allows for more resources to pool in the creation of these ‘banks’ of activities that reach various levels of learners. It’s not hard to see that these levels of learning activities correlate with Bloom’s Taxonomy levels. Step 1 activities could span a variety of levels. Step 2 activities would focus on the ‘Knowledge’ or ‘Comprehension’ levels of thinking. Bloom’s ‘Application’ and ‘Analysis’ levels would be
found in Step 3. Step 4 would contain activities that would be classified as ‘Synthesis’ or ‘Evaluation’ levels of critical thinking.

Creating or gathering activities/assignments that are intended to reach learners with different ability levels is a crucial step to differentiated instruction. Differentiated instruction is the ultimate goal of the standards-based units that my school is currently working on. As these units are implemented, students will be able to work on different assignments that match their ability or understanding as the entire class works towards mastery of the same standards. This allows for students who learn at a slower pace to have more time to review and practice using their knowledge before they jump into trying to apply it. It also cuts back on frustration commonly found in more advanced students. These students won’t be asked to practice applying their knowledge over and over again once they’ve mastered the standards. Instead, these students will be able to expand on their own knowledge as they work on more advanced activities/assignments.

IV. Differentiation by Multiple Intelligences

Howard Gardner’s theory of multiple intelligences is not new. Most teachers understand that there are a variety of ways for students to be “smart.” I feel that even though we know and understand this theory, it’s a very time-consuming process to create activities or assignments that appeal to a variety of intelligences. But, if the use of these would lead to more (or better) student learning in the classroom, all teachers should make an effort to utilize Gardner’s ideas.

When creating a unit for differentiated instruction, appealing to various types of intelligence is just as important as addressing student ability. As an introductory activity I plan to give my students a “Multiple Intelligence Inventory” that will help them to identify their strongest “intelligences.” The resulting information will be used to group students and
differentiate assignments/activities. To help with this differentiation process I incorporated at least one activity that will appeal to each type of intelligence while students work towards the three standards that are the focus of this unit.

V. Summary

To create this unit, I compiled my current resources that address the three standards. I also reviewed my new set of textbooks for activities that addressed these standards. An intense internet search also led to several activities that are used within these lesson plans. Books from previous graduate classes also contributed to my ability to create activities/assignments for differentiated instruction. This process allowed me to create the variety of activities for the unit.

My final project includes a unit skeleton, a multiple intelligence inventory for students, and various lesson plans that include activities for varied levels of student ability and multiple intelligences. I plan to implement this unit in September as my class begins their study of astronomy. I also plan to share it with my colleagues as an example of a standards-based unit for differentiated instruction.
Bibliography for Final Project


