SUMMER DOCK MIDDLE SCHOOL
COLLABORATIVE LESSON PLAN

Sara Anderson
Holly Fralick
Gordon Myers
Vicki Scannell

December 2006
Analysis of the Learning Context

The mission of [Summer Dock] Middle School, a magnet school with an emphasis on environmental science, is to develop the personal, social, and academic potential of all students. We will accomplish this through an interactive, integrated, multicultural curriculum. [Summer Dock’s] small, caring atmosphere guided by shared involvement of students, parents, staff and community promotes exploration and lifelong learning.


Welcome to Summer Dock

Imagine stepping off the school bus and walking into Summer Dock Middle School through the crisp fall weather on the day after Labor Day 2006 as one of the school’s newest members. Because Summer Dock is a magnet middle school, you leave behind your childhood, almost all your friends, and your former title as the “big man on campus” at your old elementary school as you walk through the door. You are about to embark on the tribulations of early adolescence with a group of mostly strangers, but despite any anxiety you might have over the new environment, you look forward to this new experience.

It is true that history cannot satisfy our appetite when we are hungry, nor keep us warm when the cold wind blows. But it is true that if younger generations do not understand the hardships and triumphs of their elders, then we will be a people without a past. As such, we will be like water without a source, a tree without roots.

—Wall inscription, New York Chinatown History Project (Nash, Crabtree, & Dunn, 1999).

Bienvenido a Summer Dock

Now imagine you, as an ethnic minority student, are walking through that same door. As you make your way down the school’s only hallway, you see virtually no promotion of your culture or any other culture for that matter. There are no advertisements for clubs or student organizations that celebrate cultural differences or promote diversity. After a week you finally notice the only poster related to diversity in the school, advertising for “National Hispanic

---

1 We are using the pseudonym “Summer Dock Middle School” for the school that is discussed.
Month,” but it is not displayed prominently or made very visible at all. Most of the posters in the halls or classrooms depict cartoon characters making remarks related to academic success.

The first classrooms that you pass house the eighth grade. You can’t help but notice that the history classroom features a prominent red, white, and blue color scheme, depictions of Uncle Sam and the “founding fathers”, and several aerial views of Washington D.C. You understand that many members of your culture made significant contributions to American history and that diversity is one of America's defining features, yet you do not see these things represented here.

Although your locker and first period classroom are located alongside the other sixth graders’ in the center of the hallway, you decide to explore the length of the hall. By the time you reach the end you have noticed that all of the educators, with the exception of one, are white. In fact altogether, the only non-white adults in the school include the one African-American guidance counselor and the two Hispanic janitors.

Despite these visible oversights, you do not sense any racism among your peers. The students gathering in the hallway have not roped themselves in cliques divided by race or gender; to the contrary, many are naturally engaging and bonding with their peers, regardless of these attributes. Also, you had heard from an older classmate that in a science class the students were given the opportunity to conduct an open research assignment where they focused on a scientist of their choice. Some of the students researched scientists from diverse backgrounds; however, this was entirely student-initiated and not necessarily encouraged by the educators.
Many of the dilemmas [faced in implementing inclusive education] appear to be a direct result of districts approaching inclusive education in a reactive and piecemeal fashion, without a long-term vision of what such a change in philosophy and practice entails. In response to a request from either parents, teachers, or administrators to create inclusive settings, staff are shifted around and students are placed in general classes. While these steps are necessary, they are not sufficient to achieve the quality of schooling children and youth deserve.

—From “Drawing distinctions between coherent and fragmented efforts at building inclusive schools” (Davern et al., 1997).

Finally, imagine the different experiences you, as a student with special needs, face as you walk through the same door as your classmates. Although this is your first day at a new school, you are relieved to recognize a few students your same age that grew up in your neighborhood and attended your elementary school. When you receive your class schedule, you happily discover that many of these companions have the same classes as you.

You make your way to your first class, where you are greeted by two teachers. One of these teachers seems to take a much greater interest in you than the other. Throughout the class, this teacher spends most of her time working with you and a few other students in the class. Both appear to be equally capable and in command of the material, so you wonder why each teacher seems to be targeting different groups of students, rather than sharing their knowledge with the whole class. Before you leave, the teacher helping you informs you that on Mondays and Wednesdays you will be pulled out of your regular classes to read with a student-teacher in the library. She also encourages you to attend the first meeting of the group “Helping Hands for Autism” during lunch today.
Change is hard. Changing schools is harder. When change hovers nearby, the structures and systems in schools that are most protected are usually those most in need of alteration—the issues we gloss over with rhetoric. We fly banners from the flagpole that invite celebrations of diversity. We announce to parents that we believe all students have unique gifts and talents. Then we walk back into the classroom and prepare students to take standardized tests so that we can see which kids have been filled up with the most information.

—From “Preparing the ground for what is to come: A rationale for inclusive high schools” (Shapiro-Barnard, 1998).

Analysis

We observed a partial implementation of inclusive practices in the teachers’ philosophies at Summer Dock. Some co-teaching teams did not share leadership in the classroom, which generally resulted in a special education teacher confined to the back of the room, while other co-teaching teams did share the responsibilities in the classroom quite effectively. In one sixth grade class, the cross categorical support teacher actually conducted class on at least four different occasions, while the regular education teacher assumed the support role, walking through the aisles of desks, helping students as required.

At the same time, we observed some interactions in the classroom that demonstrated a much poorer implementation of inclusive schooling. For instance, in an eighth grade history class, during group-work activities, the three students with disabilities were always grouped together. In the same classroom, the back table was reserved specifically for two students with disabilities. The educators in the classroom rarely facilitated communication and interaction between the students with special needs and the regular education students. This sort of poor implementation varied in each classroom; some of the teachers had the students with special needs isolated on their own “islands” while others had more inclusive seating arrangements.

Still, it is fair to say that these students spent the majority of their time with their regular education peers, demonstrating overall compliance with good inclusive practices (Walther-
Thomas, Korinek, McLaughlin, & Toler Williams, 2000). One of the students with disabilities that this project will focus on, Tom, was actually able to work with a new partner almost every day during group-work activity. The teacher devised a system of “clock partners” in which all the students had a different partner for each hour of the day (summing twelve partners total). There was also some attempt made within the curricula to address the issues of disability and inclusion. One class included a lesson on multiple intelligences, describing what they are and subsequently having the students decide which intelligences they thought they displayed most often. This lesson very obviously acknowledged individual capacities in the classroom.

The special education teachers at Summer Dock often used individualized, differentiated, and modified materials in class. These materials were used in everyday note taking, daily assignments, projects, and assessments. This ensured that students with disabilities were evaluated on individually appropriate standards. There were also some instances in which the students with special needs were given the same assignments or worksheets as the regular education students but only when appropriate regarding the student’s needs.

The school’s formal vision focuses primarily on the academic success of all students, with no regard to “race, class, disability, sexual orientation, gender, or home language of origin other than English.” This second clause of the school’s vision reflects an underlying attitude at Summer Dock that academic success is given priority while diversity is secondary. Principles of diversity were virtually non-existent at Summer Dock. As illustrated above, minority students were overwhelmed by patriotic displays of red, white, and blue and deprived of any displays or role models representing their own ethnicities. In truth, there is an effective inclusive program. While it is a far cry from being perfect, the students feel comfortable around their peers with special needs, and the latter seem to benefit from being in regular education classrooms.
Student Profile: Crystal

Personal Background

Crystal is a sixth grade student at Summer Dock with very lofty goals. She plans on attending law school so she can become a judge. Eventually, she wants to design her own fashion line. Crystal moved to Madison from Chicago with her mother when she was eight years old. Her family lives in different places around the country, but her Grandmother and Uncle also live in Madison. Family is very important to Crystal; many Monday mornings, when the class discusses the weekend, Crystal mentions going to Chicago to visit family.

Crystal is an African-American student who recently found out some of her relatives are Cuban. She is very interested in that part of her ethnic identity and would like to find out if she still has any relatives in Cuba.

Multiple Intelligences

It is not difficult to see which of Gardner’s eight intelligences Crystal is particularly strong in. She enjoys writing, and can be seen writing a story almost daily. She prefers creative writing assignments over reports, but as long as she is given the chance to write she is happy. Although not as obvious, visual-spatial intelligence is another one of Crystal’s strong points. When working on a difficult problem in math or other subjects, she often finds it helpful to draw the problem out. This intelligence is also seen when the teacher has drawn things out on the board or has shown an example, during which she becomes the most engaged. When the teacher only lectures, Crystal tends to forget what has been said and ends up asking many questions.

Crystal can be very introspective. During discussions with her, she can easily identify why she thinks the way she does, and will often stop to question herself about how and why she

2 “Crystal” is a pseudonym.
holds different opinions. Likewise, she has strong interpersonal relationships; she is a friend to everyone in the school. Although she does not see herself as having many friends, it only takes one day in the classroom to see that she provides a lending hand and an open ear to other students. She is a great listener when anyone needs to talk.

Musically, I have had the opportunity to see Crystal do several things. She is an alto in the school chorus and, when asked to summarize a chapter about Aldo Leopold, she led her group to creating a song which they sang in front of the class. Crystal is also a very linear thinker. She needs to do things sequentially.

The naturalistic intelligence is not a particularly strong point for Crystal. While on walks near the school grounds, Crystal can be heard saying how much she dislikes nature; if a frog gets anywhere near her, she is out of there! Bodily-kinesthetic intelligence is another aptitude that Crystal needs to build on; however, one part of this intelligence that she demonstrates clearly is her frequent use of hand gestures. In conversation, she provides much of the detail with her hands, not her words.

School Role

In school, Crystal is considered one of the popular kids in some regards, but not in others. Unlike some of the popular students, Crystal is very sensitive to others. She considers herself “cool with everybody.” She is very well-liked and even looked up to by a large number of the girls in her class. When asked to name some of her good friends, she lists off mostly girls but states that she doesn’t have any real friends—just acquaintances.

In classes, Crystal is a very attentive student. She often has too much to say and has to be quieted by the teacher. About half of the time these comments are questions related to the assignment, while the other half involve her conversing with her tablemate, regardless of who
that may be. When given the chance to answer a question, she is very enthusiastic to share her answer, knowing most of the time that it is right. She is always very active in helping to explain things to other students.

Two subjects in which Crystal has tried to be engaged in, but has had trouble with, are math and science, often because she has not been challenged. In these classes, she is usually the first one to know the answer, and promptly shouts it out. She manages to get her homework done during class and often ends up bored because she understands the material while her peers are still struggling with the new concepts. This causes her to lose focus, and she lags behind the rest of the lesson.

According to the article, “Students’ Multiple Worlds”, Crystal has had mostly a “type one” or smooth transition into school (Phelan, P. and Davidson, A.L., Yu, H.C., 1993). Her friends and family value the same achievement goals as she does. Her mother is well known by the teachers and staff as playing an active role in Crystal’s education. In fact, her mother often challenges her to go above and beyond in her homework, requiring Crystal to think for herself before asking for help. Furthermore, even when Crystal does need help, her mother encourages her to explore other sources before asking for help from her or the teacher. Crystal does deviate from the “type one” model in some aspects, though. Summer Dock is a predominantly white school, which creates special challenges for her, as most of her friends come from very different backgrounds than her own. Also, since many of her non-white friends may not have had such a smooth, “type one” transition into school, they do not necessarily value the same types of goals and achievements that she does. This can create social boundaries for Crystal, but she seems to handle them quite easily.
One explanation for this seemingly easy navigation is her ability to “code-switch” when around different peers; she will act differently depending on the context and the group of people around her (Steinberg, L. 2004). In the classroom during normal lessons, she conforms to traditional school norms fairly well, such as not interrupting and avoiding the use of slang words; however, in more informal situations, such as in the hallway and during less-structured group work, Crystal tends to take on the mannerisms and norms of her African-American peers.

<table>
<thead>
<tr>
<th>Verbal/Linguistic</th>
<th>Visual/Spatial</th>
<th>Intrapersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talks and writes constantly</td>
<td>Likes to draw</td>
<td>Very in touch with her own feelings about things</td>
</tr>
<tr>
<td>Enjoys creative writing</td>
<td>Uses pictures to help solve difficult problems</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Logical/Mathematic</th>
<th>Crystal</th>
<th>Interpersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses outlines to organize things linearly</td>
<td></td>
<td>Friends with just about everyone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Always responsive to others feelings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bodily/Kinesthetic</th>
<th>Musical</th>
<th>Naturalistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talks using many gestures</td>
<td>Participates in Choir</td>
<td>Likes to classify things</td>
</tr>
<tr>
<td></td>
<td>Makes up songs in her head</td>
<td>Does not like to be out in nature</td>
</tr>
</tbody>
</table>
Student Profile: José

Personal Background

José ³ is an extremely social sixth grader at Summer Dock who is open to meeting and socializing with people, student and teacher alike. He lives with his mom, two brothers (ages 16 and 18), and sister (age 8). His father lives in Oregon, Wisconsin with José’s baby sister, and José visits them every Sunday. Both parents were born and raised in Mexico yet moved to Madison in 1990; therefore José and his 16-year old brother were born in Madison. Through conversations and observations it is clear that family is very important to José; he spends a great deal of time with relatives, immediate and extended.

Walking down the hall with José is an experience in itself. At least every third person gets a personal greeting from José, school officials and students alike. He gives a high five or a fist pound to at least one person on the way to the library most days, most often eighth grade boys. While working in the library, the most challenging task was keeping him focused on his work without talking or interacting with the other students. When I asked him who his friends were, he replied, “Basically the whole school…I’ll name them all” and started listing countless students. When I cut him short, he summarized, “I have a whole bunch” which is very evident in our observations of José’s interactions with other students.

His attachment to and involvement with his peers is a perfect example of constructing “self-in-relation-with-others” outlined by Jennifer Connolly and Adele Goldberg in “The Role of Friends and Peers in Their Emergence and Development” (1999). This bonding to peers in a greater closeness and intimacy than previously experienced generally occurs in adolescence, and José is observably maturing in his interpersonal relatedness, mostly in his friendships, which the

³ “José” is a pseudonym.
article points out as a critical area where this development takes place. Further related to the article, José follows the typical pattern of finding the balance of relatedness and autonomy in adolescence (Connolly & Goldberg, 1999). Though he fully embraces his social relationships, he is becoming more independent and expresses more self-determination, as seen in a reading session last week. As he was reading, he did not understand a word and he asked if he could go look it up. Up until this point, he had read over words without admitting he did not understand them until asked directly and even then would never offer to look them up in the dictionary. He took a step toward improving his education based on his personal values, which is concurrent with the article in that both show self-differentiation and independence as critical developments during adolescence.

José is very involved with sports and gets very excited talking about his soccer and football teams, as well as playing tennis. In his perspective he is a valuable asset to the teams. He also participates in a dodge ball club after school; he is a “pro at the game” and demonstrated his techniques of dodging any and all balls coming his way.

**Multiple Intelligences**

As in most students some of José’s intelligences are much more developed than others. One of José’s most observable intelligences is interpersonal as he loves socializing with a range of people regardless of age and makes everyone feel very comfortable around him.

On the flip side, he often has a hard time focusing with lots of people around and needs to work individually sometimes. Because of some behavioral issues, José and the school set up a program to help him realize how his actions and responses to situations affect him not only in physically, but also internally. For instance supporting teachers or administrators pose questions
such as, “How are you showing yourself disrespect by not showing others equal respect?” This forces him to work on his intrapersonal intelligence.

His bodily-kinesthetic intelligence is also visually observable. When he is trying to read, he cannot stay still. He is generally moving his hands or squirming around. Involvement with athletics is also a bodily-kinesthetic intelligence outlet. This contributes to his tendency to learn better when moving and doing hands on experiments.

Most of the time spent with José was in one-on-one reading sessions, naturally focusing more on linguistic intelligence than other intelligences. He did not always enjoy reading but did a fine job reading and writing during our sessions. Additionally, he stated that he learns best from repeatedly reading material.

Because our interaction with José took place only in specific settings, it was difficult to observe some of the intelligences such as naturalist and spatial, but math is one of his favorite subjects which generally centers on logical-mathematical intelligences. For a visual presentation of José’s multiple intelligences, see Figure 1.

Inclusion in School

José is classified as a student with ESL, non-progressive bilateral hearing impairment and considered a special education student, though most—if not all—of his classes are in regular education classrooms. During our practicum, we took him out of class to work one-on-one in reading, in accordance with many of his IEP goals. According to his IEP, he is a student with a low academic average, issues with being trustworthy and taking responsibility for actions, a respectful attitude most of the time, and concerns about losing more of his hearing.

Specifically in relation to reading, his IEP goals state he reads well but needs work on comprehension, a view which observations in tutoring supported. Outlined in his IEP are goals in
trying to improve his reading to a late-fifth/early-sixth grade level in vocabulary, fluidity in reading aloud, and comprehension. Observations throughout the semester show that actions taking place in reality veered away from the IEP goals. The majority of the time he was given an easier book so he could finish it on time. He did individually look up vocabulary words that he did not previously know or understand, but upon the end of our practicum, it is likely he will not get any individual assistance.

In regards to listening comprehension in the classroom, he is supposed to wear his hearing aids in all of the core classes and sit near the front of the classrooms. The ultimate goal is to “increase his ability to compensate for his hearing loss by using strategies on a daily basis, such as exploring the effect of hearing loss personally in his conversations with the audiologist or teacher of deaf and hard of hearing.” We did not have any discussion about his interaction with the audiologist or teacher of deaf and hard of hearing, thus it is difficult to say whether or not these are being met.

Emotionally, José is supposed to focus on taking responsibility for his behavior and school materials. Nine times out of ten he is supposed to “truthfully process misbehavior in which he engages, with an adult, without disrespect” and will turn in homework and notes from home in a timely fashion.

As the article “How to Manage Disruptive Behavior in Inclusive Classrooms” by Vera I. Daniels states, José’s behavior issues may stem from inappropriate curriculum or teaching strategies, his inability to understand concepts being taught, or his hearing disability (1998). The school has taken actions paralleling the article’s suggestions such as clarifying the kinds of behavior causing concern, laying out a plan to deal with the behaviors, communicating with the student and their parents, and attempting to provide sequential instructional programs to improve
targeted skills (Daniels, 1998). There seems to be a gap in the offering of sequential instructional programs to improve José’s academic success, specifically in reading. There is no clear-cut path laid out to improve his reading besides pulling him out of class once a week to individually read books that he often finds too easy. However, the school has done a good job giving José an organized list of the behaviors he needs to work on. Near the middle of the semester José was given a behavior record sheet that was to be filled out by each teacher at the end of the class stating whether or not he behaved, respected, listened, and turned in homework. This helped him personally reflect on his behavior in each individual class.

General accommodations made for him in classrooms were supposed to include sitting near serious students, sitting near teacher for hearing purposes, and having visual reminders to maintain hearing aid use. During classroom observations, he rarely sat next to serious students but often sat near the front of classrooms. None of us ever saw him use his FM listening device, but there was a sheet of paper taped to his locker reminding him of his goal to use his FM device and be respectful in class.

From his perspective, Summer Dock is an enjoyable place, hence his attitude towards school sharply contrasted that of many of the Latinos in the article “Structuring Failure and Success: Understanding the Variability in Latino School Engagement” by Gilberto Q. Conchas (2001). Many of the Latinos in the article, especially second generation U.S.-born Mexican-Americans, separated themselves in classrooms and became invisible, whereas José naturally interacted with a majority of the school population (Conchas, 2001). There was no obvious discrimination, marginalization, or isolation of José based on his race or ethnic background, though this may be because it is a smaller school with fewer racial divisions and cliques. However as the article points out, there are often lower expectations of the Latino population.
For instance in reading, José is given shorter books at an easier grade level than he is capable because he was identified early-on as a student in ESL, though we have never once seen him struggle to express himself or use the English language.

**Figure 1. José’s multiple intelligences.**

<table>
<thead>
<tr>
<th>Bodily-Kinesthetic</th>
<th>Engages in sports (e.g. tennis, football, soccer).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Linguistic</td>
<td>Easily expresses himself to his friends and teachers working with him; will argue his point clearly if given the chance.</td>
</tr>
<tr>
<td>Visual Spatial</td>
<td>Very apt at computer, internet searches; must read things to understand.</td>
</tr>
<tr>
<td>Naturalist</td>
<td>Likes being outside during recess.</td>
</tr>
<tr>
<td>Logical Mathematical</td>
<td>Enjoys mathematics; excelling at understanding fractions.</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Self motivated to look up unknown words, takes the initiative in asking questions when he does not understand.</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Well liked by peers, has school-wide nickname (“Nacho”), interacts daily with a large range of students and teachers.</td>
</tr>
<tr>
<td>Musical</td>
<td>Involved in band, previously in orchestra, enjoys listening to his personal CD player.</td>
</tr>
</tbody>
</table>
Student Profile: Tom

Personal Background

Tom is an eleven-year old boy of Middle Eastern descent in the sixth grade with autism. He is one of the happiest and friendliest sixth graders one will ever encounter, and he has a terrific sense of humor. Tom is also a notably organized individual. While at times his teachers and peers will assist him in finding certain worksheets or opening to specific pages in class, he generally knows very well where all of his belongings are or where they should be. A verbal command of “go get this” is enough for him to find virtually anything asked for. Tom really enjoys what educators call “stimming” activities—high stimulus, repetitive actions. For instance, Tom loves to go to the sink in the back of the classroom and play with the water as it comes out of the faucet, and he also loves “playing with the fan,” that is, letting the air from the classroom heater into his shirt. His teachers also noted that he is a very athletic student and very agile, in general. He genuinely enjoys being around others, especially his peers, and is very energetic.

Multiple Intelligences

Tom is very much a logical-mathematical learner. His teachers have commented that he is very good at calculations, especially when they are concrete and well-outlined. He handles the daily mathematics worksheets that his teachers create for him, and seems very competent when it comes to arithmetic and fractions. He can also be very pragmatic in regard to his school work, often in a subtle way. For instance, his teachers will often write “No Calculator” in bold on his math worksheets, but despite this, he will tenaciously try to sneak his calculator out from his supply box and use it nonetheless. After observing this behavior on several occasions, it was clear that this was not a mark of stupidity by any means, or a fear of the material, but more likely

---

4 “Tom” is a pseudonym.
a testament to his cleverness. When the teacher physically removed the calculator from his reach, he was still able to consistently complete all of the problems on the worksheet. However, when he did have access to a calculator, he was able to complete the worksheet more efficiently and thereby had more free time. However, another factor influencing his persistence to use a calculator is that pressing the buttons repeatedly is one of the stimming activities he enjoys. To maintain an appropriate comfort level, it is often necessary to have the calculator within sight when working in the classroom. He does not seem to need it during any outdoor activity, though.

Tom is also a very bodily-kinesthetic learner and individual. He enjoys physical activities, like gym class, and enjoys going outside. However, he is not very much of a verbal-linguistic learner, and since these two intelligences are often merged into single activities, he has difficulty understanding concepts that are explained orally, even if they involve a high degree of bodily-kinesthetic activity. It is especially helpful for Tom to always be given a detailed but easy-to-read schedule of events as well as worksheets or papers that carefully outline what is expected of him. He learns best when given a written structure to follow, and really enjoys outdoor activities.

Continual reminders of what he should be working on are also very helpful. Tom does have a tendency to find some stimming activity that he likes and becomes absolutely fixated on it. Gently tapping one’s finger on his worksheet every so often is usually effective at regaining his focus, but this is usually required every few minutes. He will also sometimes become agitated if he feels his teachers are pushing him too hard, or if he is tired. He sometimes yells, “Stop It!” at the educators during such moods and may instruct them to “scooch” away from his personal space. It is important on the part of the educators to understand that he is very much a normal eleven-year old and not a robot, and that short breaks are sometimes needed. At the same time,
Tom likes to test his limits, so it is also important to not give in to these demands at whim. Still, in ordinary classroom situations, in order to maximize Tom’s ability to focus, it is good to switch his activities at least every twenty minutes, ideally with some physical activity included.

His teachers have also indicated that he highly enjoys playing violin in music class, which may be indicative of strong musical intelligence. Unfortunately, this one class is really the only context at school in which he is involved with music, so it is difficult to attribute him with a high level of music intelligence confidently. It is clear, however, that he does respond well to logically structured formats as well as activities that play toward bodily-kinesthetic intelligence. An ideal activity for Tom is one that is somewhat energetic (and may or may not involve music) but structured in order to maintain his focus.

School Role

Tom has few friends, which are primarily a few other students with autism that sit with him at lunch. One of his classmates, Susan, is what his teachers describe as “the closest thing to being a friend”—she greets him regularly and will help him when he is need, though it is likely that the only interactions between the two take place during class time. Nonetheless, from his perspective Tom would probably consider every student he interacts with a friend.

Tom is generally a very well-behaved student, but he is often unaware of his own volume level and may need to be quieted by the educators on regular intervals. This is especially true when he is in a good mood, in which case he will often act out fantasy situations in his mind (for instance, he sometimes recites and plays out scenes from the *Harry Potter* films), and may start to verbalize these situations and laugh out loud. Again, using simple frequent reminders (in this case asking him to be quiet) are helpful and effective at keeping him on task and ensuring that he does not distract those around him.
As mentioned, he is given daily schedules of the tasks he should be working on, broken down to even the most rudimentary actions to provide the most straight-forward sequence possible. He is also presented with modified worksheets in all of his classes to reflect his current abilities and progress. On some occasions in math class, he has been able to complete the same material as the regular education students, but for the most part he works with the modified materials. This provides an “optimal level” of education for Tom since it caters to his needs while being appropriately challenging (Eccles et al., 1993).

**Figure 2. Tom’s multiple intelligences.**

<table>
<thead>
<tr>
<th>Intelligence Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodily-Kinesthetic</td>
<td>Very athletic; enjoys swimming, gymnastics, four square, and other energetic activities.</td>
</tr>
<tr>
<td>Verbal Linguistic</td>
<td>Language is difficult for Tom; needs frequent adult support in reading and writing as well as dialogue.</td>
</tr>
<tr>
<td>Visual Spatial</td>
<td>Enjoys playing on the computer and watching videos; highly organized individual.</td>
</tr>
<tr>
<td>Naturalist</td>
<td>Enjoys going outside, but does not seem to categorize concepts or relate ideas to nature.</td>
</tr>
<tr>
<td>Logical Mathematical</td>
<td>Excels at arithmetic and concrete math. Benefits from sequential structures to activities.</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Relatively low level of self-reliance; requires adult prompts to maintain focus.</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Extremely friendly and personable but does not understand many social aspects.</td>
</tr>
<tr>
<td>Musical</td>
<td>Loves playing musical instruments, especially the violin; generally enjoys music.</td>
</tr>
</tbody>
</table>
This sixth grade science lesson is the culminating lesson of the semester unit on the diversity of life. One major concept that is taught during this unit is the eight characteristics all living things possess: growing, responding to environment, reproducing, needing energy, exchanging gas, eliminating waste, needing water, and being comprised of cells. Throughout the semester the students will have conducted labs to help demonstrate each of these eight characteristics individually as well as read about them in the text book. This five day set of activities will be used to bring all eight characteristics together in one organism. The students will use the example of a maple tree, which is commonly found on Summer Dock’s grounds, to demonstrate all eight characteristics. The class will be divided into seven groups and each will create a puzzle piece that when put together form a maple tree to be displayed in the classroom.

Typically the classroom is set up with two students at a table and three to four tables pushed together to form rows. There are two teachers in the classroom including a special education teacher and a general education teacher. Typically classroom rules require students to raise their hand before speaking, and remain in their seats without permission to get up. These rules do occasionally change to accommodate the activities for the day.

**Day One: Introduce the Lesson**

The teacher introduces the project for the next week and demonstrates what the final project will look like by presenting the Needs Energy characteristic.

**Day Two: Group Project, Day One**

Students are broken up into groups and go outside to write a reflection on the maple tree. They will also choose responsibilities within their groups.
Day Three: Group Project, Day Two

Students are given the period to research with the materials given at their station. The beginning of the period is dedicated to a brainstorming activity using Udvari-Solner and Kluth’s (2006) cooperative learning strategy “Everyone Learns Together” (See Appendix D).

Day Four: Group Project, Day Three

Students will finish up research and create puzzle their piece.

Day Five: Presentations

Each group will share their puzzle piece with the class and add it to the maple tree.

We decided to focus on the first two days of the lesson to expand on the classroom procedures.

Monday

After all students are in the room sitting in their normal seats the teacher hands out a packet to all students containing the requirements for the week. Included in the packet are the assignment and grading rubric (See Appendix A). Students will then use the Say Something technique (See Appendix D) to read over the assignment and grading criteria (Udvari-Solner, A. and Kluth, P. 2006). After the teacher explains the technique they will get into partners which are determined by the tables where they have assigned seating. Students will then be given fifteen minutes to read the packet one paragraph at a time and then stop and say something about what they have read after each paragraph. Next, the teacher uses the characteristic “Needs Energy” to model what the students need to produce for the final presentation. She will do this filling in the notes pages on an over head and then presenting a puzzle piece that she created and attaching it to the wall as the beginning of the tree (See Appendix B). The remainder of the class period will be used for any remaining questions the students have. Students will be asked to write their questions on a note card which will be collected to make sure that all questions are answered.
**Tuesday**

Before the students enter the classroom, seven stations are arranged. Each station will focus on one of the seven remaining characteristics and will contain materials specific to that characteristic (See *Appendix E*). Any materials that would be useful to many groups would be located in the front of the classroom for students to share. As the students walk into the classroom they are handed a playing card with a number on it. The number corresponds to their station. Groups will have been predetermined by the teacher before hand to accommodate for different students. The beginning of the period is a time to finish answering questions about the assignment. After all questions are answered, the class goes outside to visit a maple tree on school grounds. While outside students are given a five minute free write/draw to describe the tree. Once back in the classroom, groups are given group packets (See *Appendix C*) that contain an accountability sheet which describes roles for each member of the group. The group will collectively decide which role each member will take.
Universal Design Process

Content

Multi-Level Goals

All Students
- To see how one organism embodies all characteristics of life
- To see how characteristics of life can be applied to the environment
- To do research given appropriate materials
- To work effectively in groups
- To be held accountable for work done in groups
- To receive and carry out a defined role within a group

Crystal
- To work in a group without becoming authoritative
- To challenge herself to do more in depth research

José
- To work in a group well and stay on task
- To play an active role in the research process

Tom
- To use alarm to assist his group in time keeping
- To contribute to the group given specific questions

Multi Level and Multi Sensory Materials

All Students
- Microscopes
- Books on Maple trees
- Diversity of Life computer program
- Guided Research Questions
- Handouts on specific characteristics
- Clippings from Maple Tree

Crystal
- More advanced and in depth research materials

José
- Research materials at a 5th grade reading level

Tom
- Hand out packets with more explicit information (See Appendix F)
- Schedule of daily activities (See Appendix F)
- Clock with alarm
Process

Lesson Formats

Collective Inquiry

Students will collectively try to answer the questions in their packet about their characteristic of life and how the maple tree shows these characteristics.

Teacher Modeling

The teacher will model what the final product of the research should look like.

Cooperative Learning Strategies

Students will use cooperative learning strategies to understand the assignment and brainstorming.

Self-directed Study

Students are given the option to do the research for the group individually or in groups.

Instructional Arrangements

For this lesson groups will be chosen so that Crystal is in a more advanced group and is given a more challenging characteristic of life to show. Tom is put in a group one person he feels comfortable working with. José will be placed in a group of more serious students to help him stay focused.

Environmental Conditions

The room will be arranged so that there are individual work stations for each group. With common materials located centrally for all students to access (See Appendix E). Social rules of the room will change so that students are allowed to speak quietly with their group and are not required to raise hands. Students who find the classroom to be too noisy or distracting will be given a library pass for quiet research, provided that they are able to stay on-task. Also students
will be permitted to move about the room to access different resources that must remain stationary such as computers. The rule “ask three before you ask me” will be implemented during this activity. Students will be given two one minute breaks in the period.

**Student-Specific Teaching Strategies**

*Crystal*
- Crystal will be allowed to choose her role as reporter to emphasize her strength in writing and drawing.

*José*
- Before the class José will be given a goal of only two reminders to stay focused.
- The teacher in the room will check on José’s group early in the period to help them get started.
- José will be given one minute breaks two times per period.

*Tom*
- Teacher will give him reminder questions to help him stay on task.
- Tom will be given a schedule of the day’s activities before coming to class.
- Tom will be given two one minute breaks.
- Tom will be given two specific jobs in the group, a time-keeper, and will have the task of measuring saplings to demonstrate how trees grow.
- Tom will be given a task to measure maple saplings at the school with a partner from his group.

**Systems of Support and Supervision**

*All Students*

**Peer Support** – Students will work in groups and have different roles within the group. Students will be expected to ask questions of their peers first.

**Teacher Support** – Both the special education teacher and the general education teacher will wonder the classroom checking in on groups and answering questions that could not be answered by peers.

*José*

**Peer Support** – José will be placed with more serious students to help keep him focused. These students will be asked before they are placed in groups if they are willing to help keep him on task and given sample questions that they could ask that would not be condescending
**Teacher Support** – Teachers will check in on José’s group to provide leading questions to direct research two times per period, once at the very beginning period.

*Tom*

**Peer Support** – Students in Tom’s group will be given prompting questions to help him stay focused. One student will be asked to provide Tom with reminders of what he should be doing. Teachers will also model questions that are appropriate to ask for students providing support.

**Teacher Support** – Teachers will help Tom stay on task with fading support throughout the period, requiring the students in his group to gradually provide more support. Tom will also be provided before the period with time to rehearse questions he might have to work cooperatively in a group.

**Products**

**Varied Authentic Products as Demonstrations of Knowledge**

All groups will be required to make a puzzle piece that shows the aspects of their characteristic of life. They will be allowed to do this by various methods including drawing, collages, or writing. Students will also be required to present their topic with all students presenting at least one piece.

**Multi-level Assessment and Criteria**

*All Students*
- Students will be graded according to grading rubric. (See *Appendix A*)

*Tom*
- A separate grading rubric will be used to show his participation in the group. (See *Appendix F*)
Adults’ Role in the Classroom

During group work time, both the special education and general education teachers will support all students by checking in on their progress, asking leading questions, encouraging more in-depth research, and answering any questions.
**Rationale for Selecting Lesson**

This lesson focuses on the balance of developing independent responsibility and processing information as a group. By assigning individual roles, all students, regardless of strengths or weaknesses, have a distinct way to contribute to the group. In this structure we attempted to corporate multiple levels of intelligences, stimulating students to utilize their full range and potential of intellectual abilities. As the article, “Multiple Intelligences and Curriculum Development” by T. Armstrong outlines, building this base of multiple intelligences in the classroom is essential in equipping students to be well rounded individuals who feel valued and included in the classroom (2000). By adapting the curriculum to ensure no child is isolated or left out of the classroom we are promoting equal access. Because we are providing supports for the students without the same background knowledge, the students will have the same means to the education. Overall this lesson embodies democratic equality and social mobility by teaching students how to function in a given role and allowing students to increase their knowledge on an individual level (Labaree, 1997).

Cooperative learning to emphasis interpersonal intelligence, hands on activities to focus on bodily-kinesthetic, diagrams at the stations for the spatial and visual intelligences, and brainstorming to accommodate the linguistic intelligence are all methods we included that were mentioned in the article (Armstrong, 2000). Additionally the subject matter leads to direct correlation to naturalists in the classroom, as well as spatial learners because of all of the visuals involved with the puzzle pieces.

In regards to Tom, a student with Autism, the lesson will not only benefit him by creating opportunities to further his education and involvement in school, but will additionally give him avenues to add his expertise to a group and build relationships with classmates. In being
responsible for measuring saplings outside with another student, he is considered a valuable member of the team, and is able to move around and be outside which accommodates his bodily kinesthetic strengths. As the Armstrong article pointed out, logical-mathematical intelligence could be increased through categorizations, calculations, and science thinking, which are all aspects of the characteristic of life exploration that Tom will be participating in (i.e. growth). Because of his strengths with logical-mathematical intelligence, he can be responsible for any calculations or measuring of saplings to compare growth.

José will expand his knowledge while simultaneously evolving a deeper responsibility to stay focused and contribute in a group setting. He will be able to use his interpersonal intelligence in the teamwork atmosphere, and his bodily kinesthetic tendencies will be catered to by being the investigator of the group working with a microscope.

Crystal will be challenged in this curriculum with a more difficult characteristic to investigate. Her leadership qualities will be balanced because everyone will have equal roles in the group but she can set an example of work ethic. Her multiple intelligences will be obliged by allowing her to present her ideas through writing or pictures, as a record keeper.

By promoting individual roles and responsibilities we are encouraging these young adolescents in their emergence into adulthood. The characteristics that Americans use to define adulthood are often diligence, independence, and self-responsibility which are incorporated into the lesson and self-assessment. Emerging into adulthood is socially defined widespread by impulse control and making independent decisions, which will be implemented by the group task keeper and individual roles (Arnett, 1998).

This lesson has a greater purpose, setting up the students for their future involvement with teamwork situations, research or investigative strategies, more in depth biology concepts,
and integrating informational parts into a whole. It directly teaches values such as teamwork, responsibility, respect, and valuing everyone’s roles. These values can also be later applied in life as everyone must deal with social and team situations where they are essential. Additional values are intertwined into learning the importance of conservation of trees by learning what they require and how they function. As Summer Dock is an environmental magnet school and maple syrup is a common condiment used by students, the issues addressed in the lesson will be relevant and meaningful to students.

Our lesson fully correlates to the local standards of science education. These standards directly apply in regard to content knowledge (found on www.madison.k12.wi.us/tnl/standards).

1. All living organisms have to solve the same set of problems and do it in a variety of ways through specialized adaptations.

   Justification: By exploring how a Maple Tree functions within the eight characteristics of life demonstrates an organism’s capability to specialize in the process of living.

2. Most organisms are single-celled but some are multi-cellular.

   Justification: One of the groups in this project will be looking at how the tree is made of many cells, making it multi-cellular.

3. Specialized investigations involve collecting, analyzing and applying relevant evidence to support explanations.

   Justification: The students will be analyzing and collecting data and artifacts to support their one characteristic of life.

4. Xylem and stomata are specialized plant structures that function to relate water transport.

   Justification: The group that is proving that Maple trees are living because they require water will show the class how the xylem works in water transport.
With regard to **conducting investigations** our lesson also applies to the following standards.

1. Investigate materials for evidence of life when placed in suitable environments.

   *Justification:* Each group will collect and defend evidence found which will prove the Maple tree is evidence of life if the eight characteristics of life are present.

As these standards show, this lesson is a great accumulation of and conclusion to studying the characteristics of life throughout the quarter. Much like the puzzle we create, it takes pieces of information and unifies them to make a holistic concept.
Description of Autism-Specific Information

Autism is a lifelong, neurobiological condition that alters the brain resulting in a spectrum of ability levels among those affected. As such, people with autism display its general characteristics to widely varying degrees, if at all. Students with autism often find it helpful to have a schedule with visual cues to guide them through their daily activities. The layout of this section has been selected to provide an example of such a schedule.

General Characteristics:
(Shriver, Allen, & Mathews, 1999)
(Brownell & Walther-Thomas, 2001)

- Engagement in repetitive activities and stereotypical movements
  - Tendency to engage compulsively with physical objects, such as flicking light switches or spinning objects like bicycle wheels.
- Resistance to environmental change or change in daily routines
  - Receive inaccurate messages about the environment from their brain making it difficult to maintain environmental awareness, engage appropriately in their environment, or handle changes in it.
- Unusual responses to sensory experiences
  - Sensory distortions often result in oversensitivity to touch to the extent that a simple pat may feel like slap.
- Significantly affects verbal communication, nonverbal communication, and social interaction
  - Affects expressive language and interactions with surroundings, while leaving receptive language virtually unaffected.
Suggestions for Inclusion:
(Bullard, 2004)
(Brownell & Walther-Thomas, 2001)

- Establish a schedule early on and be consistent with it
  - Provide a visual representation of the schedule.
  - Write notes in advance for the child if the schedule is going to change for a special event.

- Provide verbal and written instructions for the child
  - Provide visual cue cards to use during instruction and teaching whenever possible.
  - Set clear expectations and boundaries, and post them on the wall.
  - Ask questions to check the child’s understanding of the instructions you have just given.

- Discuss with the student how others view their acting out
  - Write down current behavior and expected behavior.
  - Have the child complete this same activity with their own behavior.

- Provide a safe place for the student in case they become over stimulated or have difficulty adjusting to a new activity or environment
  - Have stress reducing balls available to help soothe the senses.

- Provide structured opportunities for movement
  - Allow alternative placements in the classroom for maximizing concentration including sitting on a medicine ball or standing.

- BE PATIENT
  - Be prepared to teach both academic and social skills repeatedly.
Suggestions for Fostering Social Interaction:  
(Welton, Vakil, & Carasea, 2004)

- Direct instruction of social skills
  - Teach incrementally by breaking complex interactions into successive steps.
  - Help students generalize learned skills into various settings through role-playing, games, and puppets.

- Social stories are illustrated sequences of events that the student with autism is likely to encounter
  - Depict expected behaviors, ways to attain those behaviors, and rewards for displaying those behaviors in particular circumstances.
  - Example: “Caryn wishes to join friends. She sees some friends talking. She wants to be part of the group. Caryn moves closer. She watches them. Caryn says ‘Can I join you?’ They say ‘yes’” (Welton, Vakil, & Carasea, 2004).

- Peer tutoring utilizes classmates to teach and model social behaviors
  - Effective peer tutoring involves training students in the rationale and purpose of peer tutoring, allowing time for students to become familiar with each other, and clearly outlining each student’s role.

- Collaborative learning is peer tutoring extended to small group projects
  - Again, extend the same training as above to all group members, clearly define the duties of each student, and reinforce the group when interacting appropriately.
MAPLE TREE & CHARACTERISTICS OF LIFE

GOAL OF LESSON: Review all the 8 characteristics of life learned this semester when exploring the diversity of life. See how the characteristics work together in one organism, specifically in a Maple Tree.

ASSIGNMENT: Everyone will be split into group of 3-4 students, and you will work in those groups for the entire week. Everyone in the group will get one role for the group (time keeper, on-task keeper, investigator, or recorder) and the roles will be described fully in the group packet you will receive later this week. In your groups you will be assigned one characteristic of life that you will explore this week. You will find out how a Maple tree has the characteristic. Your group will receive a puzzle piece of a Maple tree that the group will decorate with either pictures, words, diagrams, or clipart that completely present your characteristic of life. On Friday your group will present your puzzle piece. Everyone must contribute to the presentation and explain to the class how the characteristic is shown in a Maple tree.

THREE ELEMENTS OF PUZZLE PIECE: The puzzle piece must include the answers to the three questions in the group packet (What are the key feature of your characteristic of life? How is this characteristic seen in the Maple tree? How does this allow the tree to live?) You can be creative in how you represent the ideas on the puzzle piece. You can use words, sentences, diagrams, pictures, clip-art, or get another idea approved by the teacher. You must be able to teach the class at the end of the week about your characteristic of life using your puzzle piece.
# Grading Rubric

<table>
<thead>
<tr>
<th>Category</th>
<th>10/10</th>
<th>7/10</th>
<th>5/10</th>
<th>3/10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work Ethic</strong></td>
<td>Stay on task every day, worked hard entire class</td>
<td>Focused most of the time, not distracting others</td>
<td>Needed multiple reminders to stay focused, contributed some to group</td>
<td>Rarely was focused, distracted others, added little to group</td>
</tr>
<tr>
<td><strong>Notes/Brainstorming</strong></td>
<td>Easy to understand notes, answered all questions fully</td>
<td>Most of notes comprehensible, answered most of the question</td>
<td>Hard to understand answers, some questions uncompleted</td>
<td>Most questions uncompleted, and very difficult to understand</td>
</tr>
<tr>
<td><strong>Puzzle Piece</strong></td>
<td>Creatively presented, included all three elements</td>
<td>All elements on piece, ideas somewhat clear</td>
<td>2/3 elements present on piece, ideas confusing</td>
<td>1/3 elements present on piece, hard to follow</td>
</tr>
<tr>
<td><strong>Your Job</strong></td>
<td>Completed your assigned job every day well</td>
<td>Completed your assigned job most days</td>
<td>Did your job about half of the time</td>
<td>Rarely did your job in the group, distracted others from their job</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Contribute to presentation, presented ideas clearly &amp; completely</td>
<td>Contributed to presentation, most ideas clear and complete</td>
<td>Contributed little to presentation, ideas confusing and incomplete</td>
<td>Did not contribute at all to presentation, ideas not presented</td>
</tr>
</tbody>
</table>

**Grading:**
- Work Ethic: ____ / 10
- Notes/Brainstorming: ____ / 10
- Puzzle Piece: ____ / 10
- Your Job: ____ / 10
- Presentation: ____ / 10

**Total Grade:** ____ / 50

**Comments:**

Appendix B: Teacher Presentation

NOTES:
OUR CHARACTERISTIC OF LIFE IS:

You DO NOT need to fill the whole page and you can use the back of the page if needed as well. You can either draw your ideas or write words to describe the ideas. You DO NOT need to use complete sentences but can use short phrases or bullet points if you want.

WHAT ARE KEY FEATURES OF THIS CHARACTERISTIC?
NOTES:
OUR CHARACTERISTIC OF LIFE IS:

IN THE MAPLE TREE WHERE DO WE SEE THIS CHARACTERISTIC?
NOTES:
OUR CHARACTERISTIC OF LIFE IS:

HOW DOES THIS CHARACTERISTIC ALLOW THE TREE TO LIVE?
Characteristics of Life
Maple Trees

8 Characteristics of Life:
1. Grow
2. Respond to Environment
3. Reproduce
4. Need Energy
5. Exchange Gas
6. Eliminate Waste
7. Need Water
8. Made of Cells

The Characteristic of Life my group is studying is: ______________________________

Group Members are: __________________________________________________________

This packet stays in the classroom!!
**ACCOUNTABILITY:**
Write the name of the group member in front of the role they are assigned.

_________ **On-Task Keeper:** Keeping the group doing what they should be doing. If the group becomes distracted, try to remind them the task on hand.

_________ **Recorder:** Writing down all findings of your group on the sheet provided.

_________ **Investigator:** Organizing everyone to look and explore the station materials. Make sure everyone has got equal time looking at all the materials at the station.

_________ **Time Keeper:** Keeping track of the time left of the class. Remind the group when there are five minutes left of the class so the group may begin cleaning up the station. Remind the group when the class is halfway over.

**WORKING HARD?**
Each student fills out whether or not they are working hard and staying focused each day.

+ = working hard, staying focused the whole class period  
✓ = working hard and staying focused some of the time  
– = not working hard, distracting other students

<table>
<thead>
<tr>
<th></th>
<th>Example Student</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BRAINSTORMING IDEAS:
Recorder write down the ideas the group comes up with during “Everyone Learns Together” activity. You DO NOT have to write in complete sentences, but jot down short ideas or concepts.
NOTES:

OUR CHARACTERISTIC OF LIFE IS:

_____________________________________________________________________________________

You DO NOT need to fill the whole page and you can use the back of the page if needed as well. You can either draw your ideas or write words to describe the ideas. You DO NOT need to use complete sentences but can use short phrases or bullet points if you want.

WHAT ARE KEY FEATURES OF THIS CHARACTERISTIC?
NOTES:
OUR CHARACTERISTIC OF LIFE IS:

IN THE MAPLE TREE WHERE DO WE SEE THIS CHARACTERISTIC?
NOTES:
OUR CHARACTERISTIC OF LIFE IS:

HOW DOES THIS CHARACTERISTIC ALLOW THE TREE TO LIVE?
Appendix D: Cooperative Learning Structures

Say Something Protocol

1. Hand packets out to all students.

2. Instruct students to partner with a student sitting near them.

3. Explain to students that they will begin silently reading the packet and stop at specified points to look up and say something to their partner about what they just read. After saying something, they should repeat the process with the next section of the packet until they reach the end or time is called.

4. Point out the places in the packet where the students should stop and say something.

5. Ask for and answer any questions about the activity.

6. Tell students to begin.

7. Hand out prompts to students who might benefit from them.

8. Buzz around the room making sure conversations stay on topic and do not exceed necessary length. (Instruct Tom’s partner to read aloud to him instead.)

9. Call time.

10. Ask for questions/comments that remain unresolved in a large group.
Say Something Prompts

I didn’t understand…
I thought…was interesting.
I noticed a mistake in…
I am excited about…
I would like to change…
I hope…
I think…is missing from the packet.
What did you think about…
I would like to know more about…
I think I will be good at…
I already know…
When I did a project like this in the past…
I need more experience with…
I am concerned about…
I wonder…
I have never…
Learning Together Protocol

1. Instruct student to get into circles with their predetermined small groups.

2. Explain that groups will be brainstorming ideas for the layout of their maple tree puzzle pieces. Each student will be given an object, and once they contribute an idea to the group, they must place their object in the center of the circle. No group member may be allowed to contribute a second idea until all objects have been placed in the center of the circle.

3. Place the timekeeper in each group in charge of the time management for this activity and the recorder in charge of recording all ideas generated by their group.

4. Ask for and answer any questions about the activity.

5. Hand out the objects to all students.

6. Tell students to begin.

7. Buzz around to ensure all groups adhere to the rules of the activity. (Make sure to check Tom’s understanding of his time management responsibility related to this activity.)

8. Following the activity, collect the objects.
Appendix E: Stations

Station 1: Grows

Maple tree cookies (trunk rings), timeline of maple tree development, rulers and a set of saplings outside to measure

Station 2: Responds to environment

Examples of maple leaves during different seasons, maple tree cookies, pictures of maple trees in different climates, photos of disease in the tree with explanation of tree responses

Station 3: Reproduces

Examples of maple seeds, diagram of maple tree reproduction cycle

Station 4: Eliminates waste

Diagram of carbon dioxide cycle, microscopes, slides of stomates, Diagram of respiration in plants

Station 5: Needs water

Diagram of water cycle, example of maple roots

Station 6: Exchange gas

Diagram of carbon dioxide cycle, microscopes, slides of stomates

Station 7: Made up of cells

Microscopes, slides, diagram of cell structure, samples of tree material including leaves, bark, and wood

All stations: these materials would be found in the center of the room available to all students

Magazines (to cut out for puzzle piece if want, environmental magazines to look up tree information), sapling, encyclopedias, books about maple trees, computers with the Diversity of Life CD loaded on them
Teacher’s Front Table

GROW

Reproduce

Eliminates Waste

Responds to Environment

Resource Table

Made up of Cells

Needs

Exchanges Gas
MAPLE TREE & CHARACTERISTICS OF LIFE

GOAL OF LESSON:
Review all the 8 characteristics of life learned this semester when exploring the diversity of life. See how the characteristics work together in the Maple Tree.

ASSIGNMENT:
You will work in a group of three or four students. It will be your job to tell the group when half the period is over and when it is time to start cleaning up with the assistance of a watch with an alarm. Your group will work on the “grows” characteristic of life and you will contribute your ideas to the group and help with the research by measuring trees of a known age. On Friday you will help your group present by telling how you measured the trees.

THREE ELEMENTS OF PUZZLE PIECE:
The group will create a puzzle piece that contains the information everyone has gathered. You will help by telling the recorder about the measurements.
# Grading Rubric

<table>
<thead>
<tr>
<th></th>
<th>10/10</th>
<th>7/10</th>
<th>5/10</th>
<th>3/10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work Ethic</strong></td>
<td>Stay on task every day, worked hard with 2-3 breaks per class</td>
<td>Focused most of the time, not distracting others</td>
<td>Focused some of the time, occasionally distracted others</td>
<td>Rarely was focused, distracted others, added little to group</td>
</tr>
<tr>
<td><strong>Notes/Brainstorming</strong></td>
<td>Answered all questions on sheet</td>
<td>Answered most questions on sheet</td>
<td>Answered some questions on sheet</td>
<td>Answered few questions on sheet</td>
</tr>
<tr>
<td><strong>Puzzle Piece</strong></td>
<td>Told recorder about measurement with 1-2 peer prompts</td>
<td>Told recorder about measurement with 3-4 peer prompts</td>
<td>Told recorder about measurement with teacher prompts</td>
<td>Did not tell recorder all measurement s</td>
</tr>
<tr>
<td><strong>Your Job</strong></td>
<td>Completed your assigned job every day well</td>
<td>Completed your assigned job most days</td>
<td>Did your job about half of the time</td>
<td>Rarely did your job in the group, distracted others from their job</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Shared about measurement with whole class with 1-2 peer prompts</td>
<td>Shared about measurement with whole class with 3-4 peer prompts</td>
<td>Shared about measurement with whole class with teacher prompts</td>
<td>Did not contribute at all to presentation</td>
</tr>
</tbody>
</table>

**Grading:**
- Work Ethic: ____ / 10
- Notes/Brainstorming: ____ / 10
- Puzzle Piece: ____ / 10
- Your Job: ____ / 10
- Presentation: ____ / 10

**Total Grade:** ____ / 50

**Comments:**


**DAILY SCHEDULE: TOM**

8:00 AM
- Get your coat
- Take out pencil and eraser
- Get science notebook from science binder
- Get card from teacher
- Sit in matching station

8:10 AM
- Go outside with class
- Follow class to maple tree
- Write/draw in science notebook about Maple Tree

8:30 AM
- Go back inside with class
- Sit with group
- Get watch with alarm from teacher

8:35AM
- Take roll of time keeper in group
- Listen as group discusses roles

8:45 AM
- Give group members 5-minute warning
- Start to pack up
References


Collaborative Team Portfolio

Team Analysis

Our group decided to have Vicki and Sara (science teachers) take care of developing the content of the lesson, and Gordon and Holly head up the learning context section. Vicki, Gordon, and Sara took individual students who they worked with on a more regular basis to write the target student section. In order to make sure the entire group understood and had input on the final lesson, we went over the universal design process together, putting a greater input into the specific students we worked with. After everyone finished their sections and integrated sources, we had at least one person critically proofread each section.

One technical challenge was only having two laptops to complete work on in team meetings. Eventually this was solved by working in computer labs so everyone could be on a computer. Even though our group had only four people, we had trouble figuring out times we could all meet. This was partially solved by meeting in pairs for the initial work. Other improvements came in our lesson plan as we adapted and improved the specifics of the lessons after discussing it as a group and looking at the state requirements for science curriculum.

Respecting each other and being responsible for personal workloads was huge in making working relationships work. Keeping each other accountable yet being gracious when circumstances changed was an additional asset to making the group work. Our group had little disagreement, but we solved any conflicts by listening and compromising. Since there were four of us, we all balanced each other out and got through without any fist fights.

In general, all group work situations expand teamwork qualities, such as responsibility, accountability, compromising, listening, work ethic, discussing, and collaborating. As we will all
be in classrooms in the future, possibly even in co-teaching situations these assets, as well as learning how to develop inclusive lessons, directly apply to our future careers.

Decisions regarding team meeting structure organization, and communication

Our team discovered quickly it functions best in an informal setting but with enough structure to stay focused. We set clear goals and then delegated roles to work semi-independent initially, coming back together sporadically through work time to collaborate or bounce ideas back and forth. Designating roles was neither vital nor helpful for us as we all took initiative and did what was needed. The only times we had designated roles was when we recorded team meeting minutes, and it seemed more of a hassle than help. Communication was relatively effective for the group, with emails being a large part of communication at least initially. When we got more into the project and all met together, we were able to constructively critique individual parts and contribute to group decisions. The track changes feature or simply highlighting changed sections was an important communication tool regarding correcting individual sections.
**TEAM MEETING MINUTES**

**DATE:** 11/15

**TEAM MEMBERS PRESENT & ASSIGNED ROLES:**
- **FACILITATOR:** Holly
- **RECORER:** Vicki
- **TIMEKEEPER:** Gordon
- **CONSSENUS BUILDER:**
- **OBSERVER:** Sara

| TODAY'S AGENDA ITEMS | I - information  
|----------------------|------------------  
|                      | D - discussion  
|                      | R - requires decision  
| PRESENTER | TIME GUIDELINES |
|----------------------|------------------|------------------|------------------|------------------|
| 1. Discuss possible lessons | D, R | all | 15-20 min |
| 2. Finalize subject area | I | Vicki | short/quick |
| 3. Discuss possible students | R, D | Sara | 5-10 min |
| 4. Discuss individual responsibilities | D | Vicki | rest of time 2.0 |
| 5. | | | |
| 6. | | | |

**ITEMS DISCUSSED:** (continue on back of page)

- Science
  - Lesson ideas
  - Maple trees
  - Syrup
  - Parasites in nearby forest

- Vicki - Crystal
- Sara - José
- Sara - Tom (Autism)
- Target students to focus on
ITEMS DISCUSSED (continued):

**TASK DELEGATED, TIMELINES, FOLLOW-UP:**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>PERSON RESPONSIBLE</th>
<th>TIMELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Search internet maples tree</td>
<td>Vicki</td>
<td>Mon</td>
</tr>
<tr>
<td>- MI sheets</td>
<td>Holly</td>
<td>Wed</td>
</tr>
<tr>
<td>- Look at student IEPs</td>
<td>saome</td>
<td>Mon</td>
</tr>
<tr>
<td>- Start looking for school climate</td>
<td>Gordon</td>
<td>Wed</td>
</tr>
<tr>
<td>- Read assignment</td>
<td>All</td>
<td>Mon</td>
</tr>
<tr>
<td>- Look at example project online</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AGENDA ITEMS FOR NEXT MEETING:**

1. Lesson Plan Basic
2. Discuss Students - how they will be affected by lesson
3. Look at IEP goals for target students
4. 
5. 
6. 

**NEXT MEETING DATE:** 11/22

Udvani-Solner, A., 1994
Adapted from Thousand & Villa, 1992
TEAM MEETING MINUTES

DATE: 11/27

TEAM MEMBERS PRESENT & ASSIGNED ROLES:

FACILITATOR: Sara

RECORDER: Vicki

TIMEKEEPER: Holly

CONSENSUS BUILDER:

OBSERVER: Gordon

TEAM MEMBERS ABSENT: none

<table>
<thead>
<tr>
<th>TODAY'S AGENDA ITEMS</th>
<th>I - information</th>
<th>D - discussion</th>
<th>PRESENTER</th>
<th>TIME GUIDELINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Finalize students</td>
<td>I</td>
<td></td>
<td>Sara</td>
<td>2</td>
</tr>
<tr>
<td>2. Discuss what information we need to know about students</td>
<td>D</td>
<td>Sara</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>3. Divide up points of assignment</td>
<td>R</td>
<td>Vicki</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4. Start work on individual parts</td>
<td></td>
<td>All</td>
<td>rest</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ITEMS DISCUSSED: (continue on back of page)
- Crystal, José, Tom care students
- Sara, Vicki, Gordon will write individually about students
- Holly will research autism
- Sara + Vicki will create lesson
- Gordon + Holly will do the environment of School

Udvari-Solner, A., 1994 Adapted from Thousand & Villa, 1992

ntm:teammin.51
- 3 sources (1 from each class) will be incorporated into each target student section

**TASK DELEGATED, TIMELINES, FOLLOW-UP:**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>PERSON RESPONSIBLE</th>
<th>TIMELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Profiles</td>
<td>Sara, Vicki, Gordon</td>
<td>Wed 16th</td>
</tr>
<tr>
<td>Lesson Plan</td>
<td>Sara, Vicki</td>
<td>Wed 16th</td>
</tr>
<tr>
<td>Climate</td>
<td>Gordon, Holly</td>
<td>Wed 16th</td>
</tr>
<tr>
<td>Autism</td>
<td>Holly</td>
<td>Wed 16th</td>
</tr>
</tbody>
</table>

**AGENDA ITEMS FOR NEXT MEETING:**

1. Vicki/Sara meet to discuss lesson plans
2. Gordon/Holly will begin the forming the lesson context section
3. all add sources
4. begin universal process design
5.
6.

**NEXT MEETING DATE:** Wed 6th AM