Kansas Performance Teaching Portfolio (KPTP) Example Portfolio

This example portfolio is intended to provide current candidates with a model portfolio. The words and work presented in this portfolio are the intellectual property of the teacher candidate who submitted the portfolio. Copying of all or parts of this portfolio will be considered plagiarism and will be in violation of the Academic Integrity Policy.

KPTP Academic Integrity Policy

Academic integrity means engaging in scholarly activity that is conducted honestly and responsibly. It includes a commitment to not be involved in falsification, misrepresentation or deception in the preparation of the KPTP. The KPTP submitted must be the teacher's own work and in the teacher's own words. Teachers are expected to act with personal and professional integrity at all times.

Some Examples of Violation of Academic Integrity:

- *Plagiarism*: This means copying work (such as words, phrases, sentences, paragraphs or ideas) from someone else's writing and putting them into a KPTP, as if they were created by the teacher submitting the KPTP.
- Submitting a KPTP, or parts of a KPTP, that was prepared by a person other than the teacher candidate.
- Submitting a KPTP, or parts of a KPTP, that was previously submitted by someone else.
- Not properly citing sources used in your KPTP document (such as lesson plan format)
- Fabricating context, numerical or other data.
- Extensive *collaboration* with others in preparing the KPTP: Having someone else plan your teaching or write sections of your KPTP are unacceptable.

Any suspected violation of the Academic Integrity Policy will be brought to the attention of the institution where the candidate is enrolled.

The institution is expected to investigate the suspected violation following individual institutional policy and procedure.

KPTP Templates
Task #1 - Contextual Information & Learning Environment Factors

Narrative 1.1.1 General Contextual Information (limited to 1 page)

My student teaching is taking place in a city with the largest public university in the state, making it a college town. This opens up the city to a wealth of diversity in culture and arts. In particular the city is truly known for a thriving music scene. In addition to the wealth of culture prevailing throughout the city, there are significant opportunities for recreational involvement. The city has 3,535 acres of space dedicated to parks, where citizens may engage in an extensive amount of entertaining activities including disc golf, basketball, football, golf, tennis, and other pursuits. The city has a population of approximately 92,000, as of 2009, making it the sixth largest city in the state of Kansas. As of 2009, the racial diversity of the city was 83.80% white, 5.09% African-American, 2.93% Native American, 3.78% Asian, .07% Pacific Islander, 1.36% from other races, and 2.97% from two or more races. Also, as of 2009, this city has an estimated median income of $39,826, with 21% of the population living in poverty, as of 2007.

The district in which I am teaching in is the largest district in the county with a total enrollment of 11,158, making it the seventh largest district in the state. Within the district there are 15 elementary schools (grades K-6), four junior high schools (grades 7-9), two comprehensive high schools (grades 10-12), a K-8 virtual school, and a virtual high school. Approximately 48.88% of the students in the district are females, while the other 51.12% of the students are males. The racial of the diversity of the school district is an estimated 71.65% white students, 7.75% African-American students, 6.29% Hispanic students, and 14.31% percent of the students belonging to other categories. Also, roughly 33% of the students in the district are reported to be economically disadvantaged. The district reports 6.9% English Language Learners (ELL) and 13.3% students with disabilities. Both are below the state averages of 9.1% and 13.6% respectively. The graduation rate for the district in 2009 was also below the state average of 89.1% at 85.8%. In the 2009-2010 school year, this district did not attain adequate yearly progress (AYP). The district is also a Title 1 District on Improvement. The average ACT score of the students in the district is 23.4, which is higher than the state average of 22.0. Out of all the teachers in this district, 96% are fully licensed. Highly qualified teachers do not teach in only 4% of the core content classes in the entire district.

I am student teaching freshmen students in one of the school districts four junior high schools. This particular school has a current enrollment of about 429 students. Out of those students, approximately 51.28% are females and the other 48.72% are males. The racial diversity of the school is about 62.94% white, 9.56% African-American, 7.69% Hispanic, and 19.81% of students are of other races. Approximately 3.5% of students in this building are ELL students, and roughly 20.3% of the students in the building have disabilities. 52.9% of the students in the school are reported to be economically disadvantaged, which is significantly higher than the district total of 33%. In the 2009-2010 school year, this school did not meet AYP. So even more attention is being paid to supporting students to perform better on state assessments. Highly qualified teachers instruct 92.66% of the core classes at the school. In the Life and Physical Sciences department, 100% of the classes arte taught by highly qualified teachers.

Table 1.2.1. Class Contextual Information (limited to 1 page)

Grade level ___9____ Content area (e.g., mathematics) _____Science_____ Topic (e.g., geometry)_____Biology_____

Age range of students _____13-15_____ Number of male students _____13_____

Total number of students _____24_____ Number of female students ____11_____

Percentage of students receiving free lunch ____8%_____ Percentage of students receiving reduced lunch_____25%_____

[if free/reduced lunch information not available for class, provide school percentages]

Area in which students live (check all that apply) Urban ___X__ Suburban _____ Rural _____

Ethnicity of students (give numbers)	___5___ African American or Black ___4___ Hispanic or Latino ___1___ Native American/Alaskan Native ___14___ White ___0___ Asian or Pacific Islander _____ Other (specify) _____
Language proficiency of students (give numbers)	___22___ Fluent English Proficient ___2___ English Language Learners
Identified special needs categories represented (give numbers)	___2____ Specific Learning Disability _____ Speech/Language Impaired _____ Hard of Hearing _____ Visually Impaired _____ Deaf _____ Orthopedically Impaired _____ Deaf-Blind _____ Emotionally Disturbed _____ Other Health Impaired _____ Autism _____ Multiple Disabilities _____ Mental Retardation _____ Brain Injury _____Gifted _____ Established Medical Disability (0-5 yrs) _____ Developmentally Delayed _____ At risk for developmental disabilities _____ Other (Specify)_____

Subgroup Selected (describe the group): I have selected a subgroup consisting of students that compete in school-sponsored sports.
Rationale for Selection: In my relatively short classroom experience, I have observed that often these students are quite intelligent, but often lose patience sitting in class all day when they would rather be elsewhere. This, by association, makes them difficult to instruct.

Table 1.2.2 Student Characteristics and Implications for Instruction (limited to 1 page)

Student Characteristics	Specific Descriptions Indicate whether this was for the Whole Class (W) and Subgroup (S)	Specific Implications For Instruction Whole Class (W) and Subgroup (S)
Intellectual Characteristics - Including readiness, cognitive abilities, learning needs, developmental levels, etc.	**W** The class is made up of approximately 24 freshman students. They arrive to class on time and with all needed materials. The class functions high level in at least one aspect of academia. **S** These students regularly come to class on time and with all of the necessary materials. They often become easily distracted and bored with normal lessons.	**W** With the whole class it is important to give very clear directions as to what they need to accomplish. **S** The students in the subgroup often need more stimulation to keep them engaged in learning the material. This is best accomplished by using hands on activities to keep the students moving throughout the lesson.
Previously demonstrated academic performance/ability: % Above standard _____ % Meets standard _____ % Below standard _____	**W:** % Below Standard — 13 % Meets Standard — 43 (Science Standards) % Above Standard — 44 **S:** % Below Standard — 13 % Meets Standard — 43 (Science Standards) % Above Standard — 44	**W** These scores indicate that most students understand the concepts they are expected to know, meaning little review needs to be done. **S** These scores indicate that most students understand the concepts they are expected to know, meaning little review needs to be done.
Social Characteristics - Including emotional, attitudinal, motivational, etc.	**W** Students seem to be intrinsically motivated to succeed in whatever they set forth to do. Some students, however, are extrinsically motivated by factors such as family or peer pressure. **S** While a minority of these students are motivated by intrinsic factors, most are more likely motivated by the extrinsic factor of needing to succeed in the classroom to compete in school sports.	**W** A close track of the students' scores on assignments will be kept, so that the students are aware of how they are performing. This can lead to motivation **S** A close relationship with the coaches will be needed to help encourage these students stay on top of their work. The students will also need to have up to date information on their scores.
Personal Characteristics - Including physical, social, individual experiences, talents, language, culture, family and community values, etc.	**W** Many students have been exposed to a wealth of culture. Most have a talent for one thing or another. Many of them have strong commitments to their family or even friends. **S** The subgroup of students shares almost all of these characteristics with the rest of their peers, with a particular commitment to their chosen sport.	**W** Exposing the students to as much culture as possible could serve as an extremely useful tool in instruction. Also, relating the course material to their interests could keep them motivated. **S** In addition to the specifications for the whole class, the lessons should keep these students as physically active as possible.

Table 1.3.1 Focus Students Information (limited to 1 page)

	Describe this student using information from Table 1.2.1	Why did you select this student?	What did you find out about this student? Address characteristics from Table 1.2.2	Based on this information, what are implications for this student's instruction?
STUDENT A	This student is a Hispanic male that is very proficient in English. He has a very high IQ and meets all state standards. He appears to come from a middle-class family that lives in an urban area.	I selected this student because he often struggles with motivation in class, despite his very high IQ. This is reflected in his inability to regularly turn homework in on time and refrain from making irrelevant comments during class.	**Intellectual** This is a highly intelligent student that excels at using logic to solve problems. He does, however, struggle to turn in assignments and stay motivated. **Social** The student enjoys being in the classroom, but only because it affords him the opportunity to interact with his fellow classmates. He often makes inappropriate comments directed at his peers or teachers. **Personal** He seems to have a fair amount of friends, but few teachers interact with him, as they should on a regular basis.	This student, in one way or another, needs to be motivated everyday to turn in his work and stay focused during lessons. This can be done in a variety of ways. As one example, the student also competes for the high school track team, thus the importance of his grades in competing could be emphasized daily. Hands on activities could also be very easily used to help keep him interested throughout the duration of the lesson. One last technique would be to place him in a group of students that are intrinsically motivated to succeed and let him observe what they do.
STUDENT B	This student is a white male that is proficient in English. He has been identified as having a specific learning disability and he scored below average on the state assessments in math, science and reading. He likely comes from a lower-class family and may receive free or reduced lunches.	I selected this student primarily because of his specific learning disability. Another prominent factor in the selection of this student is the fact that my cooperating teacher often struggles to keep him on task.	**Intellectual** This student seems to struggle in a variety of academic pursuits. He often attempts to copy answers from other students, or get them to do his work. **Social** This student is primarily a friend with other students that struggle academically, and he often has trouble focusing in class. **Personal** He does not have a passion for science, which result from his interactions with others.	This student struggles to stay on task and complete his work everyday he is in the classroom. To combat this, assignments should work to stimulate his interests. One way to do this would be to integrate group work into activities, but place this student into a mid to high achieving group with an active interest in science. This groups overall enthusiasm may soon reflect itself in the motivation of this particular focus student.

Narrative 1.4.1 Classroom Learning Environment Implications (limited to 2 pages)

WHOLE CLASS: The most important aspect of a healthy classroom-learning environment is having a strong relationship with each and every student. Placing an emphasis on this particular facet of the learning environment encourages mutual respect between the student and the teacher. This respect, in turn, will drive the students to work harder for the teacher and can also often help shape positive behavior in the classroom. An environment with these kind of strong, positive relationships can be cultured with a little effort from both the teacher and the student. The teacher could do something as simple as greeting every student as they walk through the door and asking them about their day. This type of action, in my experience, allows the students to become immediately comfortable upon entering the room and potentially helps release some frustrations that could have otherwise hindered the learning experience. One other important feature of building positive relationships is to spend an ample amount of time conversing with students in between class periods to learn about their unique interests. This type of actions indicates to students that the teacher truly cares about them.

Building strong relationships with students, and inquiring extensively and sincerely about their interests can also give the teacher some insight as to what type of instructional method might best fit an individual student. The particular instructional method could entail teaching the student in a more visual manner or having them work with other students more to figure out various problems. Employing a wide range of instructional strategies to meet the learning needs of individual students in this manner also aids the teacher in the motivation of students. This motivation occurs because the students become excited to learn if the information is presented to them in a way that makes sense to them, rather than just shutting down when presented with traditional instruction. As one of my students said to me during my student teaching experiences, "If they could find a way to get me involved in every lesson and working with my hands, I would love coming to school. As it is, I can't stand it."

In no small part because of the reasoning of this particular student and numerous others with very similar views, I strive to make as many of my lessons as hands-on as possible. It is a very rare occurrence in my classroom when the students receive traditional lecture and simply take notes on everything I say. More often the students will receive a project-based-learning style of instruction where the students will be presented with a myriad of interlinking hands on projects that will convey the concepts of the material to them in a unique manner. In my experience, information presented using this method has a more lasting effect on the students and also helps to correct and prevent certain common misconceptions. This happens because the students deal with real life examples and observe what actually occurs in a system instead of simply taking the teachers word for it and creating an environment in their minds.

To further enhance a student centered learning environment built around strong relationships, I encourage students to cooperate with all other students in the classroom through a variety of activities. In my experience, learning is often enhanced when students work in a group setting, rather than just putting forth a solo effort. Various group-learning strategies I employ include think-pair-share, where students think for a short time about a certain concept, pair up with a partner and talk about what they thought about, and eventually share what they talked about with the class. Another method involves arranging the students into groups of four and then numbering each group member. The group is then given a question, and they must then ensure that every group member knows the answer, because any number may be called upon to share the answer with the class. This particular method encourages the

students to teach each other so that every member of the group can be accountable for the answer. I especially enjoy using activities similar to this where students work to help their peers understand the various concepts of the course. In my opinion, the students can sometimes teach the material to their classmates in a different way than I can, which may be just the kind of instruction some students need in order to make vast leaps in understanding.

Since my I teach in a science classroom it is also essential to emphasize the importance of safety to all students. Basic safety rules, such as wearing goggles when working with chemicals are always followed in my classroom. Also, because my project based style of teaching involves a large number of laboratory activities, the students are briefed on essential safety items before they begin the activity. These safety items include reminders on what students should do in the event of a chemical spill, where safety equipment is, and how to properly dispose of laboratory elements. In addition to all of these safety precautions, my room will also have various live organisms in it (e.g. bearded dragons, fish, etc.). The students will not be allowed to handle these animals without having me present and without first learning how to properly handle the animals.

SUBGROUP: When instructing the students that participate in school-sponsored sports, my traditional style of classroom management, which begins and ends with the development of strong relationships with students, often works quite well. This is likely because I consider the relationships I build with students to be fashioned more in the coach/athlete mold, instead of the traditional student and teacher relationship. While I often have little managing issues with these students, keeping them engaged and focused throughout the entire lesson is often much more difficult. To accomplish this, I often place the students into a group-learning environment, where they are allowed to interact with others and become a little more active than when presented with a traditional lecture. In addition to simply encouraging group work for a variety of assignments, I also regularly utilize a project-based instruction style of teaching. Once again, these projects and hands-on experiences will engage the student athletes much more than the usual lecture. This works to enhance their learning as they are much more apt to truly learn the material when they are up and interested in it, then when they are just listening to the teacher while their minds wander. It is also an example of modifying my instructional strategies to better meet the needs of a group of students. If this method still fails to result in the desired learning gains I have the group of students than I would talk to other teachers and parents to determine what motivates the students within the group and then modify my instruction to appeal to the factors that would best motivate the students. The same safety requirements would be emphasized for the subgroup as for the classroom as a whole.

FOCUS STUDENTS: Both of the focus students make it relatively difficult to enact my typical style of classroom management. This is largely because both students are relatively tentative around teachers and do not trust them fully for a variety of reasons. Thus, it is difficult to carry on long conversations and build close relationships with the students. Both students, however, would likely benefit from working with other students in a group setting. This would help keep the students focused on the task at hand and prevent them from causing a disturbance throughout the class period. Focus student A, would likely benefit from a style of teaching that emphasize problem-solving skills integrated into the lesson plans. Focus student B, on the other hand, would likely receive more benefit by participating in hands on activities that emphasize real world experiences. The safety requirements do not change for these students.

Task #2 - Designing Instruction

Table 2.1.1 Grade Level, Content, Topic, and Rationale (limited to 1 page)

Category	Description
Grade Level	9th grade/freshmen
Content Area	Biology and Advanced biology
Unit Topic	Animal Diversity
State Standards Addressed (written format)	**Standard 3; Benchmark 6; Indicator 1:** The student understands animals have behavioral responses to internal changes and to external stimuli. **Ind. 2:** The student understands most multicellular animals have nervous systems that underlie their behavior. **Ind. 3:** The student understands behaviors are often adaptive when viewed in terms of survival and reproductive success. **Std. 3; BM 7; Ind. 1:** The student understands differences in structure and function among organisms and can identify the characteristics of relevant life forms. **Ind. 2:** The student understands that homeostasis is the dynamic regulation and balance of an organisms internal environment to maintain conditions suitable for survival. **Ind. 3:** The student understands that living things change following a specific pattern of developmental stages called life cycles.
Average Lesson Time	50 minutes on Monday, Tuesday and Friday. 90 minutes on Wednesday and Thursday (Block days)
Why did you select this unit topic?	My cooperating teacher selected this unit for me following a discussion I had with her about my strengths in biology and teaching. Although, if I were left to my own devices I likely would have chosen this same unit for this point in the semester because it fits in well with the order of what the students have covered thus far. Also, this is an important topic for most any biology curriculum and also meets the expectations set forth by the Kansas Science Standards for biology.
How does this unit address state curriculum standards?	This unit will focus strongly on all of the indicators listed above. In addition to learning essential components of scientific inquiry, the students will examine several examples of living organisms to gain an understanding of the structure and function of a wide variety of organisms and the differences among those organisms. Also, the students will be able to observe how those living organisms respond to certain stimuli to learn a few aspects about animal behavior.
Why is this unit appropriate at this time?	It is appropriate to cover this unit now because the class has just finished up studying viruses, those organisms on the vestiges of life, and bacteria. Thus, the next logical step is to study organisms with increasing complexity so that the students can easily see similarities and differences between a wide variety of organisms.

Table 2.2.1 Unit Design Table (limited to 4 pages)

Obj. No.	Unit Objectives	Level(s) (e.g. Bloom's Taxonomy)
1	Students will be able to classify a wide variety of organisms as to which kingdom, phylum, class, order, family, genus, and species that they belong.	Knowledge, Comprehension
2	Students will be able to compare and contrast various systems, such as the reproductive, digestive, and respiratory systems of organisms in different phyla.	Knowledge, Comprehension, Application, Analysis
3	Students will be able to analyze the behavior of a wide variety of animals and describe why that behavior is occurring.	Knowledge, Comprehension, Application, Analysis
4	Students will be able to assess what differentiates one organism from another and argue as to why it is classified in a certain way.	Comprehension, Application, Analysis, Synthesis, Evaluation
5	Students will be able to illustrate the various life cycles that organisms undergo throughout their development.	Knowledge, Comprehension, Application, Analysis
6	Students will be able to predict how certain organisms will adapt to their environment in order to maintain homeostasis.	Comprehension, Application, Analysis, Synthesis, Evaluation

Preassessment:	The preassessment test had 16 multiple-choice questions, 10 true or false questions and two short answer questions.

Describe the preassessment used	**Explain rationale for choosing this assessment**	**Explain the specific adaptation(s) made for Students A and B *OR* why no adaptation(s) are needed**	**Which objectives does this assessment address?**	**Identify how the assessment will be scored**	**Describe specific student results and how those results will impact your unit plan**
The preassessment is an assortment of 16 multiple-choice questions, 10 true or false questions and two short	I primarily utilized a multiple-choice and true or false format for this assessment	For student A, I made the adaptation of moving him into the hallway. This adaptation was intended to reduce the	The preassessment will deal specifically with the objectives I have previously outlined. The preassessment	The test will be worth a total of 30 points as each multiple choice question counts as one point for a total of 16 points, each true or	In general, the preassessment will allow me to tailor the lessons to fit the needs of the students in each class so that the best

answer questions. The assessment examined the objectives in only the most basic form to gauge students' initial understanding.	because it allowed the students the best chance to succeed and give me a good impression of their knowledge without taking up too much important class time. The multiple-choice format allows the students to utilize the principles of recognition and common knowledge to recognize the correct answer when they see it. The short answer section makes the students recall information they learned previously so that I can easily see how much they remember.	distractions for the student and help keep him focused on the test. Given that he scored just below the class average on the preassessment, the adaptation seems to have worked. The primary adaptation made for student B was to move him into the hallway with a paraprofessional to read the exam for him. The move to the hallway also reduced the distractions and helped him maintain his focus, while having the paraprofessional read the test allowed the student to have as much of a chance to succeed as any other student, despite his poor reading ability.	primarily only uses the simplest form of the objectives so that I can gain a basic understanding of the students prior knowledge on the subject, It is essential, though, to know which aspects of the objectives need to be covered in more detail throughout the unit. Formative assessments will be used throughout the unit in order to measure a greater understanding of the various objectives.	false question also counts as one point for a total of 10 points, and the short answer questions are worth two points each for a total of four points. The preassessment score will only be counted as a grade in the event that the student does not perform better on the summative assessment at the end of the unit.	results are achieved. The short answer questions helped me gauge the knowledge that the students should have gained earlier in the year and in previous classes so that I can determine whether or not any review is needed. On the whole the class scored relatively low on the preassessment. In general, though, the students performed much better on familiar material than material they had never seen before. Student B, however, did poorly on the material from previous units. Thus, I will need to spend more time with him reviewing all of this information. Student A's results were consistent with the rest of the class, as were the subgroups.

Table 2.2.1 Unit Design Table, Continued

Lesson	Date	Lesson Objective(s)	Instructional Activities/ Strategies	Formative Assessment (formal/informal)	Describe Specific Adaptations/ Differentiation	Identified Lessons*				
						V	T	R	I	C
1 & 2 (Block period)	4/13/11	1 & 2. Students will be able to classify a wide variety of organisms and compare and contrast the body systems.	Review information the students learned in past semesters pertaining to classification. Students will examine a small lichen community with stereoscopes and will document observed organisms in an 'Animal Journal.' Vocabulary for the unit is assigned.	Formal: Students will create data table and a bar graph illustrating the quantity of organisms and answer related questions to be turned in. Informal: Students will start an animal journal by describing and illustrating two observed organisms.	Students will work with live specimens to get well-rounded hands on experience. Students will work in groups and get assistance from either me or group members. Paired-reading will occur as students examine prepared information packets to identify organisms.		X	X	X	X
3 & 4 (Block Period)	4/15/11	3 & 6. Students will be able to analyze the behavior of animals and predict how organisms maintain homeostasis in changing environments.	Give an overview of the phylum Porifera and a very brief overview of the phylum Cnidaria. They will then prod and feed Hydra (Cnidarians) to examine behavior and response to stimuli. Additionally, students will observe how salt water affects Hydra homeostasis	Informal: Students will answer several questions regarding the activity in their 'Animal Journal,' in addition to documenting the observed animals in the journal.	First of all, real materials are available at the front of the class to accent instruction. The students will perform the Hydra activity in groups, and they will work their way towards answers by talking within their groups. They will also receive extra support as I stop by the groups and question each member.	X	X			X
5	4/19/11	1 & 2. Students will be able to	Work in groups to read an assigned book	Informal: Students will present findings	Students will have the choice between either	X		X	X	X

		classify a wide variety of organisms and compare and contrast the body systems of organisms.	section and complete a provided reading guide. Students will have two different reading guide options.	from the reading while others take notes on sequence event box guide. Formal: Students will receive feedback on their reading guides.	the fact pyramid or science overview reading guide. They will also work in groups. Other group members or I will provide assistance.					
6 & 7 (Block Period)	4/20/11	3 & 5. Students will be able to analyze the behavior of animals and illustrate organismal life cycles.	Short review of arthropods from yesterdays lesson. Students will perform an experiment of their choice on a mealworm to observe behavior. This later leads to a discussion on metamorphosis.	Formal: Students will complete a lab worksheet by creating a question, hypothesis, data table and graph, and writing conclusions. Informal: Students will present their results to the class.	Students will use a 'K-W-L' strategy to decide on an experiment. They will work in groups and receive assistance from their group members or me. The discussion will focus on real-world examples.		X	X		X
8	4/22/11	2 & 4. Students will be able to compare and contrast the body systems of organisms and argue as to what differentiates one organism from another and why it is classified in a certain way.	Students will create a social networking profile for an animal of their choice. This profile will include information on the body systems and habitats of the organisms. Students will also need to make relevant comments on other profiles.	Formal: The profiles created by the students will be graded and feedback will be given to illustrate misconceptions or misinformation. Informal: Students will examine each other's profiles to ensure accuracy throughout the site.	Students are able to select any animal they would like and will work by themselves. If the students have questions then I will be very nearby to answer. The students will also be encouraged to ask advice from others at their table.		X	X	X	X
Summative Assessment:	The structure of the summative assessment is similar to that of the preassessment, as it will also consist of 16 multiple choice questions, 10 true or false questions, and two short answer questions. The questions, however, will cover more advanced aspects of the objectives than the preassessment.									

Table 2.2.2 Unit Design Narrative (limited to 2 pages)

Why are the objectives appropriate?	These objectives are appropriate because they correlate closely with both the state and national science standards. Also, the objectives adequately provide the opportunity for concept review before the acquisition of new knowledge.
Why are the lessons sequenced in this manner?	The lessons were sequenced in a very particular and structured order. In doing this, each lesson builds on the concepts learned in a previous lesson so the students can gain a complete understanding of the new topics.
Why did you select these instructional strategies/activities?	I selected these instructional strategies because they encourage a variety of learning styles, which allow diverse learners to learn in a way that suits them best. The gives students a chance to display their artistic, imaginative, creative, and leadership skills while performing scientific activities. Each lesson is unique and contains a variety of laboratory experiences that keep students motivated and enthusiastic. All activities require some sort of collaboration, which leads to the development of working relationships. The activities encourage a variety of different skill sets important in and out of the classroom, including communication, problem solving, and writing,
How do your instructional strategies/activities address the learning objectives for this unit?	Each activity incorporates an aspect of animal diversity into a reading strategy, hands-on laboratory, group, or communication activity. All lessons relate to animal diversity and incorporate knowledge related to this topic, especially the objectives outlined for this unit. Finally, the hands on perspective helps the students incorporate their knowledge about animal diversity they gained into a variety of situations in their everyday life.
How will a variety of levels of thinking skills be addressed (e.g., Bloom's Taxonomy)? Give specific examples you will use.	Multiple levels of Bloom's taxonomy are addressed in each lesson as the students will demonstrate, apply, synthesize, and evaluate their knowledge throughout the unit. In the very first lesson for example, students relate knowledge about simple classification learned earlier in the year to the new subject of animal diversity. Later, students classify a variety of organisms into the appropriate phylum and compare and contrast the observed behavior and structure of the variety of organisms. Students will then apply their knowledge to a novel situation as they analyze what factors limit the diversity of organisms in a lichen community. Students then synthesize the factors they discussed and make judgments about the diversity of animals.
Explain the reading strategies that will be used throughout the unit. Give specific examples. (Remember that using text is not a reading strategy)	I utilized numerous reading strategies to enhance student learning, reading comprehension and conceptual understanding. As one reading strategy, the students completed a vocabulary assignment that required them to define a word, use it in

	contextually in a sentence, and draw a picture illustrating the word. Another strategy known as paired reading had pairs of students read the text while the other summarizes it. Students also completed fact pyramids and scientific overview worksheets in groups. For the fact pyramid, students wrote the most important information they read at the top of the pyramid, the slightly less essential knowledge on the next row, and supporting information on the bottom. For the scientific overview sheets, students identified familiar information, stated the organization of the text, and wrote down questions about the text. Another reading strategy is known as K-W-L. For this, students wrote down what they know about a particular subject, then what they want to learn, and information learned at the end of the activity. More general reading strategies were also utilized. These included outlines, visuals demonstrating knowledge in the text and guiding questions asked during reading.
What resources will be needed for this unit (include school and community resources)?	School resources: Video projector, ELMO, text books, computers, microscopes, stereoscopes, Petri dishes, tweezers, pipets, beakers, paper, dissecting probes Community resources: Documents describing organisms normally found in a lichen community, hydra samples, brine shrimp samples, books going into more detail on particular phyla than the textbook, mealworms, flashlights, online social networking site creator.
How will technology be integrated within the unit? Explain both teacher use and student use.	Each lesson utilizes some aspect of technology. Some lessons begin with short powerpoint presentations done on the computer and shown on the overhead projector. Also, students often answer a short question, presented on the overhead projector, reviewing previous lessons. Additionally, microscopes and stereoscopes are used to observe microscopic life. Computers are also used to research a specific animal and to create an animal profile on a social networking site that I created.
How does the unit demonstrate integration of content across and within content fields?	All lessons involve the integration of content across fields. Often times the fields of organismal biology, or the field relating to the structure and function of organisms, interrelates with different ecological concepts, like diversity in an area. It also covers information learned in their social science classes, as the effects of changing environments due to anthropogenic sources is discussed and observed. The various reading strategies also allow students to improve their reading, writing, and communication skills. Finally, students utilize math skills when they collect data, analyze it and create graphs.

Narrative 2.3.1 Lesson Plan Design (limited to 2 pages)

Question	Lesson Plan 1	Lesson Plan 2
What will the students entering this lesson already know about the topic?	Students will know information about classification, the types of differences in structure that characterize different animals and also have a vague understanding of how animals respond to stimuli. Also, the students will already know that our human bodies maintain homeostasis through a variety of processes, but very little about how other animals maintain homeostasis.	Students will know a significant amount about classification and have a solid understanding of the function of various body systems within organisms. They will also know the characteristics of organisms in the phyla Porifera and Cnidaria. Additionally, some of the students should know various facts about organisms in other phyla from organisms observed in the lichen community lab.
What type of assessment did you choose? Why?	I primarily utilized an informal assessment that used answers students gave orally to questions asked throughout the lesson. A type of formal assessment was also used as students turned in answers to study questions about the activities of the lab.	An informal assessment was primarily used based on students' answers to questions I asked orally. The students are also informally evaluated during their presentations. Complete reading guides will be turned in and used as formal assessments.
How did you determine the specific differentiated activities needed to adapt/accommodate for individual learning needs?	At the beginning of the activity, I highlighted the important information necessary to complete the lab. I also created groups of students with varied academic strengths to encourage group members to help each other. To complete the activity, the members of the group also needed to display a variety of skills.	At the beginning of the activity, I highlighted the most important information. I also created groups of students with varied academic strengths to encourage group members to help each other. To finish the activity, students also needed to display a variety of skills. In addition to reading skills, students needed strong presentation skills.
Why did you choose the specific reading strategy(ies) identified in your plan?	By just reading the text students do not normally come away with a complete understanding. Thus, it is necessary to accent any text with an ulterior method, such as making Venn diagrams from information in the text. This makes it easier for students to comprehend the information.	By just reading the text students do not normally come away with a complete understanding. Thus, techniques like the fact pyramid and science overview sheet will help the students pick out the most important information in the text, and allow them to better retain the information for future recall.

How do you address critical thinking, problem solving, and higher level thinking in your plans?	To complete the study questions given for the activity, it was necessary for students to draw upon their previous knowledge about organisms and apply it to the current situation. Also, determined why certain organismal actions occurred based primarily on observation. Thus, there is a strong need to use logic in determining answers.	The students first had to critically evaluate the assigned text, and with the help of their group, evaluate the most important and relevant information. Later in the lesson, the students made connections between the phyla presented and compared and contrasted them. Finally, students had to make judgments to determine in which phylum an organism belongs.
How does the technology utilized enhance student learning?	The stereoscopes used in the experiment allow the students to closely observe certain aspects of the organisms' structure and behavior that would otherwise go unnoticed. Thus heightening their ability to understand what and why certain responses may be occurring. Also, the powerpoint presentation was displayed on the overhead, making it possible for all students to easily see and take in the information presented.	Students answered a study, brainbuilder question presented on the overhead projector to introduce them to the activity and review pertinent information. The students also had the option to quickly put together a powerpoint presentation to share their findings with their classmates. Synthesizing the information in powerpoint format is another excellent tool to get students to understand the important information.
Discuss specific classroom routines and procedures that will be in place with this lesson to maximize instructional time.	Students will answer a brainbuilder question within four minutes upon entering the classroom to immediately focus their attention on the task at hand. Also, certain procedures will be used to quickly get the students attention, such as a regular device where the students clap their hands a set number of times if they hear the teacher.	Students will answer a brainbuilder question within four minutes upon entering the classroom to immediately focus their attention on the task at hand. Also, certain procedures will be used to quickly get the students attention during the lab, such as a regular device where the students clap their hands a set number of times if they hear the teacher.
In what ways will you ensure the active and equitable participation of all students during this lesson?	Each student will have their own job within the lab, whether that job is getting materials or prodding the organism while the other student observes with the microscope. Also, all students will need to answer the provided study questions. I will also visit each group to ensure equal participation.	Each student will participate in reading a section of the text and helping their group identifying the important information within it. Also, each student is required to either speak during the presentation, or write on the board. In addition to this, I will visit each group to ensure equal participation.

Table 2.3.2 Adaptive Plans (limited to 1 page)

PLAN FOR INSTRUCTION	LESSON PLAN 1		LESSON PLAN 2	
	STUDENT A	STUDENT B	STUDENT A	STUDENT B
What specific adaptations/modifications to the instructional plan are needed? Why are these adaptations appropriate for the student? *If adaptations are determined to be unnecessary, identify the part(s) of the plan that you are not adapting (if any). Why are adaptations/ modifications not needed?*	This student struggles with motivation at times and often performs best when allowed to work within a group of his peers. Since this lesson revolves around a very active group activity, very few modifications will be necessary. The other members of his group are strong and focused enough students that they should be able to keep him on task for the most part. I will also maintain close proximity to the group to help ensure that this student remains on task. I will also have a variety of questions prepared that will address his comprehension.	This student often has difficulty reading any material presented to him in addition to difficulty understanding the scientific concepts regularly discussed in this class. Thus, he will be put into a group with high achieving students that will help him stay focused and enhance his learning of the material. Also, either a paraprofessional or I will be on hand to ensure that he is contributing to the group and not just relying on them for the answers. Finally, a paraprofessional will be working with him to help him read any necessary material.	This lesson may be more of a strain on this student as it involves a more cerebral approach to learning than the other, more physical activities in this unit. Regardless, he is fully capable of reading and understanding the material. Thus, the best modification is to place him in a small group with a focused student to help keep him on task. I will also be close by to make sure the student contributes and does not get distracted from his work. The student should enjoy the presentation portion of the lesson as it allows him to showcase his social skills.	This student struggles mightily with reading, as evidenced by the fact that he only reads on a second grade level. Thus, it is necessary to place a paraprofessional with this student to help him with the reading of the material. Once, he hears the material he has the ability to understand, but may still struggle. To combat this, he was given altered reading guides that emphasized the knowledge that he was intended to gain from reading the text book. He was also placed in a group of high achieving students that can help him understand various concepts.

Table 2.4.1 Unit Assessment Design Table (limited to 2 pages)

	Describe the assessment you will use	**Explain your rationale for choosing this assessment**	**Explain the specific adaptation(s) made for Students A and B *OR* why no adaptation(s) are needed**	**Which objectives does this assessment address?**	**Identify how the assessment will be scored**	**Describe how specific student results will impact your unit plan**
Formative Assessment - *Informal*	Many different informal formative assessments were used in this unit. One assessment required the students to write their own questions and answers on a sticky note after completing the reading guide and presentations.	This assessment was used because it allowed me to directly observe the students level of understanding following one of the most important lessons of the unit.	There is not really a need for adaptations here because this is an informal assessment, which indicates how well they currently understand the material. It then gives an indication of whether or not adaptations are needed later in the lesson.	This informal assessment addresses both objectives 1 and 2 by allowing the students to showcase their understanding of different animal systems and different animal classifications.	Since this is an informal assessment, it will not be scored. It will instead be used as a tool to gauge the students' understanding and determine if and how extensively the material will need to be reviewed.	Should the students struggle to develop good questions and answers then the next lesson may be adjusted to incorporate the information from this lesson in a different manner. At the very least a review of the information will take place.
Formative Assessment - *Formal*	The students will complete a lab involving the examination of hydra, their structure and their feeding behaviors. Brine shrimp will also be examined and the students	This assessment was chosen because it allows the students to get a hands on, real world experience while working with others. It	A paraprofessional and I read the questions for both students and helped them realize the most salient parts of the text. Both students worked in groups specially tailored around	This assessment addresses objectives 3 & 6 as the students observe and theorize about the feeding behavior of different organisms. The	The assessment is scored out of a total of 20 points. The students will receive two points for each of the ten short answer questions answered correctly.	If the graded results of this assessment indicated that the majority of the students did not score a 75% or better, than the information will be re-examined in

	will answer questions on paper and fill in tables.	gives them a unique perspective that can enhance learning.	their needs. This allowed them to receive help and motivation from their group.	students also discuss how the organisms maintain homeostasis.		a future class. Probably through the use of concept maps or other visual aids.
Summative Assessment	This exam will be structurally similar to the pre-assessment in that it will have 16 multiple choice questions, 10 true or false questions, and two short answer questions.	This exam was constructed to address all of the objectives in the unit. It also allows students to express their knowledge in a variety of different ways.	Both students moved to the hallway so that distractions were decreased. Also, a paraprofessional read the questions for student B and highlighted the most salient parts of the questions.	This assessment will address all of the objectives.	All of the multiple choice and true or false questions are worth one point. The two short answer questions on the other hand are each worth two points. The entire exam is worth 30 points.	Should most of the students perform below expectations on the test then the material will be covered again in some depth during units covered later in the semester.
What is the minimum level of performance you expect all students to achieve on the summative assessment?	The minimum expected performance by students on the summative assessments is a 70%. The represents the cut-off of the score which is considered average. The anticipated average score of the entire class is somewhere between a 75% and an 80%.					
Do you expect any differences in performance between the subgroup you described in Task 1 and the remainder of the class? Explain.	I do not anticipate any significant differences between the whole class and the sub-group. Because of the extensive amount of differentiated instruction, which should have worked to fully engage all students equally, I believe the performance level will be fairly equal. Specifically, the student athletes in the subgroup will likely be very engaged with the hands on, more physical activities. This, in conjunction with general differentiation, should help the subgroup achieve on the same level as the rest of the class, if not perform better.					

Task #3 -Teaching and Learning

Table 3.1.1 Narrative Daily Teaching Reflection (limited to 4 pages)

Day 1: Today was a block day and the two lessons went very well, with only a few minor hiccups. I did not really expect anything to the contrary to occur, as today was primarily used as a set-up for the rest of the unit. Also, most of the students did acceptably well on the pre-assessment questions related to today's topic. The students seemed to understand and respond well to the notes from the powerpoint presentation, which was intended to give the students a brief introduction into animal diversity and the variety of body systems that animals possess. It also served as a brief review of classification, which the students seemed to have a solid grounding in because of a classification unit they completed in a previous semester. The thing that really stuck with them, though, was a video of a teacher and his class singing a catchy rap about the different levels of hierarchical classification. After the class delightfully sang their rendition of the song to me, I immediately noted that this seemed to be a great way to generate interest among the students. I began to think of ways that I could incorporate such a method into my other lessons throughout the unit. Despite their solid understanding of classification, though, the students struggled a little bit more with the novel features associated with the body systems of various organisms. All in all, this was expected, and I had already made plans for it by assigning each of the body systems as a vocabulary word that the students were made responsible to complete by the end of the week. The students were initially very engaged with the day's lab activity, as they had the opportunity to work in groups and examine an environment they had never really known existed. Many of the students asked a variety of insightful questions, primarily pertaining to how these organisms sustained themselves and co-existed with such a wide variety of other organisms. Even focus student B contributed a couple of comments that indicated he was interested in the material and learning it. I also directed questions back at the students that required them to use the knowledge about body systems they had gained at the beginning of the class period and apply it to the current situation. This served as an informal formative assessment, and I used the students' responses to help formulate the topics that needed clarification in a post-activity discussion. At the end of the class period, the students turned in their lab sheets, and they were later graded. This served as a formal assessment of the day's activities. Judging from the solid performances on the formal assessments, all of the objectives of this lesson were met.

Focus student A, similar to the rest of the class, did very well on the classification sections of the preassessment, and, as such, he needed very little personal review time on the subject. He also seemed to understand the concepts associated with the variety of body system's in organism's a little faster than the rest of the class. I determined this through the informal formative assessment technique that I previously described. Most importantly the student was very focused on the lab activity, and even made it through the powerpoint presentation without causing much trouble. This is likely because of his placement into a group where the students around him were focused and ready to learn. He did, however, begin to lose his focus after spending about 25 minutes on the lichen activity.

Focus student B was very impressive today. He contributed in lecture without having to be persuaded for the first time all semester. His comments were not only welcome, but were also very insightful and helped drive the discussion along. This was a little surprising given that he struggled mightily in all areas of the preassessment. This likely indicates that he performs better when answering questions verbally instead of written tests. To give this student a better chance to succeed, I will likely have a

paraprofessional read him the questions on any feature assessment, whether that assessment is formal or informal. The student also performed very well on the informal assessment, answering most of the questions correctly.

Day 2: It was another block day and today's lesson also went acceptably well, but required some small deviations from my scripted lesson plan. In earlier class periods the students were engaged throughout the lesson, but had difficulty answering the study questions on the formal assessment throughout the activity. Thus, by the time this class occurred, I had slightly modified the lesson plan by moving the powerpoint about Cnidarians, initially scheduled for after the activity, to before the activity. This allowed the students to complete the study questions much easier, because the knowledge about these organisms was relatively novel. It was also done because the students had very little previous knowledge about the subject. In other words the students were not able to properly use the activity to construct new knowledge based on a solid foundation of previous knowledge. The adjustment definitely worked, as the students in this class were able to answer the questions on their formal assessments with much more ease than students in previous classes. Once again, the formal assessments indicated that the lesson's learning objectives were accomplished.

Focus student A did a great job of staying on task today, and he was even able to help his group with some of their study questions. His differentiated instruction of working in a group with highly focused students seems to be working quite well throughout these first two lessons. I also believe that the change in the lesson format may have helped this student even more than the rest of the class. This is because he is a very logical thinker and very much needs to comprehend the basic knowledge associated with the concept before he can work out answers to questions requiring higher levels of thinking, especially upper levels of Bloom's taxonomy.

Focus student B struggled mightily throughout today's lesson. He kept his head down throughout most of the lecture portion of the class period, despite repeated requests for him to not do so. This continued until he was asked to stand throughout the rest of the lesson. It's possible that this might have soured him to the rest of the activity, as it was very difficult to get the student to participate in the day's lab activity. For the first section of the activity, he simply stood by his desk and stared off into space. At one point he even asked another student to complete his formative assessment for him. An action for which he was punished accordingly. Given these events, it seems as though the differentiated instruction for this student was very ineffective today. Because of this I will likely alter my previous plans slightly. I would still place him in a group of high achieving students, but also add the continual presence of either a paraprofessional or myself as additional support.

Day 3: The students did exceptionally well throughout today's 50 minutes of activities, although some slight deviations from my previous lesson plan were required. Instead of simply asking the students to scour every little piece of information in their assigned reading, I gave them a few specific items to look for (e.g. body systems, symmetry, and representative organisms). This was a necessary change because it allowed the students to complete most everything within the allotted time, though some presentations did get pushed to the next class period. The change also allowed the students to focus their efforts on the material most relevant to their previous knowledge. In doing this, the students were able to properly scaffold their knowledge, whereas this might have been more difficult in the original lesson plan. Given these changes, the bookwork went very well and the students met most of the lesson's objectives, and it also led to some quality presentations of the material. These presentations also served as informal formative assessments, while the completed reading grades were graded and used as a formal formative assessment. During the informal

assessment I noted that the students seemed to have a very good grasp on the features of the phyla they were assigned to research, but I began to worry that the students were not making the connections (i.e. similarities and differences) between the various phyla discussed in the activity. This fear was later confirmed by an examination of the 'sequence chain event' reading guides the students filled out during the presentations. To ensure that the students did understand these key differences, I began to plan a short activity to review these concepts during the next class period.

Focus student A once again performed admirably, despite the fact that this lesson was less physically active than other lessons. I believe he enjoyed the simple puzzle of linking the array of phyla together through their similarities and differences. He did seem to lean on his group a little bit to fill out the reading guide, but some I directed some questions his way and he answered them with no difficulty. He also led his group during the presentation portion of the lesson and did an excellent job. His success in this area led me to believe that he would do very well on assessments that required him to perform live in some manner or another.

Focus student B performed much better than yesterday, and I believe the small adjustments I made in his differentiated instruction played a key role in his improvement. For one, he was once again placed in a group of high achieving students, but one of his friends was also placed in the group. This combination seemed to work out very well as his friend helped keep him interested in the activity, while his group helped with his understanding of the material. The paraprofessional and I monitored his progress throughout the class period, and asked him a variety of questions throughout the lesson, and he answered most of them without difficulty. Later, the results of his formative assessment (i.e. the reading guide) also indicated that he had a solid grasp on the material, perhaps an even better understanding than some of his classmates.

Day 4: This was another block day and before I began today's scheduled activities I did a short review of yesterday's lesson by presenting a phylogenetic tree to the class, and having the students complete one together. This short activity really helped the students see the connections between the different animal phyla, something they struggled to do in the previous lesson.

Overall, today's lesson did not go as well as the previous lessons in the unit. The primary reason for this was because the formal and informal assessment results indicated that the students struggled to learn one of the objectives of the day. The students all understood the various life cycles associated with metamorphosis, likely because this was a familiar topic for them, but the students struggled to adequately describe and understand the behavior of the organisms observed during the lesson. This was likely because of the relatively limited number of experiments we had the community resources to perform. Also, allowing the students to have more freedom to do a variety of experiments of their choosing may have led to greater understanding. I made this change in later class periods by encouraging the students to add a new twist to the experiments the students. The twist was to place food at one end of the maze and observe if the mealworm turned towards more often then it turned away. In the classes that performed that performed the experiments with this twist had much improved formal and informal test results. In order for the students in the focus class to come away with the complete understanding necessary and attained by the students in other class periods, I plan to do a presentation of the experiment with a twist at the beginning of the period the next time the class met. To ensure the students fully understand the objective after this presentation, I will have them write down their thoughts on the experiment, along with illustrations on a sticky note, and place it on a 'question tree.' Despite the difficulties in getting all of the objectives across, the students were engaged throughout the

lesson and participated well.

Focus student A did well with this lesson. Since he struggled with a couple of questions on the preassessment related to animal behavior, I provided him with some extra study questions that were meant to help him see connections and patterns in the animal's behavior. This seemed to work out very well, as he seemed to have a stronger grasp on animal behavior than the majority of the class by the end of the period. His assessment results, both formal and informal, also verified that he had a much stronger grasp on the material than his peers. In large part because of this, he was able to help his group today more than they were able to help him.

Focus student B also had difficulty with questions about animal behavior on the pretest. To help this student observe patterns and record observations of the experiment, I provided him with a graphic organizer. This helped the student catch the most important things during his observations of the experiment and allowed him to write very concise conclusions on his formal formative assessment. His work with a group similar in make-up to the group he was in for the previous lesson also seemed to help keep him engaged and motivated throughout the lesson.

Day 5: This last day of pure instruction was only a 50-minute class session, but it went very well. This was primarily because the ability to work with computers and create profiles similar to Facebook profiles for animals kept the students very engaged and motivated throughout the entire class period. The students seemed to understand all of the day's objectives. This was evident in their comments on other student's animal profiles. The comments were supposed to comment on a relationship the two animals shared, and this also served as an informal formative assessment because it allowed me to quickly and easily observe the student's level of understanding. I primarily allowed the students to work by themselves throughout this class period, and this worked fairly well as they stayed on task throughout the lesson and also allowed them to create something of their own which they can take pride in. This seemed to serve as an intrinsic motivator for all of the students. After a while the students did seem to get a little off task, and had to be refocused. This only occurred once, though. I will likely try to incorporate lessons similar to this in my future instruction, because the relevance to technology the students use in their everyday life seems to interest them and keep them motivated.

Focus student A was incredibly interested and driven by this activity. It is likely that his presentations skills, which were observed in the reading guide assignment, manifested once again during this assignment. He seems to have a strong desire to be social and his presentation skills likely stem from this fact. Fortunately this assignment afforded him a great ability to interact with his classmates through the power of social networking, even though the assignment was completed on an individualistic basis. By looking at his informal assessment answers (i.e. the comments on other profiles) it was obvious that this student had a strong grasp on the objectives and that the adjustments made for him to succeed were working very well.

Focus student B struggled a little bit more with this assignment. To help him succeed on this assignment, despite his difficulties with reading and writing, I allowed him to post other items to his profile, such as pictures and videos, which served the same purpose of the text entries on the other students' profiles. Unfortunately, though, he still had difficulty completing this assignment. This may be because he does not have access to a computer at home, and is more unfamiliar with the capabilities and functions of computers than his classmates. In order to further help him, I asked a paraprofessional to sit with him for a while and guide him through the necessary steps. I also stopped by his desk frequently to ensure he understood everything.

Table 3.2.1 Narrative Reflection of Video Recorded and Observed Lessons 1 & 2 (limited to 2 pages)

Lesson 1 In my opinion the instructional strategies utilized in this lesson positively affected the learning of all students and helped them achieve the objectives of the lesson. The lesson began with a brainbuilder question, which is intended to serve as a review and focus the students on the upcoming lesson. By looking at the video of the lesson, it was immediately obvious that this served its purpose well, as it helped the students transition from entering the class to preparing to learn and process. This is apparent from because the students calmed down, got their materials out and began to work. The video also illustrated that this was an especially useful tool for focus student A, as it broke him away from his social group and required to change his focus from social issues to the question. The brief bit of direct instruction I provided during the lesson seemed to work very well. During this time, the video showed that the students nodded along in agreement at various points, and more students than I realized at the actual time of the lesson were ready to contribute their thoughts to the lecture and discussion. Unfortunately, though, the video revealed that a couple of students were not paying attention to the presentation, and were instead staring off into the distance or down at their notebooks, something I failed to realize was occurring in real time. To combat this in future lessons, I will make it a point to walk throughout the classroom more, and look at each student's notebook as I am presenting. For the most part, however, the students seemed to stay focused throughout the presentation and not get visibly bored, which indicates the presentation was an appropriate length to maintain the interest of the students. During the lab section, the students got their materials in a manageable amount of time, and every student I could see on the video was being productive while the materials were gathered. This indicates that the directions I gave the students were very clear and worked to immediately involve each of the students in the activity. I believe that my instructional strategies in this lesson helped to meet the diverse emotional, cognitive, and social needs of the students because they seemed do excellent collaborative work within their groups. This excellent collaboration leading to the fulfillment of these needs is likely the result of each group member having an assigned role, which helped to enhance communication within the group, provide an equal opportunity for engagement, and encourage teamwork. The use of technology in the form of stereoscopes was essential in the students' understanding of the material. Without it, the students would not have been able to observe the events occurring on a near microscopic level and draw conclusions from their observations. In fact, I heard many students comment that they did not believe anything was even in their Petri dish, and were surprised to find the organism with the use of the stereoscope. Also, groups that I could hear on the video asked each other meaningful questions that led to greater understanding and comprehension of the activity. This seems to indicate that the hands on activity stimulated the curiosity of the students and led them to ask questions intended to enhance their understanding of concepts that were previously unknown to them. Also, the students seemed to stay engaged throughout the entire lab activity, even though it in itself lasted longer than one of their normal class periods. This is definitely because of the students interest in the activity as I heard one of the students say on the video, "This is the one of the coolest things I've ever seen!" Similar sentiments seemed to be shared by students throughout the classroom. This lesson successfully integrated content within and across content fields as students observed how easily the homeostasis of an organism could be disrupted. This led to a small classroom discussion of the economic effects certain environmental events can have. The video showed that many students were highly engaged during this point of the lesson, and that the discussion was carried on in some groups after the classroom discussion ended. It also led some students to ask

conservation questions they had talked about in their social studies classes in past years. Overall, the classroom-learning environment was very positive as the lesson included activities that the students thoroughly enjoyed. It was also great, because I was able to do different parts of the activities with the students, and the video indicated that the students seemed to respond well to my involvement. **Lesson 2** All of my instructional strategies for this lesson seemed to have a positive affect on the learning of all my students. In addition to this, the strategies helped the students achieve the lesson objectives. The video indicated that all of the students were engaged in the activity, which began with the engagement activity the students performed at the beginning of the hour. This activity of listing animals and their characteristics helped the students' transition from their hallway conversations and mentality to the upcoming lesson. The video indicated that this activity really helped get the students thinking as many students talked productively within their groups, and provided support for others ideas by offering assistance and constructive criticism. The actual reading guide activity of the lesson, similar to the engagement activity, also helped address the diverse social, cognitive, and social needs of all the students. This likely occurred as the students each assigned each other a specific role in the group that best suited that student's strengths. For example, the video indicated that the students had the best reader be the primary reader, the best writer come up with concise ways to relate the material, and so on. The video also indicated that this occurred during the presentation portion of the lesson as the strongest speakers of the group handled most of the presentation, while everyone else helped out. In addition to meeting the needs of the students, the reading strategies provided to the students truly allowed the students to increase their level of comprehension and understanding of the complex ideas presented within the text. The video indicated that the students were engaged and asking upper level questions that related the textual information to other content fields. The level of understanding needed for these conversations to take place likely would not have occurred if the students had simply read the material without the aid of a reading guide. The use of technology also helped the students streamline their ideas and illustrate their understanding of one of the lessons objectives. For example, by inputting the information the students gathered from the reading guide into a powerpoint presentation, the students were required to make the information as concise as possible and, by association, as easy for others to understand as possible. On the video I heard several students make comments while putting their information into powerpoint format that indicated they understood something to a greater degree than they previously did. Also, the powerpoint presentations helped the audience gain a further understanding of the material presented. The video illustrated that these presentations had a higher proportion of students actively engaged and taking notes than the presentations that did not utilize powerpoint. The discussions following the powerpoint presentations also indicated the students made the desired connections between animal phyla, and by association achieve the other objective of the lesson. Overall the classroom environment throughout the lesson was positive as the students were engaged in learning more about animals that they previously poorly understood. The design of this lab helped amplify the extrinsic motivators for the students, as they desired to be an active member of their group. This, by association, led to positive social interactions within the various groups and equitable engagement. I also used a variety of non-verbal and verbal communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom. Examples include such techniques as standard quiet signs to focus the students before presentations and standard encouragement to each group as they progressed throughout the activity. The video showed the effectiveness of the techniques.

Table 3.3.1 Narrative Reflection of Preassessment, Formative Assessments, and Summative Assessment (limited to 3 pages)

Preassessment: Overall, the students performed about how I expected them to on the preassessment. The students completed this 30-point, 28 question preassessment on the first day of the unit, before any of the relevant information was covered in class. The questions on this assessment covered aspects of all the learning objectives. Many of the students were familiar with some of the material on the test from previous units covered in past semesters of science classes. In general, the students did very well on questions that involved material they had seen before in some fashion, and much worse on questions with information that was novel to them. The preassessment was graded and handed back to the students. The students had the option of correcting the wrong answers on their test with a complete sentence and a page number where they found the information in the text for extra credit.

The average final results of the preassessment for the whole class and various subdivisions were as follows (30 possible points):
Whole Class: 16.11 points scored, 54%
Student Athletes: 17.34 points scored, 58%
Non-Student Athletes: 15.1 points scored, 50%
Focus Student A: 16 points scored, 53%
Focus Student B: 12 points scored, 40%
Male: 15.6 points scored, 52%
Female: 16.75 points scored, 56%

In general the scores for the whole class, the subgroups, and males and females were similar. Although, the student athletes scored higher than non-student athletes, and females scored slightly higher than males. Neither focus student did particularly well on the assessment, but focus student A was just below the class average. Focus student B, on the other hand, scored well below the average of the whole class. For the most part, students from every division struggled with unfamiliar material and performed strongly with the more familiar material. The relative lack of disparity between the results of all of these groupings of students, especially the specified subgroups, indicates that the students are all entering the unit with roughly the same level of knowledge about the material. The results do indicate, however, that I may need to set aside more review time for focus student B, and the few other students that scored well below the class average, so that they can successfully accomplish all of the learning objectives. This extra review time will likely involve the students writing a few extra notes and filling out concept maps. I will also be careful to provide several opportunities for differentiation, such as visual materials, demonstrations, hands on activities, and reading strategies, within the review for these students. I will also pay close attention to the progress of these students throughout the unit, especially towards the beginning, to track the students understanding and prevent the formation of misconceptions. In addition to this more informal type of assessment, I will have the students complete several types of formal formative assessments to monitor their comprehension of the material. For the students that scored close to, or well above the average, I will use similar methods to track their understanding, but this will likely occur on a slightly smaller scale.

Formative Assessments: I utilized a wide variety of formal and informal assessments throughout my unit in an effort to closely monitor the students' progress as well as the effectiveness of my various instructional strategies. For the most part, the informal formative assessments allowed me to swiftly make changes within a single class period, and focus questions and discussions on the aspects of the material that the students struggled with the most. It also allowed me to make effective changes in the lesson in different classes throughout the day. The variety of formal formative assessments used throughout the unit allowed me to more closely examine the level of comprehension among different students. This occurs because the unique and varied formal assessments allowed the students to express their knowledge in variety of ways, and succeed the most on whichever best suited their individual needs. For the most part, the students showed a high level of understanding on the majority of formal formative assessments given throughout the unit. Questions that a majority of students seemed to struggle with were incorporated into and addressed in the next day's lesson to increase understanding and dispel misconceptions. On most occasions that this occurred, I was very careful to present the information in a new way on the next day, as the students struggled with it when it was originally presented to them. Overall, the formal assessments seemed to indicate that the students were learning the material effectively, and achieving the various learning objectives. One example of adaptations made as a result of student struggles on the formative assessments occurred on the reading guides that the students completed. Upon examination of these guides, it seemed that many students were having difficulties associating animals with their particular phyla. This was especially evident in some of the more difficult animals like crabs and octopuses. On the guides the students also had a little bit of difficulty in distinguishing differences between the phyla. To fill in the gaps in the students' knowledge on the subject, and clear up any misconceptions, the students worked through the creation of a phylogenetic tree as a class. On the tree, representative animals were placed next to the appropriate phyla, and the distinctive tick marks were placed on the trees to identify differences between the phyla.
I was also careful to incorporate differentiation into my formative assessments, both formal and informal. To accomplish this I primarily followed the plan I had outlined and stayed close to both of the focus students and the various students in the subgroup in order to closely measure progress and understanding. In an effort to help gauge the understanding of these students asked questions meant to guide them towards an understanding of the unit's objectives and learning goals. I was also very aware of the different needs and learning styles of the students in my classroom, and in order to meet as many of those needs as possible I utilized a variety of hands on activities, reading strategies, visual cues, and live, classroom demonstrations.

Summative Assessment: Most of the students performed very well on the summative assessment, and performed at or above expectations.

The average final results of the summative assessment for the whole class and various subdivisions were as follows (30 possible points):
Whole Class: 24.4 points scored, 81%

Student Athletes: 23.88 points scored, 80%
Non-Student Athletes: 24.85 points scored, 83%
Focus Student A: 24 points scored, 80%
Focus Student B: 18 points scored, 60%
Male: 22.55 points scored, 75%
Female: 26.75 points scored, 89%

Only a few students, including my focus student B and two different individuals in my specified subgroup did not perform up to the minimum expectations of earning a 70% on the summative assessment. Overall, the class did not do significantly better than what was expected, as they only outperformed the upper bound of my expectations by one percent, for a total of 81%. The subgroup performed slightly worse than the whole class, earning an average score of 80%, but still met expectations. Also, the score from subgroup and the whole class are not significantly different. Focus student A performed well and earned an 80% percent on the exam, which meets, but does not surpass, the expected scores. This score allowed the student to improve his overall grade in the class, and has put him in a position to finish out the semester on a positive note. Unfortunately, focus student B performed poorly on the summative assessment, earning just a 60%. This was well below the expected minimum score, but slightly higher than the students previous test scores. All but one student improved their scores by at least one letter grade from the pre-test to the summative test, and the one student that did not earned a B on the pre-test. Overall, the class average jumped from a paltry 54% on the preassessment to a healthier 80% on the summative assessment. Within the subgroup, the scores went from a 58% average on the preassessment to an 80% on the summative assessment.

Also, females scored significantly better than males on the summative assessment. This likely occurred because the lowest scores of the class belonged to males and no female scored less than a 72% on the summative assessment. The males in the class, however, did still meet the minimum expectations for the summative assessment. Regardless, the data indicates that I need to incorporate more strategies into my instruction geared towards males in order to bring a great balance between these two variables.

The significant increase in scores throughout the class from the preassessment to the summative assessment indicates that learning truly took place within the classroom, as the students were apparently able to accomplish all learning objectives set forth at the beginning of this unit. Since the majority of students were able to drastically improve their scores from the start of this unit, they also acquired most of the new information contained within this unit. While most students seemed to have a firm grasp on wide variety of the topics, a few questions on the summative assessment still caused some issues. This is illustrated by the fact that many students missed some of the same questions repeatedly. In order to increase the students understanding of these topic and objectives in the future, I will continually review the information from the unit in new ways, and, when appropriate, relate discussions back to material presented within this unit.

Task #4 -Reflection and Professionalism

Narrative 4.1.1 Reflection on Learning Objectives (limited to 2 pages)

The most successful learning objective of my unit was objective number one: Students will be able to classify a wide variety of organisms as to what kingdom, phylum, class, order, family, genus, and species they belong in. One of the major reasons for the success of this objective was the students' strong previous knowledge about the subject. This allowed them to immediately relate to most all of the material I presented relating to this objective. While they had a strong idea of how the biological classification system works coming into the unit, they had little to no practice actually enacting the system and identifying how various animals should be classified. Thus for the students to gain this novel use of their previous knowledge, I had to develop activities intended to guide them in the appropriate direction. To do this, I attempted to heavily differentiate my instruction in an effort to reach every student in a similar manner, despite a variety learning styles in the classroom. In accordance with this philosophy, I incorporated several different hands on activities to give the students real world experience with a diverse group of animals, which the students also had to classify, and integrated an entire lesson centered on reading guides. I also provided several visual materials to the class during powerpoint presentations and required the students to create an animal profile, where they classified their chosen animal. This incorporation of technology into the lessons involving this learning objective was instrumental to the students' understanding, as it helped them relate to the material. The benefits of this differentiated, varied instruction was evident in the students' responses to informal assessments, the various formal assessments, and also on the questions related to the objective on the summative assessment. Additionally, throughout the lessons the formative assessments allowed me to understand how well the students learned the material as it was presented to them Very few students missed a significant amount of points on the relevant formative assessments. As I continue to develop the lessons in this unit, I will attempt implement at least two additional strategies to extend the instruction for even more success with this objective. An example of one of these would potentially be a homework assignment requiring the students to identify and classify five animals around their house or neighborhood, with at least two of these animals being invertebrates. This would further allow the students to draw real world connections to the material. Another potential strategy involves implanting an activity designed for the student to discover the historical difficulties associated with creating workable classification systems. This activity would likely include having the students develop a classification system for certain items around the school, and if effective it would help the students strengthen their foundational knowledge about classification and lead to a better understanding of the new concepts introduced into the unit.

Another very successful objective was learning objective number five: Students will be able to illustrate the various life cycles that organisms undergo throughout their development. Once again a significant reason for the students success with this objective was a degree of previous knowledge related to this topic. This objective was primarily addressed in just one lesson, where students performed various experiments on mealworms, the larval form of the mealworm beetle. The experiments helped the students recognize how behavior of larval forms of organisms varies from the other forms of the organisms. After the experiment a powerpoint presentation and discussion about metamorphosis, and its various forms, helped students further comprehend the material. The design of this lesson incorporated a wide degree of differentiated strategies ranging from hands on activities to visual materials, with audible strategies in between. Once again this wide degree of differentiation, in accompaniment with strong previous knowledge, helped lead to the overall

success of this learner objective. To further increase the success of this objective and extend instruction in the future I would potentially implement a couple of different strategies. One of these strategies would require the students to create a poster that illustrates the various forms of metamorphosis with free time in class or at home. This would further cement the material associated with this objective by allowing the students to see the content in yet another form created by them. Another strategy would be to create an activity where the students themselves simulate the various stages in the forms of metamorphosis by fulfilling the roles of the arthropods and eventually evolving into the next form in the cycle. This strategy would further encourage knowledge retention by emphasizing a bodily-kinetic form of knowledge acquisition, and applying to another level of Gardner's multiple intelligences.

One of least effective learning objectives in my unit was objective number three: Students will be able to analyze the behavior of a wide variety of animals and describe why that behavior is occurring. The most likely reason the students struggled with this particular objective was because there was little differentiation in the lessons. Both lessons that addressed this objective heavily involved hands on activities with very little other forms of instruction incorporated into the lessons. Also, very little of the discussions in each of the lessons spent a significant amount of time specifically addressing these objectives. The formative assessments that related to this objective also indicated that the students struggled with these concepts, but unfortunately very little time was incorporated for review. To further improve the instruction on this less than successful learning objective I would likely require the students to complete a reading guide as either homework or extra credit. This reading guide would be based on a successful reading strategy and allow for greater differentiation of instruction than what is currently present in the lessons. Essentially, the assignment would give the students another avenue to solidify their knowledge and succeed at the learning objective. Another strategy I might incorporate is to have the students analyze the behavior of several different animals round their homes or neighborhoods. This would involve documenting the animals' reactions to the presence of other animals, feeding habits, living areas, and so on. While, this assignment would be rather extensive it would also be essential in the students' ultimate comprehension of the learning objective because it would help them develop real world connections to the content.

A second learner objective where students struggled in my unit was learning objective number six: Students will be able to predict how certain organisms will adapt to their environment in order to maintain homeostasis. The reasons for the students' struggles with this objective are similar to the reasons why they were less than successful with learner objective number three. In other words, the type of instruction associated with objective number six primarily involved hands on activities. Unfortunately, not all students can learn well through this type of activity, and thus the information must be provided in a variety of different ways. In this unit that was not done, and the student's struggles were reflected on their formative assessments, where few students performed well, and their summative assessments, where many students struggled with the questions relevant to this objective. Another reason for student struggles was a lack of previous knowledge on the subject. The students came into the unit with minimal knowledge of homeostasis and insufficient review was incorporated into this unit before they learned more about homeostasis. To improve my instruction on this objective, I will likely insert a review activity into a lesson, where students review the concepts of homeostasis and begin to associate it with new concepts. Another strategy would require students to complete a reading guide based on a reading strategy. This would provide more differentiated instruction to the students and allow them to then comprehend the material on a new level.

Narrative 4.2.1 Reflection on Future Professional Development (limited to 1page)

As I begin my career as a professional educator, I understand how important it is to not become complacent, but rather continually develop, modify, and ultimately improve my instructional strategies and abilities. I would like to improve my organizational skills more than any other aspect of my teaching abilities. I find that the material I present and hand out to students is occasionally disorganized, which can often cause confusion about the material among the students. Organizational abilities are especially important in a high school setting, as many students have yet to develop their own organizational skills. Essentially, if the teacher is disorganized, then the students have little to no chance to get themselves organized and effectively learn the disorganized materials. Improving this particular aspect of my teaching would allow students to understand the material at a much higher level and simultaneously meet the objectives of any given lesson. In order to make improvements in this area, I will make an effort to observe teachers that display strong organizational skills, and attempt to utilize strategies that work well for them. I will also make a point to observe teachers outside of my subject area, as a different perspective on the same issue can often reveal a novel solution that can improve overall teaching strategies. To make further efforts to improve my organizational abilities, I will strive to attend various classes and workshops that emphasize the importance and methods of organization. Ideally, these methods will allow me to improve the overall classroom experience of my students.

I would like to improve my time management skills in addition to increasing my organizational capabilities. All aspects of my skills to ration time in the classroom could be significantly improved. When students enter the classroom, they often do not immediately begin working on the days given brainbuilder activity. Other times, the discussion about the brainbuilder carries on for several minutes longer than it should, often about topics not relevant to the lesson's objectives. This wastes valuable minutes of time that the students could definitely use later when completing labs and other activities. That is not to say that I give the students the best opportunities to wisely utilize their time during these activities. Usually when students are working on a given lab, groups will finish the activity at varying times, and I do not always remember to give the faster groups something to work on after they finish. These quick groups will then begin to talk about irrelevant subjects at their tables, instead of maintaining focus on the lesson's objectives. My struggles in utilizing each and every vital minute of the class period directly affects the student's abilities to learn the material and understand the objectives. I understand that many teachers have similar struggles, but it is important that this is not used as an excuse to continually utilize time poorly. To remedy these issues, I will likely observe other teachers with strong time management skills, and attend classes that encourage the improvement of these abilities. In addition to these two steps towards improvement, I will utilize community resources in the form of books, journals, and useful websites.

The acquisition of a master's degree in curriculum and instruction, or some other closely related field, would also allow me to improve these two skills I have identified. The pursuit of this degree would allow me to provide a better education for my students and help me evolve into a more well rounded professional educator. In doing this, I would also provide myself with an opportunity to stay current with even-changing technological equipment. The development of new technology has a huge affect in the classroom, and the utilization of this technology helps meet the needs of my students. While my own continuing education will partially keep me updated on technological developments, I will also attend workshops, and subscribe to certain teaching and technological magazines.

Table 4.3.1 Communication Log (limited to 2pages)

Date	Person Contacted	Method of Contact	Reason for Contact	Result or Impact on Instruction	Follow Up (if necessary)
January 17, 2011	Teacher within in the science department	Personal Conversation	This teacher keeps all of the school's microscopes in his classroom, and I had to talk to him to borrow the microscopes for a lesson in my class.	The microscopes allowed the students to closely observe onion root mitosis that they could not see otherwise. This helped them attain the day's learning objectives.	I returned the microscopes following the completion of the lessons.
February 4, 2011	Graduate Student that works in my classroom	Personal Conversation	This graduate student gives the students the chance to complete their own research projects in the classroom, so I talked to him about how to successfully incorporate research in teaching.	As a result of this conversation, I created one lesson in my unit designed around the basic tenants of research. This helped students achieve the objective.	I later met with him to discuss the effectiveness of the incorporation.
February 25, 2011	Former Teaching Professor	Personal Conversation	This professor has a wealth of knowledge about interactive biology activities and I met with him to help generate ideas for activities to incorporate into my unit.	Several excellent ideas were produced during the meeting and many of them were evident in the final design of my unit on animal diversity.	I later met with him to discuss the effectiveness of the ideas and discuss improvements.
March 16, 2011	Colleague in another English department	Personal Conversation	Met to discuss the possibility of cross content-area lessons. During meeting she mentioned her student teacher incorporated lessons using Facebook.	While the meeting did not result in any cross-content area lesson plans, it did serve as the inspiration for my lesson with the animal social network, which led to further student understanding.	N/A (Not Applicable)
March 16, 2011	Focus student A's mother	Personal Conversation	At a parent-teacher conference, the parent and I discussed the	I utilized a large amount what was discussed in this	I later gave her a phone

Date	Person Contacted	Method of Contact	Reason for Contact	Result or Impact on Instruction	Follow Up (if necessary)
			difficulties she has with her child at home, and methods that she has observed as effective in getting through to him and keeping him on task.	conversation in the development of my differentiated instruction for focus student A, which later proved to be effective.	call to let her know how well her son was performing.
April 1, 2011	Another Biology professor in the department	Personal Conversation	I was looking for different strategies to connect with students, and this teacher has a strong affinity with students.	New connections with students were made as a result, especially those that had been previously distant.	N/A (Not Applicable)
April 12, 2011	Various Advanced Biology Students	Personal Conversation	I was concerned that the students were not meeting the objectives in my first lesson, so I gathered students' opinions.	The select students I talked to provided great ideas for improvement, which I incorporate into later lessons.	N/A (Not Applicable)
April 13, 2011	University Biology Professor	Personal Conversation	I contacted this professor at the local University because she does research with Cnidarians and she gave me a large culture of Hydra to use in my classes.	The students thoroughly enjoyed the opportunity to observe these organisms and it directly helped lead to the accomplishment of multiple learning objectives.	I sent a thank you note to the professor expressing gratitude for her generosity.
April 19, 2011	School Principal	Personal Conversation	The principal came to observe one of my lessons during the unit and provided me with unique feedback that emphasized the importance reading strategies.	The principal's support of my lesson plan involving the reading guides further helped establish the presence of essential reading strategies in my unit.	I e-mailed the principal expressing my thanks for her taking the time to watch.
April 22, 2011	David's Parents	Personal Conversation	I met with David's parents to discuss his poor performance in the class throughout the semester and determine ways in which he might improve.	David immediately improved in the classroom, as he began to contribute more, turn work in on time, and even score an 'A' on the unit exam.	I called to update them on the improvements.

Narrative 4.3.2 Reflection on Impact of Communications (limited to 1 page)

All professions require some form of communication, but there are few professions where communication is more important than in teaching. Teaching requires a constant flow of communication from the teacher to the students, parents, paraprofessionals, colleagues, administrators, and so on. The quality and consistency of this communication can have a direct affect on the enhancement of teaching strategies and the ability of students to learn. Communication is also a vital part of my own teaching strategy, as I pride myself on my ability to form close relationships with students in an effort to improve their educational experience. I can identify several different times throughout my unit that the relationships I developed with certain students enhanced their understanding of the course material and allowed them to stay on task. As one example of this, a struggling student missed several days of class during the unit because of tennis meets. When this student, with whom I had cultivated a relatively strong teacher-student relationship, returned to class I took him aside and explained what he missed and emphasized the importance of quickly making up the material in his ability to meet the unit objectives. During this discussion I expressed my desire for his success in the class, and he seemed to take this to heart as he scored significantly better on his summative assessment than on his preassessment. Also, my relationship with focus student A, which was also cultivated through continuous communication, helped him stay on task throughout the unit and become less of a distraction to himself and other students.

While communication with students is vital, it definitely needs to be supplemented with communication with the parents. Conferencing with the parents of one intelligent student who struggled to study and complete homework, in my unit as well as others, gave the parents insight into why their child was having difficulties and how he might improve. Following this discussion, the student turned work in regularly and even earned a score in the 'A' range on the summative assessment of my unit. Also, communication with focus student A's parents gave me insight into how to motivate the student. This conference with the student's parents was a significant reason why focus student A performed so well throughout the unit.

Communication with my colleagues around the school, specifically another biology teacher, aided me in developing new and innovative lessons for the students. This teacher also aided me in altering some of my lesson plans for the better. These changes were noticed indirectly by the students and undoubtedly had a significant effect on their final understanding of the unit's objectives.

Also, my continuous communication with paraprofessionals in the classroom greatly improved multiple students' understanding of the material. As one excellent example of this, the paraprofessional that primarily worked with focus student B was instrumental in his final comprehension of the material. I continually kept the paraprofessional updated on the unit's objectives, changes, and other important aspects. She then relayed them to focus student B in a manner that gave him a much improved opportunity for success. The paraprofessional also helped me ascertain what teaching strategies might best suit focus student B. Through these collaborations, we were able to come up with multiple strategies intended to enhance the students overall learning experience.

Finally, a line of communication with community members with no connection to the school can also provide useful insight. In preparation for my unit, I often talked to one of my university professors. He helped me develop hands on lessons to make the learning real for the students. Many of his suggestions allowed the students to learn through doing and make necessary real world connections. I also gained valuable resources from dialogue with other university professors.