Teaching Practicum

Interactive Qualifying Project
Worcester Polytechnic Institute

Author: Linnea Brown

Advisor: John A. Goulet, WPI

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Chapter 1

Education in Massachusetts

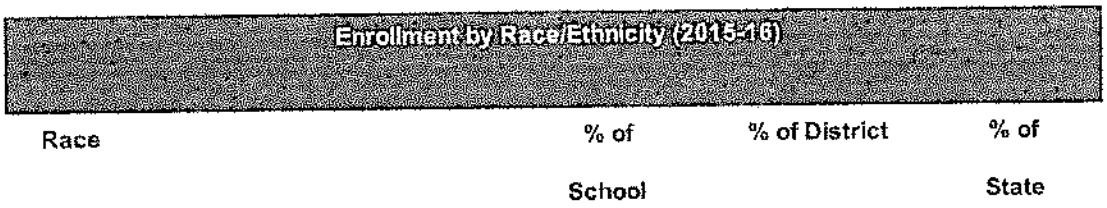
The United States lags behind most first world countries in education, but when Massachusetts was analyzed individually, the state would rank among the top in the world. This could be partially attributed to the Massachusetts Education Act of 1993 which called for dramatic reforms in public education. The act was centered around creating equality and focus throughout Massachusetts education system. In doing this, statewide standards were formed allowing schools to be measured and held accountable for the education they provide. Prior to 1993, there were only 2 statewide educational requirements: history and physical education. The Education Reform Act called for curriculum frameworks for all core subjects. These broad education goals created by the Act are referred to as the the Common Core of Learning. The common core created frameworks not only for math, science and english but also world language, technology, arts and health. To gauge student understanding of material taught under the frameworks, a new statewide test, the Massachusetts Comprehensive Assessment System (MCAS), was created. The main purpose of the test was and is to help identify schools and students in need of attention in particular subjects. The Massachusetts Department of Education is currently "in the process of upgrading MCAS to better measure the critical thinking skills students need for success in the 21st century" (http://www.doe.mass.edu/mcas/nextgen/). This Test will be called either MCAS 2.0 or Next-Gen MCAS and will be based on information learned over 20 years of MCAS testing as well as the innovative ideas developed for PARCC. Testing using the

MCAS 2.0 is set to begin this year and will be rolled out to the entire state in 2019. This new test hopes to better evaluate students and schools since education is a constantly evolving medium.

Overview of the Auburn School District

As of 2010, Auburn Massachusetts had a population of 16,188. Roughly 30% of people have children and most of them attend school within the Auburn Public School District. Enrollment data from 2015 shows that most students in the district are White. The district has a very low drop out rate and over 90% of students finish high school. Most of these students will attend college or university after graduating high school. The 2014 graduating class 87.2% of all students went on to pursue higher education.

Within the Auburn School district we will be looking at Auburn Middle School. This is the only middle school in Auburn so demographics within the school are fairly similar to the demographics of the district (Figure 1.1). Roughly 15% of students are part of low-income families. In an attempt to reduce the factor of economics on education, Auburn is a 1 to 1 school. This is a fairly new concept where each student is given a personal tablet to complete school work. This system also allows reduction in costs relating to paper usage and increases student responsibility. This gave me a different perspective on how to teach students using personal tablets.



African American	1.8	2.1	8.8
Asian	3.6	3.7	6.5
Hispanic	5.5	6.2	18.6
Native American	0.3	0.3	0.2
White	85.3	84.6	62.7
Native Hawaiian, Pacific Islander	0.0	0.0	0.1
Multi-Race, Non-Hispanic	3.4	3.1	3.2

Figure 1.1

During my IQP, I taught 4 classes of 8th Grade Science. This is a general science class covering a variety of subjects to prepare students for the Science Technology and Engineering MCAS test in the spring. This is a difficult MCAS test that covers 3 years of material spanning various different concepts. This is reflected in the 2016 MCAS results, only 40% of students were "Proficient" or higher. While most students fell under "Needs Improvement". These results are comparable to the state results where only 41% of students in grade 8 were "Proficient" or higher.

Chapter 2: Well Structured Lessons

Creating a well structured lessons is important so as to take advantage of the time you have with your students. Not only does it help with the timing of lessons, it also helps to ensure

material is understood by the instructor before it is taught to the students. This understanding of both the material and its lesson structure can enhance student learning. CAP states that lesson plans should have "measurable objectives and appropriate student engagement strategies, pacing, sequence, activities, materials, resources, technologies, and grouping." This is done because clear and concise presentation of material as well as understanding of what will be taught in the future helps to prevent confusion stemming from delivery of material.

Entering into the practicum I had a general understanding of lesson planning but was unfamiliar with the template we would be using. During the practicum I learned about creating lesson plans and what strategies work best for me. Initially I was given lesson plan outlines from my teacher and was told to base my teaching off of them. Because I was being encouraged to use others lessons, my lessons were not improving. Once I realized these lesson plans were not effective for me, I set up a system to help me better create my own lesson plans. One of things I found particularly helpful to was to use an Excel spreadsheet to structure by the week. This outline gave the objective for each day, a summary of the lesson and other relevant information about the day. Once the outline was created, complete lesson plans were generated from the outline and put into the template provided (Appendix).

As I created these excel sheets my familiarity with the material and the process of creating a lesson plan improved. The weekly excel sheets gave me a focus and helped me hone-in on relating lessons to the learning objective for the current topic. From that, the lesson plans I created were more detailed and had more focus on completing a single objective. These lesson plans made teaching in the classroom smoother as time was not wasted. My best planned week related to the student project called balloon racers. The students were required to design

and build a small car powered by a balloon. To do this project they needed to use their understanding of friction and gravity. I first created an excel spreadsheet that spanned the entire length of the project and worked backward from the completion of the project. This system helped to give me a structure to estimate out how long each step of the process would take and where there was leeway. This was particularly important because all students were required to work on the project during class time as part of the grade. To create the lesson plans, I divided the engineering design process into chunks that could each be completed over a single day. Throughout this process the students followed a packet that helped them think about the step they were completing. Though the students spent portions of time working independently, introductions to each step had to be detailed and succinct to maximize working time. This working time was extremely important because all students work at different speeds and were better at certain parts of the project. The students also needed to complete a packet that reflected on the steps of the Design Process. It could be completed in class if the students completed their work for the day or as homework. This made sure that the students always had something to work on. The lesson and project turned out successfully but it took a lot of work behind the scenes to create a project and instructions that the students understood and could compete effectively.

Lesson planning is a difficult skill to learn and my time teaching gave me a perspective on how long it takes to hone that skill. The most noticeable improvements I saw was how, by the end of the practicum, my timing was much more accurate which in turn made me more comfortable with planning more detailed and complex lessons. Initially I struggled with formating my lesson plans and wasted time on poorly organized lessons. As I created my own

system and found what strategies worked for me I started to enjoy the planning process and creating the best learning environment. With these steps the process didn't become shorter but it became more enjoyable and I could take more time elaborating on the details of the lessons. Through the systems I set up I was able to create lessons that reflected an accurate curve of learning throughout the week the gently built up on what the students were learning. Because of this I felt like I was more in tune with what the students are thinking about and could be better prepared for questions they might ask. As with most things in teaching lesson planning strategies should be constantly improving, I feel that over the course of my student teaching my lesson planning skills greatly improved.

Chapter 3: Adjustment to Practice

The idea of why adjustment to practice is important can be summed up in the simple idea that the best laid plans rarely survive implementation. Teachers have to be ready to identify where students are struggling and adjust their plans to better help the students. Being able to adjust practice hinges on the ability to identify problems. As CAP states teachers should "analyze results from a variety of assessments to identify [...] interventions and enhancements for students."

There are two main steps to adjusting teaching style to the experience in the classroom: gathering feedback from the students and analyzing that feedback to figure out how to improve my teaching process. This feedback was gained via formal assessments, informal assessments, and direct feedback. The analysis and improvement can take many forms including adjusting the

difficulty of future assessments to more appropriate difficulties for the class's overall level of understanding, iterating lessons across different class sections and internalizing comments and suggestions from student comments and the mid-IQP survey.

One of the primary means of feedback gathering is formal and informal assessments Informal assessments consist of material such as assignments, and class discussions. Informal assessments are important indicators as to how well students understand the material. A common assessment I used was having students complete a chapter review for homework then going over the questions as a class the next day. This means the students first attempted the material independently and then went over it together in class. While working in class students could make notes on their homework to help them understand the material. The homework was then turned in and assessed to see what concepts students struggled with. Reviewing homework in this manner helped get students involved and thinking about the material while giving me a chance to fine tune my ability to set the difficulty of future assignments for the students.

These informal assessments helped me chart a successful course through the lesson. The final step after completing the topic is to review how the material was taught using a final assessment. A final assessment covers all material from a certain topic, this is usually a test or project. Though these cumulative assignments do not allow for corrective problem solving they do allow for improvement of general teaching strategies. At one point, the students took a test on Gravity and Newton's laws. The students struggled the most with two questions related to friction. From this I was able to determine that there wasn't enough review on topic and I was able to look at the lesson plans and find ways to improve them for the next topic I taught.

I came into class with a game plan, prepared with lessons and assessments, but this skill is best learned live in the classroom. As most teachers will tell you, the first class of the day won't be as good as the last, because no amount of planning can account for real students. This is by far the easiest type of adjustment to see. Most of my labs were designed or at least modified by me. This meant that the first class of the day often had unexpected complications. The biggest adjustments I made to lessons involved modifying my instructions on how to complete the lab. This is because 8th graders need explicit details on exactly how to complete the lab. Steps that might seem common sense need to be explained and often visualized. This had to be balanced with allotting enough time for the lab. This process of trial and error not only helped me improve throughout the day, but also helped me prepare better lessons in the future. I made notes on the changes I made to the lesson throughout the day and used those to help me when planning future lessons.

Being able to assess how students are doing is very important and using these assessments to better your teaching is even more important. This idea is at the heart of being able to adjust your practice. At first it was more difficult than I expected to change my lesson plans and change my opinions on the best methods. It was a slow process for me, changing my ideas and how I taught the class. As time passed though, I saw how small adjustments I made lead to improvements in my classroom. This helped reassure me that these assessments were working and that my adjustments were working. Though these changes were not always perfect, they helped me realize and internalize that lessons can always be improved.

Chapter 4: Meeting Diverse Needs

There is the idea that everyone is capable of learning, but all students do not learn the same. It is a teacher's job to ensure that all student are able to learn in their classroom. To help this adjustment to practice always ensures better student learning, but some ways of learning can be anticipated and accounted for. The most notable case is that of English Language Learners (ELL) and students with disabilities. CAP states teachers should use"appropriate practices, including tiered instruction and scaffold[ing] to accommodate differences in learning styles, needs, interests, and levels of readiness."

With science you are combining understanding of english, such as terminology and writing with math. This means most students will find some aspect of the class "difficult." This is where creating a variety of ways to learn is particularly important. Students can become easily frustrated if they feel like the reason they can't learn is their own fault and not that the material is new and difficult. In science, students benefit greatly from these variety of learning styles: vocabulary, calculations, and experiments. Combining different types of learning opportunities such as having worksheets that ask to solve a problem and explain it using vocabulary can all help students to better understand the concept. This is why labs and lab reports are an essential teaching strategy in science classes. Labs have the ability to target multiple learning styles at the same time. Students are required to work together and share their knowledge in a kinesthetic task. They then take what they have learned and answer questions independently forcing them to reflect and then present their understanding of the material using written reflection.

Science has not only a large number of new words but also many new definitions for common words. Words like weight, mass, and acceleration are excellent examples of this. This requires creating simple ways to explain these words. Some students had great difficulty with the difference between weight (the mass of an object as affected by gravity), and mass (the amount of matter in an object). As the other kids were working, I pulled aside two ELL students who were struggling with this comparison in particular. I filled two cups with marbles, one cup had 5 small marbles and one cup with 2 large marbles. I explained them that mass had to do with how much "stuff" was in an object, and asked them which cup had more mass, (the cup with 5 marbles). Then I explained how weight was related to how much gravity was affected an object, and that bigger objects were more affected by gravity, meaning the cup with the two big marbles had more weight. We then moved the marbles around, mixing the big and small marbles to figure out weight and mass. After this short activity, the concepts seemed to click for them and they were able to separate weight as a science term from its use as an everyday term. This is just one example of the small changes and extra explanations I gave to help students who needed extra help.

When dealing with disabled and ELL students one must be very conscious of how material is presented. It is very difficult to practice modifying material for students as all modifications are different. Some students benefit from being pushed and given a single difficult problem while others benefit from many smaller questions to guide them. This means that worksheets must have a balanced mix of questions so all students can learn. Along a similar vein, students, especially ELL, benefit from sentence scaffolding. This tactic helps students to focus on the important and relevant words and ideas. An example of this style of note sheet can be

found in Appendix. This scaffolding allows students to focus on the new vocabulary and see how it's used in a sentence, without taking away from their learning. One ELL student had a very limited english vocabulary but worked diligently to try and understand the material. She struggled with finding the words to describe what she was learning, but would always attempt as much as her understanding allowed. When talking with her, she could give the right answer and if she was given a scaffold, she could fill in the correct vocabulary words. Learning english and learning science vocabulary at the same time can be difficult, but with help students can truly show their ability to learn.

Meeting diverse needs isn't just about providing the material so they can learn, but also believing that they can learn. This means a lot to every student and can help motivate them through difficult material. If you stay focused on the material and emphasize what is important by creating an environment that accommodates different needs, then all students will learn. However, it can be difficult figuring out what benefits such a large variety of students. Discovering what helped the students who were struggling, in turn helped me teach the whole class. While student teaching, I got to see how different students learned and how I could create lessons that benefitted all of them.

Chapter 5: Safe Learning Environment

An important part of teaching is student involvement. Student involvement is fostered by an environment where students feel comfortable. This is encompassed under the CAP idea of a Safe Learning Environment, which is defined as "Use [of] rituals, routines, and appropriate

responses that create and maintain a safe physical and intellectual environment where students take academic risks and most behaviors that interfere with learning are prevented." The best place to start creating a healthy environment is creating rules and systems that decrease the likelihood of disruptive behaviors. These systems are most effective when created by the teacher with clear indicators of right and wrong.

One of the biggest things I implemented was creating a bellwork system. Every day at the beginning of class, I wrote the day's objective and a question about the material on the board. The objective was a short summary that explained what the kids were going to do in class that day. The question either reflected on relevant past material or got students thinking about new material. The question helped keep students occupied while I completed mandatory beginning of class activities, such as checking homework and taking attendance. The question also helped students start thinking about science and made it easier to get class started.

For most of the practicum I struggled with creating rules that fit my teaching style. At first, I tried to modify my mentor teacher's rules. This slowed my progress in creating a successful learning environment. She had a more relaxed teaching style overall with a strictness towards work ethic. As it had worked for her, I assumed it would work for me. The issue was that it didn't work for me and because of that, I had behavioral issues with the students. Eventually, I found my footing on creating rules and disciplining my students. My strength in creating a safe learning environment came from my positivity. This is about rewarding students for taking risks and for asking questions. The more this environment is encouraged the more willing students are to tackle topics that challenge them.

Once you have this perfect balance of encouragement and order you can begin to push students and ask more challenging questions. You can do this because students are not worried that they will be ridiculed for answering the question wrong or asking a 'silly' question. This helps students to better learn and understand material because there can be more open discussion about the lesson. If I ask a question, I can call on any student and they will attempt to answer to the best of their ability. If they answer correctly I can prod them for more information about how they got their answers to show other students the steps they took. If a student answered incorrectly or was hesitant to answer, I can help them through the steps to the answer. This is not as easy as it sounds and took me weeks to perfect and feel confident in executing it.

Through all the difficulty and stumbles I had by the end of the practicum I found the confidence I had been lacking at the beginning. My mentor teacher's system to manage the classroom was never fully explained to me before I started teaching and was subsequently difficult for me to interpret. This was challenging as I tried to emulate her techniques without full appreciation how she managed the class. Eventually, I modified her methods into ones that better fit my personality and style. This took time as I became more confident and tried out techniques that were my own. Once I found these strategies, I was able to improve and become a better teacher. I feel better equipped to create a healthy and sustainable classroom environment after the time I spent in the classroom.

Chapter 6: High Expectations

Most students are motivated to learn, and setting high expectations helps them reach further. When talking about science, It is important to remember that not all students will go into a field that requires a deep understanding of science. That does not, however, mean that students will not benefit from a better understanding of scientific concepts or that they don't want to learn. This is where a teacher who expects the most from their students comes in. This is stated in the CAP standards: "effectively models and reinforces ways that students can master challenging material through effective effort, rather than having to depend on innate ability." This is the idea that any student can learn and understand material if the teacher encourages them to exert the effort and believe they can learn. How a teacher treats their students can have effects on how much they want to learn. If the teacher creates a positive environment where working hard is as important as the right answer, then students will have a greater respect for the material

Robert Tauber states in Classroom Management, "a teacher's repeated positive expectations messages to students can help children progress from 'I think I can; I think I can' to 'I know I can'". At first glance this concept seems simple; it is showing the students that they can complete the work. The fault in that idea is that that does not mean believe in themselves. This idea of "I think can" is an important first step in establishing high expectations. You have to prove to the students that you think they can do it, and they can understand. The effect of this is that I try to avoid negative connotations with work. Ideas like "it could be better", "did you not try" and other concepts that inadvertently critique students for not immediately understanding

material. Instead, I spend that time encouraging students to try their best, as well as start new concepts and ideas with activities that do not require students to have the right answer and instead to put them in a positive mindset. Once students have this positive mindset and believe they should try, they can then be pushed to learn further. This is the point where some students start getting into the mindset of 'I know I can'. To some kids, this confidence comes easily and they are quickly able to complete work. For other students, they don't have this natural confidence in their own work. When working with these kids it's important to encourage them by showing them what they were doing right. This strategy was at the heart of my teaching practices and I believe this contributed to my success in this aspect of CAP.

I hold everyone to what I believe they can do, even if they don't believe it. This meant that creating a positive environment that pushes students towards being their best learner came almost natural to me. What was more difficult was creating worksheets and assessments that reflected what I saw in their ability to learn. Initially I was using worksheets created by my mentor teacher or that I found in the textbook. I started to realize that my expectations did not line up with the assessments I was presenting to the students. For most of the practicum I tried adjust and modify my ideas to better fix the material provided. Towards the end of the practicum after a fairly unsuccessful test I realized something had to change. I was telling my students that they could do it and that I believed in them, but it didn't reflect in their completed assessments. I started to doubt myself and the material I provided for them. I was trying to get them to think in different ways, stretch their learning but some were struggling with basic material. That was the last straw and I made an attempt to start from scratch making material that better reflected the

system I had designed in my head. I finally felt the expectations I had in my head matched the material I was presenting.

I came into the practicum with a positive 'you can do it' attitude that was second nature to me. That did not mean that I didn't have a lot to learn about high expectations throughout the practicum. Most of the learning came from figuring out ways to reflect my positive mindset in the lessons I was presenting. This largely came from borrowing my mentor's material under her encouragement. For my teaching style, instead of making my life easier, it made it more confusing. The things I said did not match the material presented on the paper. I was able to begin to fine tune my expectation when I stopped seeing the definition of high expectations and instead, used it as a springboard to create my own interpretation. I started to see the concept as believing in my students no matter what,; and that the material I presented should reflect that idea. I feel that creating these high expectations for my students forced me to create equally high expectations for myself.

Chapter 7: Reflective Practice

You can not improve if you do not discuss ideas. One cannot be a great teacher unless they are willing to look critically on their own work and devise ways to improve. In the field it is extremely beneficial to share your ideas with others and hear their suggestions. Being a great teacher is a lifelong journey that involves constant improvement and that is best achieved through the help of others. Before entering this program I had some experience with reflecting, but it was very limited. During the program we were required to write a weekly journal

reflection, at first I struggled with what to write and what was important to include in my reflections. Personally I felt these journals improved over the course of the program. I am a very analytical person and found finding the words for the weekly reflections very difficult. It felt like there was a particular reflection experience or type of reaction that was desired by program directors. This caused a bit of challenge as I sought to better understand what they wanted and what was useful for me.

I spent a large amount of time reflecting by myself, taking notes and thinking about changes I could make, and that was part of my problem. I often saw the problems such as students acting up or ineffective instructions and not knowing what to do to fix them. However, I often struggled to transpose this to the weekly journals. The struggles I had with the weekly journals meant that no one was seeing the struggles I was having. I tried to keep track of daily reflection notes to keep track of what happened each day. This helped me separate the good parts of each day and the challenges as well as look back and determine what worked well and what didn't. This helped me avoid repeating the same mistakes over and over again.

I often made notes on my performance, but had difficulty engaging with others to discuss my reflections. So I worked very hard to become very self aware of my problems and find different ways to solve issues. I did this by taking notes on how the day went and writing down my opinions and thoughts. I could use these to look back on good and bad days and compare them. I could then share these thoughts with other people to create further discussion. The issues with engagement were frustrating but helped me focus on myself and find strategies that I could use that helped me improve independently.

A definitive part of improving reflection comes from the mentors of the program. I made great improvements on my own but I feel like I could have made greater improvements through the help of my mentor. She tried, but it seemed she did not know how to explain what she understood to me. This helped me learn in different ways but also held me back. By the end of my student teaching it felt hopeless to talk to her because I would hear the same thing I heard all year. This was by far the most difficult part of the practicum and my biggest shortcoming. Even though I felt let down by my mentors about how they interacted with reflection, I feel like I learned a lot. My opinion on reflection became more positive and truly respect its value in improving yourself and your teachings. This understanding has encouraged me to not give up on improving my ability to reflect.

Chapter 8: Your WPI Education

Understanding the material and practicing the material are two very different things. Knowing how something works is very different from being able to using that knowledge to build something that works. WPI's Motto is "Lehr und Kunst" meaning Theory and Practice, this gives a different perspective to teaching. Though understanding your subject matter is very important, and will be discussed in greater detail, being able to answer "why" is just as important. Especially when teaching 8th graders who are very curious and are trying to learn as much about the world as they can. When discussing science if you can't give them a reason for why they should be learning something then they won't want to learn it. This is where having examples (especially personal examples) of material can be so important.

Through my WPI education I have developed a large and diverse science background. This was extremely valuable throughout the course of my teaching. As an ECE major, the direct applications of my specialized knowledge was limited. Understanding of Electricity though requires an understanding of physics and physics principles. The curriculum for 8th grade science is varied and covers many fields of science to allow students to get the basic principles of science and the scientific method before entering high school. During my time student teaching we covered rocks and minerals, Newton's Laws, and Energy. My understanding and enjoyment of physics helped me to create lessons that not only taught the material but made it accessible to all students. I was also fortunate enough to teach some material on energy. Electrical Engineering is based in the understanding of energy and how it can be used. I was often able to bring in practical ways that energy is transferred and how interesting it can be. Knowing so much about the material helps one to teach by giving them an expansive base to start from.

I feel like my WPI education helps me to see teaching as more than sharing knowledge. This perspective means I often come up with interesting ways to present material that shows the importance of learning the material beyond passing the test.

Chapter 9: The Classroom

The students themselves are a huge factor in how you teach and how you plan lessons. Young students require more detail and explanation than older students. It is important to understand the classroom so my methods of teaching make more sense. Over 4 classes I taught 100 eighth grade students basic science. The classes were mixed, no honors division, and was

required for all students. This led for a large variety of students who came into my class, some who found science their favorite subject and some not so much. It often took longer for those students to understand the concepts.

Though all students are important certain students require more attention. This is most commonly because they are English Language Learners or have a disability that affects their ability to learn. Of all the classes I had 3 special education students, one of which had his own aid. The student with the aid only required modified assignments and detailed instructions told to the aid. This aid allowed him to have the focus he needed to be successful in the class while I was able to focus most of my attention on the rest of the class. The other two student were both in the same class with a general aid. This general aid helped by monitoring the class with a specific focus on the two boys. These boys were easily distractible and required repeated step-by-step instructions. If left on their own they would do anything but work so repeated intervention by me or the aid was required.

I also had 3 ELL students who all had very different personalities and levels of comprehension of the English language. One of the two girls recently moved from Portugal and could speak basic English, but sometimes struggled with reading and writing. What she lacked in language she made up for in determination. The other girl was the exact opposite, she did not care for school and often refused to listen or complete worksheets but had a reasonable understanding of English. My last ELL student was a quiet boy who excelled at math and worked very hard. For all three of these students I provided them with both written and verbal

instructions in simple language, and repeated as needed. These are students identified by the school had seen as needing extra assistance and attention.

There are students who do not struggle with English or have a diagnosed disability who still require more attention than the 'average' student. This brings to mind 2 students in particular, one a girl who refused to complete work, and the other a rambunctious boy who couldn't stop talking. The girl was very smart and often got 80s to 90s on test while failing homework, labs and other work. At first my mentor told me to try to help, but don't waste too much time as she had this problem in all of her classes. About midway through I moved her up to the front of the class and separated her from anyone she might want to talk to. As a result instead of getting no homework I was getting partially completed homework. This made me feel like maybe I could get her to complete work. This was hit and miss, sometimes she would work and other times she would stare at a blank screen rather than work. When we did group work I started assigning groups so she, and a few other students, could not work with friends. Though she only made small improvements by the time I left she did turn in work slightly more regularly and labs were often partially complete. Even seeing work she saw as 'unnecessary' partially completed was a huge boon to me. Similar strategies worked with the boy who struggled. For instance these strategies help avoid some of the unnecessary talking, but I also had to implement a few other strategies to help him focus. I often allowed students to work quietly with table partners, which allowed him to talk without disrupting the whole class. I would also call him out in class to give me answers if he was chatting or distracted, this helped keep him on track and gave consequences for not paying attention. He was a good kid with no/off switch and these

strategies helped him focus his attention and complete work. These difficult students helped me create systems that could help students with similar problems.

As a student teacher I needed a direct method of assessment. The students were given a survey that asked about various parts of my teaching ability. (Appendix). The survey helped by giving me an idea of where my teaching was weak. From the individual surveys I compiled the results to discover what I needed to work on. I discovered that my biggest weaknesses were in clarifying ideas, and classroom management. I did not always have control of the classroom and it caused students to lose some of their respect for me. This forced me to look at my journal reflections and the way I was acting and treating the students. As a result I worked to devise a classroom management style that balanced a friendly and positive demeanor with a strict and focused teaching method. My other weakness was related to the students being able to relate and repeat ideas. This gave me motivation to redesign my bellwork and introduction to the class along with the way I was giving instructions. I started by providing more detailed explanations with repetition of important points. I took this repetition into bellwork at the beginning of class. I would summarize previous relevant lessons and tie them into that day's work. These repeated links helped students see overarching idea in certain topics. These steps were just the some of my changes I made to the classroom through reflections.

Being a teacher not only involves working with and creating a relationship with your students but also working with parents and colleagues. Over my time I had a few interactions with parents, and they all wanted the best for their children. This can help you make an easy connection with the parent and help as a starting point of conversation. One parent came in to discuss his daughter's difficulty with completing homework. The discussion was focused on

helping the parent be able to better control her by using various online programs. Most conversations with parents demonstrated that you are on the same side as the parent and believe their child is important. In the school district and grade level I worked, the parents were involved with their student's schooling. In addition to with working with the parents to improve student learning you also have to work with other teachers. This allows you to hear new ideas and suggestion. Most meeting in school can be summed as "here is a good idea we can do later." There are many meeting over different topics throughout the semester, there are subject meetings, grade meetings, school wide meetings and others in between. Most meetings are focused on ways to improve the given group and the changes that could be made or some upcoming scheduled item, such as a field trip or meetings. The focus of most meetings was the former, ways to improve. The challenge seemed to be that many suggestions were made, but there was less focus was on creating a plan to implement these suggestions. I am not saying changes were never made, but these were often related to individual students or small revisions in lessons. Even at the beginning of the year conversations some times started with "next year we will", or "I plan to", often these were surrounded by paperwork to ensure teachers were actually doing what they said, but it made every meaningful change more difficult to accomplish.

Chapter 10: Conclusion

Student teaching was the most physically and mentally exhausting thing I have ever done. I learned a lot from the experience. This experience very much changed how I see the world and

myself. I learned how much believing in your students can make them believe in themselves. This makes working with the students so worthwhile, as a teacher you can create a spark inside them that makes them motivated and excited to learn. I also learned a lot about what not to do while teaching. Throughout the program I was encouraged by mentor to borrow her material and use her tests. While working with colleagues to come up with ideas and discussing how to manage difficult classes. Often the material that worked for them, but it did not work for me. I learned a lot about the ways I organize my thoughts, materials and reflections. Not only did I find my own way to organize my ideas I found ways to improve my organization that made planning and executing lessons less stressful. My weakest area still is reflection, but I also felt I made the greatest improvements in this area. The large amount of these improvements were self motivated and gave me a perspective on myself. If I were to teach a class next semester, I would work diligently to create lesson plans and assessments that reflect my personal style. I would refine and extend the classroom management practices I used to create a challenging and safe learning environment for all types of students. My professional goal is to continue this process of reflection to better understand myself and how I work with others. This will serve me well if I enter the classroom as a teacher or if I go into the workplace.

Appendix A:
Well Structured Lessons

Name: [redacted] Date: 11/21/16 Block: 5

Balloon Racers

Objective:

-to create a balloon powered race care which is capable of traveling 5 meters.

-to incorporate Newton's Laws of Motion

-to utilize the Engineering Design Process and Scientific Method in planning, building, and redesigning your car.

What are the constraints/problems that are faced in planning and designing your car?

A. The wheels have to be smooth to aviod as much friction as possible.

B. All material is cheap and recycled.

C. The bottle weighs alot and the ballon can only push so much.

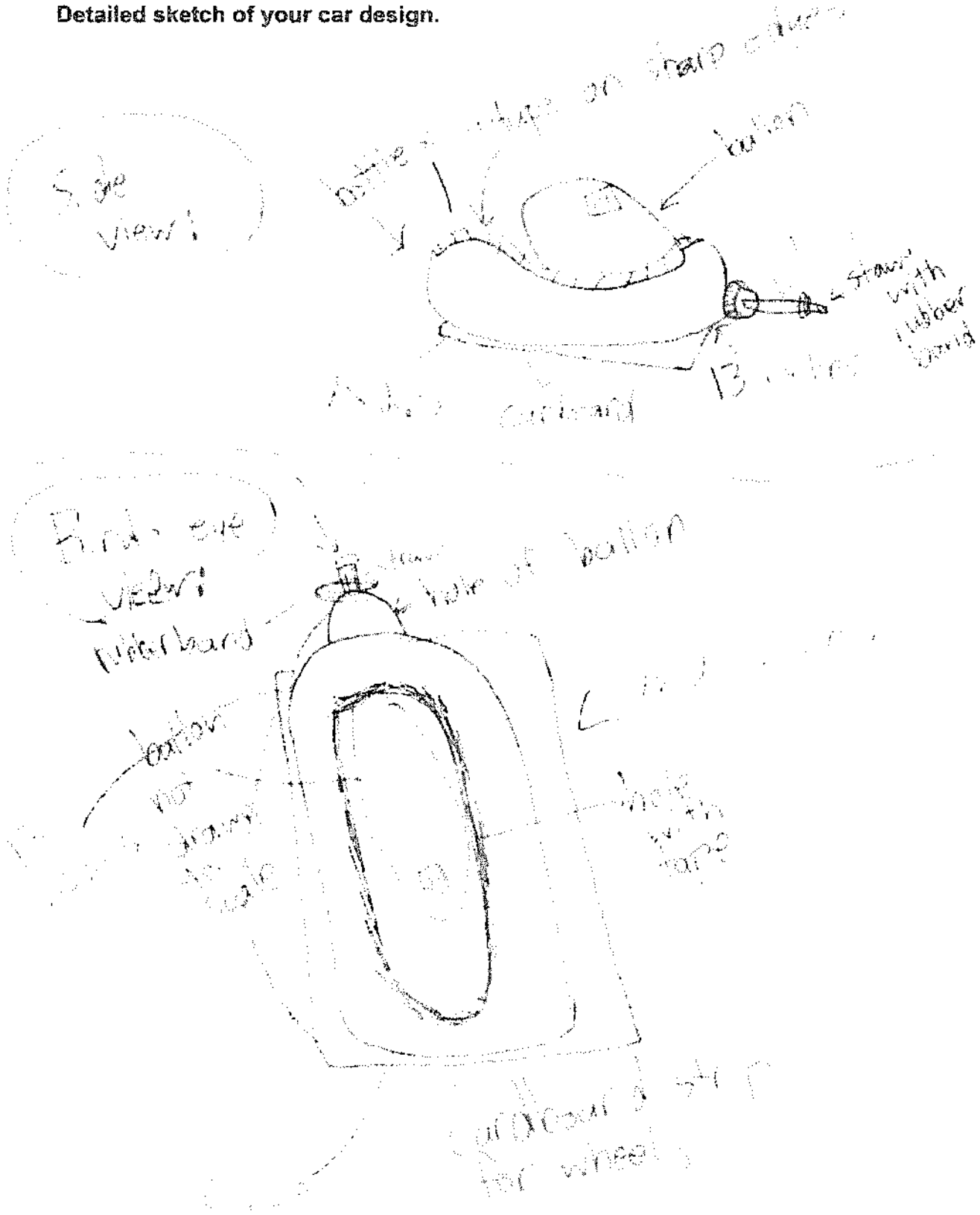
Hypothesis: (Remember, this should be an "If, then" statement.)

If the ballon slowly pushed air out of the bottle, instead of fast, then the product will travel a further distance.

Materials that will be used for building the car and <u>why</u>.

- Cardboard (we figured wheels only created friction and take alot of time, cardboard would be a good enough wheel).
- Pepsi bottle (the ballon on the inside should make it move)
- ballon (travel)
- Tape (make sure the ballon doesnt pop on the hard plastic material)
- Rubber band (make sure a slow amount of air comes from the ballon)
- Straw (the size the hole the ballon hole needs to be)

Detailed sketch of your car design.



Trials	Results /What needs to be redesigned?
Trial 1	Doesn't move, we need to reduce the weight -November 21st
Trial 2	Less weight helped, but too much friction. We should put tape on cardboard -November 21st
Trial 3	Tape doesn't do anything, wheels can help the object move. -November 22nd

Conclusions:

Was your final product successful? Why or why not?

It wasn't succesful because the straw realased to little air to move. I were to focused on the motion, and not the form of the product.

How did you incorporate Newton's Laws of Motion during this lab (be specific)?

We tried to represent acceleration, but we couldn't get past that. The final position was the same as the reference point, so we couldn't even move. Newtons first law of motion was represented by the object not moving. No air pushed in our direction so it stayed on a balanced force.

Building A Structure : Balloon Racers

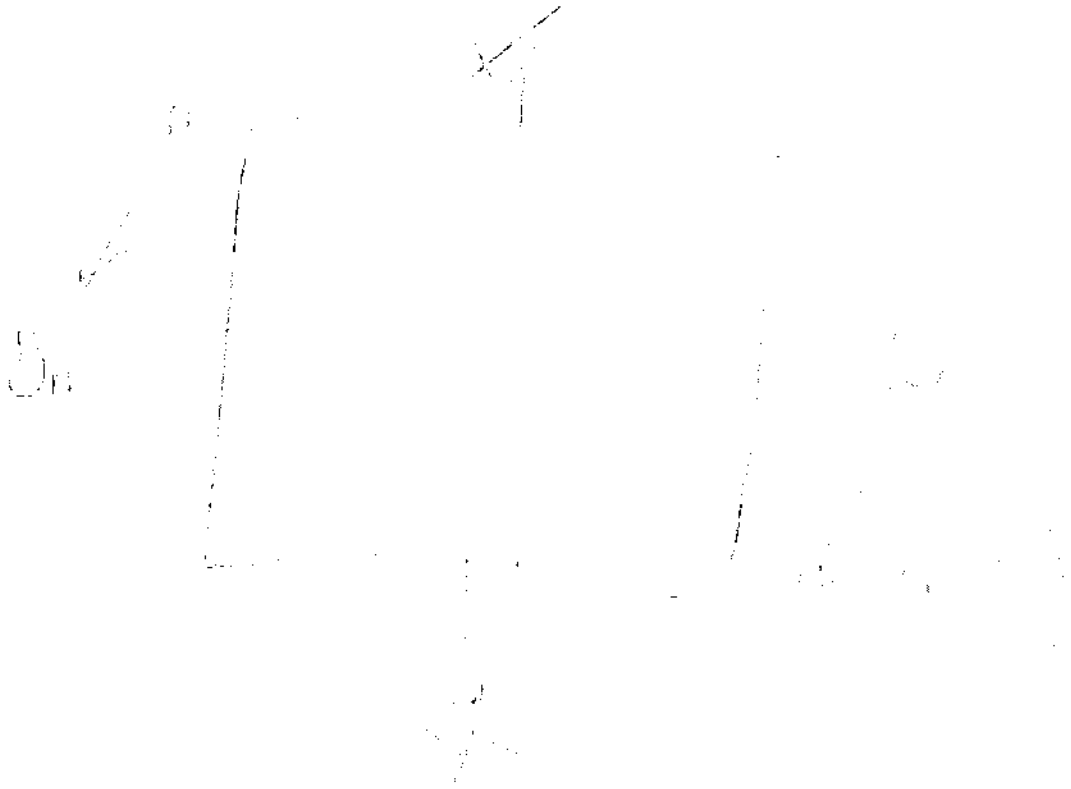
Teacher Name: Mrs. Loach

Student Name: 

CATEGORY	Up to 20 points	Up to 18 points	Up to 15 points	Up to 10 points
Plan	Plan is neat with clear measurements and labeling for all components	Plan is neat with clear measurements and labeling for most components	Plan provides clear measurements and labeling for most components	Plan does not show measurements clearly or is otherwise inadequately labeled.
Modification/Testing	Clear evidence of troubleshooting, testing, and refinements based on data or scientific principles	Clear evidence of troubleshooting, testing and refinements.	Some evidence of troubleshooting, testing and refinements	Little evidence of troubleshooting, testing or refinement.
Construction - Materials	Appropriate materials were selected and creatively modified in ways that made them even better	Appropriate materials were selected and there was an attempt at creative modification to make them even better	Appropriate materials were selected	Inappropriate materials were selected and contributed to a product that performed poorly
Lab Packet	Lab packet provides a complete record of planning, construction, testing, modifications, reasons for modifications, and some reflection about the strategies being used and the results	Lab packet provides a complete record of planning, construction, testing, modifications, and reasons for modifications and testing	Lab packet provides some record of planning, construction, testing, modifications and reasons for modifications and testing.	Lab packet provides little record of planning, construction, testing, and modifications
Components of the lab report/poster	All required elements are present and additional elements that add to the report (ex. thoughtful comments, graphics) have been added	All required elements are present	One required element is missing but additional elements that add to the report (ex. thoughtful comments, graphics) have been added.	Several required elements are missing

Date Created: **Nov 21, 2016 07:21 am (CST)**

Appendix B:
Adjustment to Practice



[redacted] Newton's 3rd Law
Becca

[illegible]

① Why does it have to be un and B

② What is Force pair

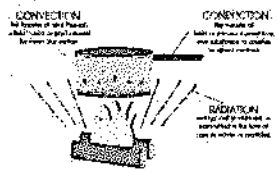
④ ? I don't have 4

Appendix C:
Meeting Diverse Needs

Thermal Energy Transfer

How is Heat Transferred?

- Heat is transferred in Three Different Ways:
  - ...
  - ...
  - ...



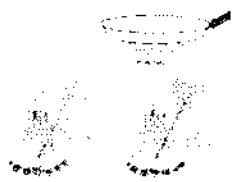
Radiation

- Thermal Energy Transferred through ...

... waves (EM, physical contact of particles)

Conduction

- thermal energy transfer between materials by ... of particles
- Transfer continues until all thermal energy is ... in all matter



Thermal Conductors and Insulators

Conductors

- Materials through which thermal energy flows ...
  - Ex. Copper, Gold, Aluminum

Insulators

- Materials through which thermal energy ...
  - Ex. Wood, Air, Fiberglass

Specific Heat

- The amount of ... needed to raise 1kg of a substance 1 °C
- The ... the specific heat the greater the energy it is to change the temperature

Material	Specific Heat Capacity (J/kg • °C)
...	...
...	...
...	...

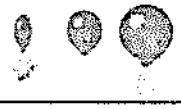
Thermal Expansion and Contraction

Thermal Expansion

- When [illegible]

Thermal Contraction

- When [illegible]

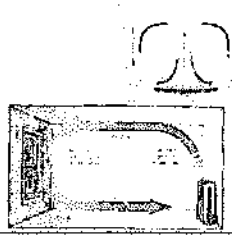


Thermal Expansion and Contraction

- Ex. Cracks in sidewalks are filled in concrete so it can expand and contract in weather
- Metal cools in thermal expansion and contraction [illegible] different rates
- Hot Air Balloons: the volume of the balloon increases so that the air [illegible]

Convection

- Movement of thermal energy by the movement of [illegible] from one part of a material to another
- Hot liquids are denser and heavy. Cold liquids is [illegible]



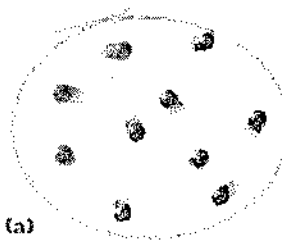
Convection Currents in Earth's Atmosphere

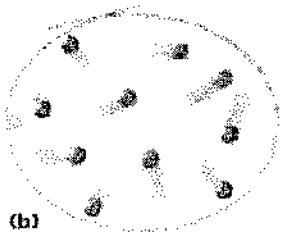
- Convection currents occur in Earth's [illegible] atmosphere to transfer warm and cold materials

Name: Block:

Reading Check on Thermal Energy, Heat and Thermal Energy Transfer

Explain how kinetic energy of the particles relates to differences in temperature. Use the Pictures to help explain.





Fill in table with common temperature scales

Scale	Water Freezes	Water Boils
Celsius		
Kelvin		
Fahrenheit		

An Ice Cube is placed in a bowl of hot soup. Explain how the heat moves, and what eventually happens to the temperature of the system.

Name: Block:

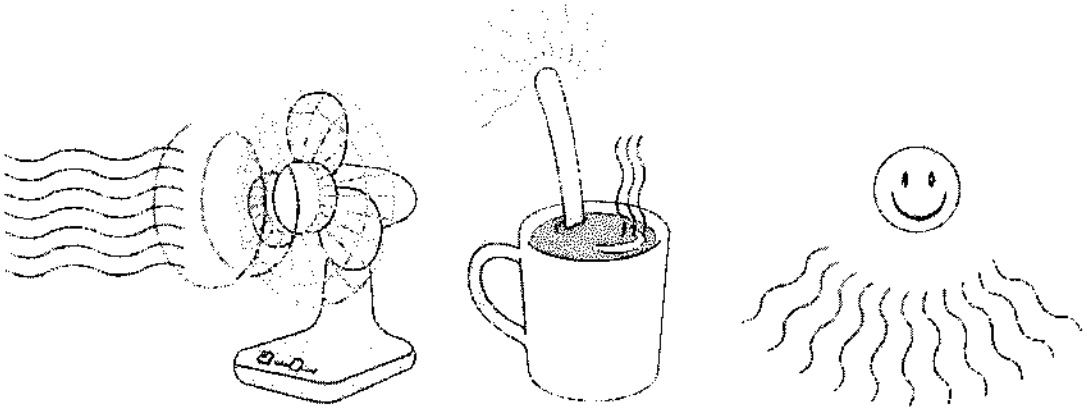
Use the Specific Heat to rank the elements by how much thermal energy is required to change the temperature them.

Least Most

_____ _____ _____

Material	Specific Heat Capacity (J/g • °C)
aluminum	0.897
carbon-ceramic	1.123
steel	0.449

Explain the Thermal Energy Transfer that occurs in each picture.



A B C

A. A fan moving air: _____

_____

_____

B. Stirring a hot drink: _____

_____

_____

C. Sun on a hot day: _____

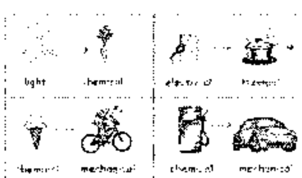
_____

_____

Energy Transformations

Changes Between Forms of Energy

- Changes in Energy are Energy ____________
- Energy can be converted from one form to another



Changes Between Kinetic and Potential Energy

- Most ____________ type of energy conversion
- All three types of Potential Energy can be converted into Kinetic Energy
  - Like stretching a rubber band
  - Drinking Gatorade then going for a run

Kinetic and Potential Energy

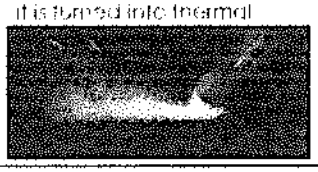
- A
- And Energy

"Energy can be _____ from one form into another or transferred from one form into another, but energy cannot be _____ or _____."

Law of Conservation of Energy

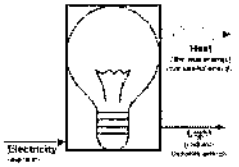
Friction and Conservation of Energy

- Mechanical Energy is not destroyed when it comes in contact with _____ it is turned into thermal energy



Waste Energy

- Waste Energy is _____
  Energy that cannot be used



Appendix D:
High Expectations

Name: [redacted] Block: 1

Energy Transformations Stations Lab

Station 1: Shaking Sand

Follow the directions on the station
You will be shaking sand for 8 minutes and recording the temperature of the sand

Time	Temperature
(before) 0min	70
4min	81
8min	

How did the temperature of the sand change as you shook it? [illegible]

What is the energy transformation that occurred? [illegible]

What causes this energy transformation? [illegible]

Would you create more heat by shaking it slowly or quickly? [illegible]

How can you relate the speed of how fast you shake the sand and how much the temperature changes (how much energy is transformed)?

Station 2: Kinetic Frog

Follow the instructions for folding your kinetic frog. Each team member can make their own or create one as a team.

Experiment with your frog to figure out how to make him jump the farthest. Briefly explain your most effective jumping method. [illegible]

Can you change the amount of energy the frog has by changing the force applied? How does this change the height and distance the frog travels?

Name: Block.

up, the higher the force the farther it will go.

What is the Energy transformation that occurred? potential energy into kinetic energy

When does your frog have Potential Energy? when I press on the back of the frog it has potential energy, when not it

When does our frog have Kinetic Energy? when it comes off of the frog jumps and it has kinetic

Station 3: Nuclear Energy

Read the article on Nuclear Energy and Answer the questions about it. After you finish play the energy transformations card game or work on other parts of the lab.

What is Fission?

What element is used to create nuclear energy? Why?

What is the Energy transformation that happens in nuclear power plants?

What do you think is the biggest advantage and biggest disadvantage of using Nuclear power plants?

Name: [redacted] Block: [illegible]

Energy Transformations Stations Lab

Station 1: Shaking Sand

Follow the directions on the station.
You will be shaking sand for 8 minutes and recording the temperature of the sand.

Time	Temperature
(before) 0min	22 C
4min	25.8 C
8min	[illegible] C

How did the temperature of the sand change as you shook it? [illegible]

What is the energy transformation that occurred? [illegible]

What causes this energy transformation? [illegible]

Would you create more heat by shaking it slowly or quickly? [illegible]

How can you relate the speed of how fast you shake the sand and how much the temperature changes (how much energy is transformed)?

[illegible]

Station 2: Kinetic Frog

Follow the instructions for folding your kinetic frog. Each team member can make their own or create one as a team.

Experiment with your frog to figure out how to make him jump the farthest. Briefly explain your most effective jumping method [illegible]

Can you change the amount of energy the frog has by changing the force applied? How does this change the height and distance the frog travels?

Name: Block:

the more force applied, the farther it goes

What is the Energy transformation that occurred? potential to kinetic

When does your frog have Potential Energy? when it is not in motion

When does our frog have Kinetic Energy? when the frog hops

Station 3: Nuclear Energy

Read the article on Nuclear Energy and Answer the questions about it. After you finish play the energy transformations card game or work on other parts of the lab.

What is Fission? when an atom is split into particles, and a large amount of energy is released

What element is used to create nuclear energy? Why? Uranium, because it is radioactive

What is the Energy transformation that happens in nuclear power plants? Nuclear energy to electric energy

What do you think is the biggest advantage and biggest disadvantage of using Nuclear power plants?

advantage: it produces more energy than coal and is for less polluting

disadvantage: when something goes wrong it's very dangerous

Name: [redacted] Block: 4

Energy Transformations Stations Lab

Station 1: Shaking Sand

Follow the directions on the station.
You will be shaking sand for 8 minutes and recording the temperature of the sand.

Time	Temperature
(before) 0min	24°C
4min	25°C
8min	26°C

How did the temperature of the sand change as you shook it? The temperature [illegible]

What is the energy transformation that occurred? [illegible]

What causes this energy transformation? [illegible]

Would you create more heat by shaking it slowly or quickly? [illegible]

How can you relate the speed of how fast you shake the sand and how much the temperature changes (how much energy is transformed)?

[illegible]

Station 2: Kinetic Frog

Follow the instructions for folding your kinetic frog. Each team member can make their own or create one as a team.

Experiment with your frog to figure out how to make him jump the farthest. Briefly explain your most effective jumping method. [illegible]

Can you change the amount of energy the frog has by changing the force applied? How does this change the height and distance the frog travels? [illegible]

Name: [redacted] Block: 5

What is the Energy transformation that occurred? _____

When does your frog have Potential Energy? _____

When does our frog have Kinetic Energy? _____

Station 3: Nuclear Energy

Read the article on Nuclear Energy and Answer the questions about it. After you finish play the energy transformations card game or work on other parts of the lab.

What is Fission? _____

What element is used to create nuclear energy? Why? _____

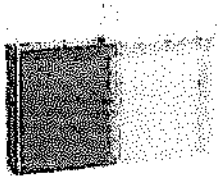
What is the Energy transformation that happens in nuclear power plants? _____

What do you think is the biggest advantage and biggest disadvantage of using Nuclear power plants?

In this Lab you will observe different types of heat transfer and answer questions related to them.

Colored Water.

In a split tank on side will be filled with Hot water (Yellow) and one side is filled with cold water (Blue).



Draw a picture of what you think will happen when the divider is removed. Explain Why.

Why?

The divider is removed from the tank and the water is allowed to move throughout the tank. Record your observations of what happened.

Draw what the tank of water looks like after the divider was removed and the water settled.

Was your guess about what would happen right? Why or Why Not?

Why did this happen? What kind of Heat Transfer occurred?

Under a Heat Lamp

There are 2 pieces (1 white and 1 black) of paper under a heat lamp. On each piece of paper is a small glass of room temp water.

We will be recording the temperature of both glasses of water over the course of couple of minutes to see how the color of the paper affects how much the water heats up.

Time	Temperature on Black Paper	Temperature on White Paper
(Before) 0:00		
0:30		
1:00		
2:00		
4:00		

Where did the heat come from? (What kind of energy transformation occurred?)

Which paper (Black or White) made the water hotter? Why do you think this happened?

Describe the Energy Transformation that occurred by filling in the blanks.

The lamp transformed _____ energy into _____ energy that I could see and _____ energy that was measured by the thermometer.

Chocolate Chips

6 chocolate chips are lined up on a piece of foil. A candle is placed under one side of the tin foil and the time at which each chip starts to melt will be recorded.

Chip	Time to start melting
1	
2	
3	
4	
5	
6	

Record your observations as the tin foil heats up and the chips melt. (What happens to the first chip as more time passes?)

Draw a diagram of the lab set-up. Use arrows to show which way the thermal energy moved.

What types of energy transfer is occurring as we heat the chocolate chips?

Appendix E:
Reflective Practice

Lesson 4 Newton's Third Law

Incorrect

Scan *Lesson 4. Then write three questions that you have about Newton's third law of motion in your Science Journal. Try to answer your questions as you read.*

Main Idea

Opposite Forces
I found this on page ____.

Newton's Third Law of Motion
I found this on page ____.

I found this on page ____.

Details

Predict *the corresponding result for each force.*

Force	Result
An airplane's jet engine pushes air toward the back of the plane.	
A fisherman tosses an anchor away from his boat.	
A skier digs ski poles into the snowy ground and pushes down and backward.	The skier will move forward

Summarize Newton's third law of motion *in your own words.*

(For every action there is a equal and opposite reaction

Define force pair, *and identify the 2 parts of a* force pair.

Force pair:

Main Idea

I found this on page ____.

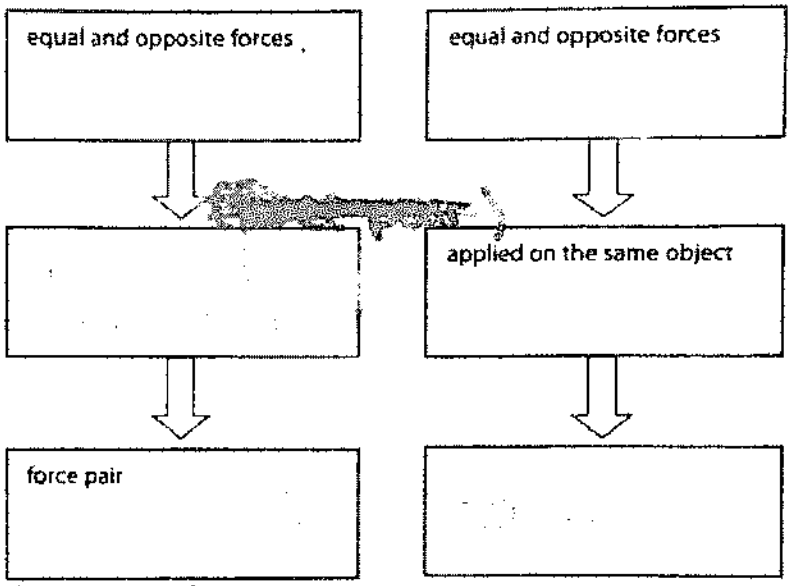
Details

Compare *forces in a* force pair.

Action force	Reaction force
Size	
Direction	

I found this on page ____.

Analyze *why* force pairs *do not cancel each other.*



I found this on page ____.

Summarize *the comparison above.*

_____

_____

I found this on page ____.

Classify *forces in the sentences below. Underline action forces; circle reaction forces.*

A swimmer pushes his arms back against the water in a pool, and the water pushes forward against his arms.

A rocket engine pushes hot gas out in a downward direction, and the hot gas pushes upward on the engine.

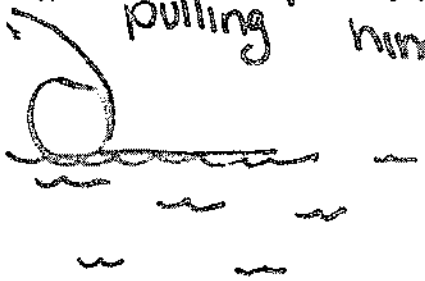
A trampoline hurls a girl into the air.

Main Idea

Using Newton's Third Law of Motion

I found this on page _____.

Ex. action reaction
his arm the water
~~push~~ pulling pushing him



Force pair

as his arm is moving foword the water is posing him

Momentum

I found this on page _____.

I found this on page _____.

Details

Model Newton's third law of motion *in a drawing. Label these terms:*

reaction

- action force
- force
- force pair

Define momentum.

_____

_____

Explain *the equation for* momentum.

$p = m \times v$

p stands for	*m* stands for	*v* stands for
(kg · m/s)		

Main Idea

I found this on page _____.

Details

Analyze momentum. *Determine the* momentum *for each object. Circle the object that would be more difficult to stop.*

a 10-kg shopping cart moving at 5 m/s	a 2-kg ball moving at 28 m/s

Conservation of Momentum

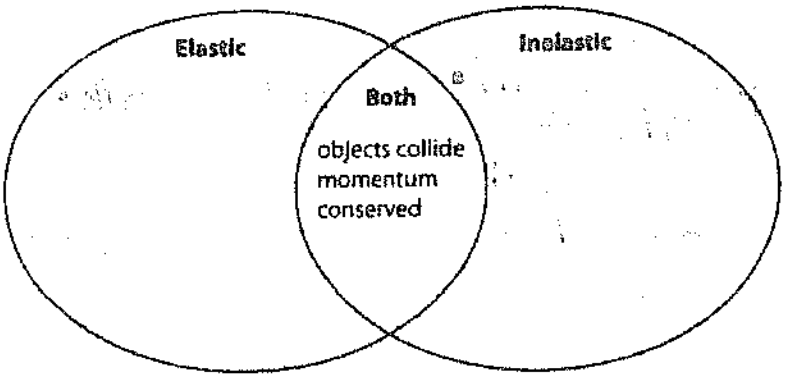
I found this on page _____.

Summarize *the* law of conservation of momentum.

The _____ momentum of a group of objects _____ act on the objects.

I found this on page _____.

Contrast *types of collisions.*



Connect It If you have ever been in a car at a stoplight beside a large truck, you probably noticed that the car took off from the stop much more quickly than the truck. Explain why it is harder to start and stop the motion of a large truck than that of a small car.

_____

_____

_____

_____

Lesson 4: Newton's Third Law

6.5

Scan *Lesson 4. Then write three questions that you have about Newton's third law of motion in your Science Journal. Try to answer your questions as you read.*

Main Idea

Opposite Forces

I found this on page _____

Newton's Third Law of Motion

I found this on page _____

I found this on page _____

Details

Predict *the corresponding result for each force.*

Force	Result
An airplane's jet engine pushes air toward the back of the plane.	
A fisherman tosses an anchor away from his boat.	
A skier digs ski poles into the snowy ground and pushes down and backward.	

Summarize Newton's third law of motion *in your own words.*

_____

_____

_____

_____

Define force pair, *and identify the 2 parts of a* force pair.

Force pair:

Main Idea

I found this on page _____.

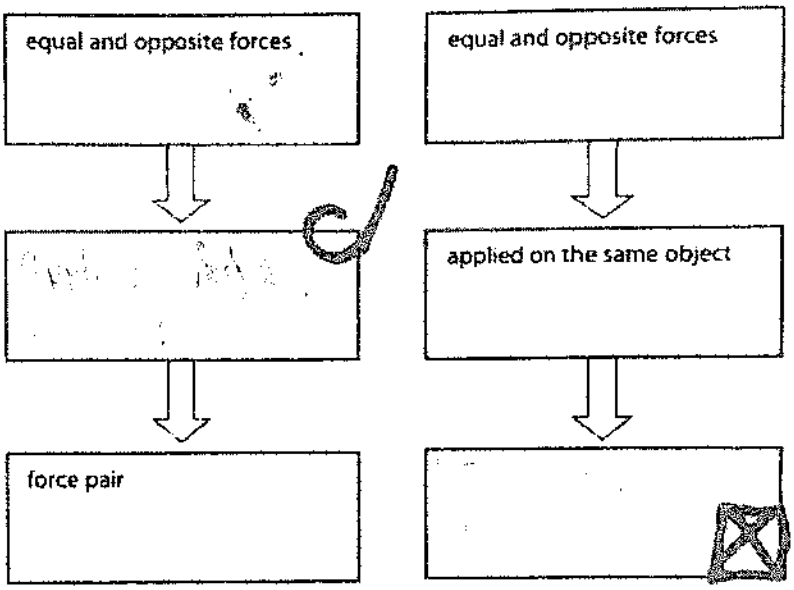
Details

Compare *forces in a* force pair.

Action force	Reaction force
Size	
Direction	

I found this on page _____.

Analyze *why* force pairs *do not cancel each other.*



I found this on page _____.

Summarize *the comparison above.*

_____

_____

I found this on page _____.

Classify *forces in the sentences below. Underline action forces; circle reaction forces.*

A swimmer pushes his arms back against the water in a pool, and the water pushes forward against his arms.

A rocket engine pushes hot gas out in a downward direction, and the hot gas pushes upward on the engine.

A trampoline hurls a girl into the air.

Main Idea

Using Newton's Third Law of Motion

I found this on page _____.

Details

Model Newton's third law of motion *in a drawing. Label these terms:*

- action force
- force
- force pair

Momentum

I found this on page _____.

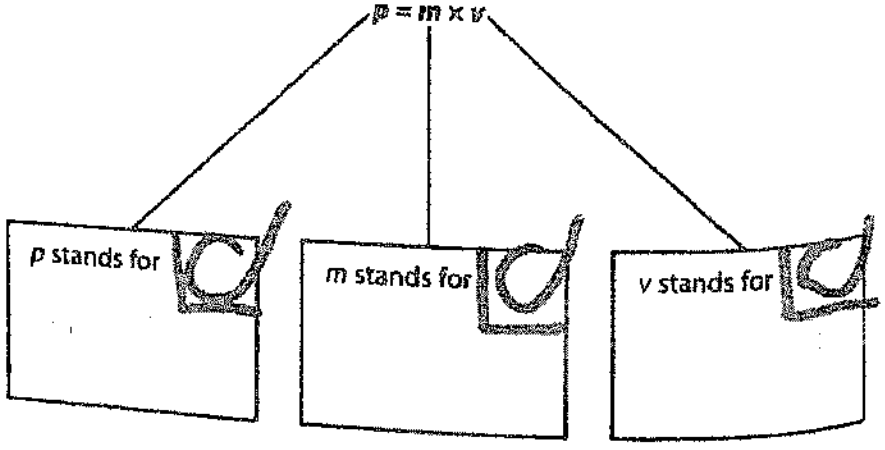
Define momentum.

_____

_____

I found this on page _____.

Explain *the equation for* momentum.



Main Idea

I found this on page _____.

Details

Analyze momentum. *Determine the* momentum *for each object. Circle the object that would be more difficult to stop.*

a 10-kg shopping cart moving at 5 m/s	a 2-kg ball moving at 28 m/s

Conservation of Momentum

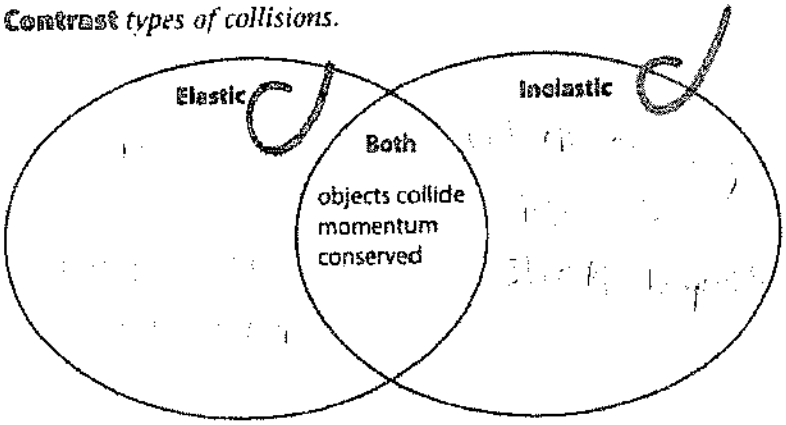
I found this on page _____.

Summarize *the law* of conservation of momentum.

The _____ momentum of a group of objects _____ act on the objects.

I found this on page _____.

Contrast *types of collisions.*



Connect It If you have ever been in a car at a stoplight beside a large truck, you probably noticed that the car took off from the stop much more quickly than the truck. Explain why it is harder to start and stop the motion of a large truck than that of a small car.

_____

_____

_____

_____

Lesson 2: Energy Transformations

Changes Between Forms of Energy
Another term for "energy changing form"

Changes between Kinetic and Potential Energy

Fill in the boxes for how much Kinetic Energy(K) and Potential Energy (P) at each position

A. B. C. D.

Why does Potential energy decrease as the ball bounces and doesn't go as high?

The Law of Conservation of Energy
State the Law of Conservation of Energy:

Energy cannot be _____ or _____
Friction turns_____ energy into _____energy

Using Energy
Fill out the chart stating the energy transferred in each example

Example	Energy Transformation
A heater warms a room	
Music plays through your speakers	
You jump off a diving board	
You light a fire	

Waste Energy is _____
The most common type of waste energy is _____
Energy is wasted in _____ where we want _____ from _____

Explain the transfer of Energy in your iPad, and think about whether their might be waste energy.

Name: _____ Block:_____

Newton's Laws TEST

1. A book is sitting on the dashboard of a car that is stopped at a traffic light. As the car starts to move forward, the book slides backwards off the dashboard. Use the term *inertia* to explain what happened.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

1. A man hits a golf ball (0.2 kg) which accelerates at a rate of 20 m/s^2.What amount of force acted on the ball?

Name: _____ Block: _____

Quiz: Newton's First Law

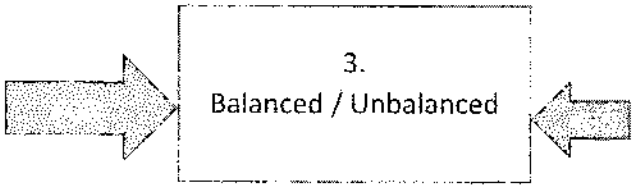
1. Define Newton's First Law: _____

_____

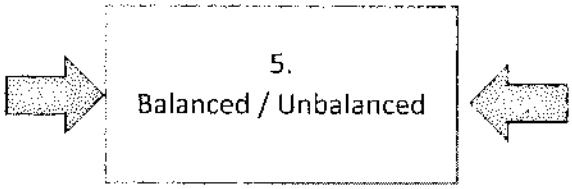
_____.

Find the net force on an object and circle whether its balanced or unbalanced. Reference Direction is to the right.

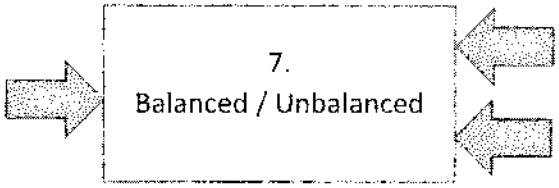
2. Net Force: _____



4. Net Force: _____



6. Net Force: _____



8. According to Newton's First Law, what would happen to a train travelling east at a constant speed of 30 MPH if no unbalanced force acts on the train?

   A. The train would continue moving east with a speed of 30MPH
   B. The train would slow down and eventually come to a stop
   C. The train would slowly increase its velocity
   D. The train would slow down but never come to a stop

9. Two boys are pulling on a rope. Tom is pulling to the left with 30N of force, and Jerry is pulling to the right with 30N of Force. What will happen to the boys?

   A. They will start moving to the Left
   B. They will not move.
   C. They will start moving to the Right
   D. They will move closer together.

10. Jonny is sitting in the back seat of the car with an open can of soda, when June slams on the breaks of the car the can of soda flies forward and spills all over June. Why does this happen?

    A. Centripetal Force
    B. Inertia
    C. Balanced Force
    D. Friction

Vocabulary:

Fill in the Blank with the Correct Letter using the Word Bank below. Each work is only used once.

A. Inertia
B. Balanced Force
C. Unbalanced Force
D. Net Force
E. Positive
F. Negative
G. Friction

11. When a(n) _____ acts on an object the Net Force is ON.

12. If the Reference Direction is to the left, then a force to the left is _____. While a force to the right is _____.

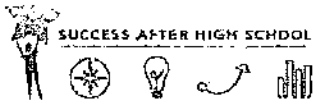
13. When you sum all forces acting on an object you find the _____.

14. If a(n) _____ acts on an object its velocity will change.

15. A book sits on a table and doesn't move. This happens because _____.

16. _____ is an unbalanced force that slows an object down, and cannot be completely removed on earth.

Appendix F:
The Survey



CAP Student Feedback Survey

Grades 6-12: Short Form

Name of **teacher**: _____ Date: _____

Directions: Read each statement and then choose **one** answer choice that you think fits best. There are no right or wrong answers. Your teacher will use your class's responses to better understand what it's like to be a student in this class. Your teacher will not see your individual answers.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	My teacher demonstrates that mistakes are a part of learning.	○	◉	○	○
2.	My teacher asks us to summarize what we have learned in a lesson.	◉	○	○	○
3.	Students push each other to do better work in this class.	○	○	◉	○
4.	I am able to connect what we learn in this class to what we learn in other subjects.	○	◉	○	○
5.	My teacher uses open-ended questions that enable me to think of multiple possible answers.	○	◉	○	○
6.	In discussing my work, my teacher uses a positive tone even if my work needs improvement.	◉	○	○	○
7.	In this class, students review each other's work and provide each other with helpful advice on how to improve.	○	◉	○	○
8.	When asked, I can explain what I am learning and why.	○	○	○	○
9.	In this class, other students take the time to listen to my ideas.	○	◉	○	○
10.	The level of my work in this class goes beyond what I thought I was able to do.	○	○	◉	○
11.	The material in this class is clearly taught.	○	◉	○	○
12.	If I finish my work early in class, my teacher has me do more challenging work.	◉	○	○	○
13.	My teacher asks me to rate my understanding of what we have learned in class.	◉	○	○	○
14.	To help me understand, my teacher uses my interests to explain difficult ideas to me.	○	◉	○	○

CAP Student Feedback Survey

Grades 6-12: Short Form

		Strongly Agree	Agree	Disagree	Strongly Disagree
15.	In this class, students work together to help each other learn difficult content.	O	●	O	O
16.	In this class, students are asked to teach (or model) to other classmates a part or whole lesson.	●	O	O	O
17.	Our class stays on task and does not waste time.	O	●	O	O
18.	During a lesson, my teacher is quick to change how he or she teaches if the class does not understand (e.g., switch from using written explanations to using diagrams).	O	●	O	O
19.	My teacher encourages us to accept different points of view when they are expressed in class.	O	●	O	O
20.	I can show my learning in many ways (e.g., writing, graphs, pictures) in this class.	O	●	O	O

OPTIONAL: If you have any additional feedback for your teacher, please share it here.

CAP Student Feedback Survey

Grades 6-12: Short Form

SUCCESS AFTER HIGH SCHOOL

Name of **teacher**: [redacted] Date: 10/28/16

Directions: Read each statement and then choose **one** answer choice that you think fits best. There are no right or wrong answers. Your teacher will use your class's responses to better understand what it's like to be a student in this class. Your teacher will not see your individual answers.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	My teacher demonstrates that mistakes are a part of learning.	○	○	●	○
2.	My teacher asks us to summarize what we have learned in a lesson.	○	○	●	○
3.	Students push each other to do better work in this class.	○	●	○	○
4.	I am able to connect what we learn in this class to what we learn in other subjects.	○	●	○	○
5.	My teacher uses open-ended questions that enable me to think of multiple possible answers.	○	○	●	○
6.	In discussing my work, my teacher uses a positive tone even if my work needs improvement.	○	●	○	○
7.	In this class, students review each other's work and provide each other with helpful advice on how to improve.	○	●	○	○
8.	When asked, I can explain what I am learning and why.	○	●	○	○
9.	In this class, other students take the time to listen to my ideas.	●	○	○	○
10.	The level of my work in this class goes beyond what I thought I was able to do.	○	●	○	○
11.	The material in this class is clearly taught.	○	○	●	○
12.	If I finish my work early in class, my teacher has me do more challenging work.	●	○	○	○
13.	My teacher asks me to rate my understanding of what we have learned in class.	○	○	●	○
14.	To help me understand, my teacher uses my interests to explain difficult ideas to me.	○	○	●	○

CAP Student Feedback Survey

Grades 6-12: Short Form

		Strongly Agree	Agree	Disagree	Strongly Disagree
15.	In this class, students work together to help each other learn difficult content.	●	○	○	○
16.	In this class, students are asked to teach (or model) to other classmates a part or whole lesson.	○	○	●	○
17.	Our class stays on task and does not waste time.	○	●	○	○
18.	During a lesson, my teacher is quick to change how he or she teaches if the class does not understand (e.g., switch from using written explanations to using diagrams).	○	○	●	○
19.	My teacher encourages us to accept different points of view when they are expressed in class.	○	●	○	○
20.	I can show my learning in many ways (e.g., writing, graphs, pictures) in this class.	○	●	○	○

OPTIONAL: If you have any additional feedback for your teacher, please share it here.

When we make a mistake on a [illegible] [illegible] please don't get super angry. There's no need to get angry! Sometimes it's not that easy to understand your directions. Plus we are in middle school and we don't like to raise our hands. [illegible] please [illegible] [illegible] [illegible] because we don't raise our hands. It [illegible] [illegible] we need help on it.

SB 7

CAP Student Feedback Survey

Grades 6-12: Short Form

SUCCESS AFTER HIGH SCHOOL

Name of **teacher**: _____ Date: _____

Directions: Read each statement and then choose **one** answer choice that you think fits best. There are no right or wrong answers. Your teacher will use your class's responses to better understand what it's like to be a student in this class. Your teacher will not see your individual answers.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	My teacher demonstrates that mistakes are a part of learning.	○	●	○	○
2.	My teacher asks us to summarize what we have learned in a lesson.	●	○	○	○
3.	Students push each other to do better work in this class.	○	●	○	○
4.	I am able to connect what we learn in this class to what we learn in other subjects.	○	●	○	○
5.	My teacher uses open-ended questions that enable me to think of multiple possible answers.	○	●	○	○
6.	In discussing my work, my teacher uses a positive tone even if my work needs improvement.	○	○	●	○
7.	In this class, students review each other's work and provide each other with helpful advice on how to improve.	○	○	●	○
8.	When asked, I can explain what I am learning and why.	○	●	○	○
9.	In this class, other students take the time to listen to my ideas.	○	○	●	○
10.	The level of my work in this class goes beyond what I thought I was able to do.	○	●	○	○
11.	The material in this class is clearly taught.	○	●	○	○
12.	If I finish my work early in class, my teacher has me do more challenging work.	○	○	●	○
13.	My teacher asks me to rate my understanding of what we have learned in class.	○	○	●	○
14.	To help me understand, my teacher uses my interests to explain difficult ideas to me.	○	●	○	○

CAP Student Feedback Survey

Grades 6-12: Short Form

		Strongly Agree	Agree	Disagree	Strongly Disagree
15.	In this class, students work together to help each other learn difficult content.	○	○	◉	○
16.	In this class, students are asked to teach (or model) to other classmates a part or whole lesson.	○	○	◉	○
17.	Our class stays on task and does not waste time.	○	○	○	◉
18.	During a lesson, my teacher is quick to change how he or she teaches if the class does not understand (e.g., switch from using written explanations to using diagrams).	○	◉	○	○
19.	My teacher encourages us to accept different points of view when they are expressed in class.	○	◉	○	○
20.	I can show my learning in many ways (e.g., writing, graphs, pictures) in this class.	○	◉	○	○

OPTIONAL: If you have any additional feedback for your teacher, please share it here:

CAP Student Feedback Survey

Grades 6-12: Short Form

Name of **teacher**: _____ Date: _____

Directions: Read each statement and then choose **one** answer choice that you think fits best. There are no right or wrong answers. Your teacher will use your class's responses to better understand what it's like to be a student in this class. Your teacher will not see your individual answers.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	My teacher demonstrates that mistakes are a part of learning.	●	○	○	○
2.	My teacher asks us to summarize what we have learned in a lesson.	○	○	○	○
3.	Students push each other to do better work in this class.	○	●	○	○
4.	I am able to connect what we learn in this class to what we learn in other subjects.	●	○	○	○
5.	My teacher uses open-ended questions that enable me to think of multiple possible answers.	○	●	○	○
6.	In discussing my work, my teacher uses a positive tone even if my work needs improvement.	●	○	○	○
7.	In this class, students review each other's work and provide each other with helpful advice on how to improve.	●	○	○	○
8.	When asked, I can explain what I am learning and why.	●	○	○	○
9.	In this class, other students take the time to listen to my ideas.	●	○	○	○
10.	The level of my work in this class goes beyond what I thought I was able to do.	●	○	○	○
11.	The material in this class is clearly taught.	●	○	○	○
12.	If I finish my work early in class, my teacher has me do more challenging work.	●	○	○	○
13.	My teacher asks me to rate my understanding of what we have learned in class.	●	○	○	○
14.	To help me understand, my teacher uses my interests to explain difficult ideas to me.	●	○	○	○

CAP Student Feedback Survey

Grades 6-12: Short Form

		Strongly Agree	Agree	Disagree	Strongly Disagree
15.	In this class, students work together to help each other learn difficult content.	◉	○	○	○
16.	In this class, students are asked to teach (or model) to other classmates a part or whole lesson.	◉	○	○	○
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18.	During a lesson, my teacher is quick to change how he or she teaches if the class does not understand (e.g., switch from using written explanations to using diagrams).	◉	○	○	○
19.	My teacher encourages us to accept different points of view when they are expressed in class.	◉	○	○	○
20.	I can show my learning in many ways (e.g., writing, graphs, pictures) in this class.	◉	○	○	○

OPTIONAL: If you have any additional feedback for your teacher, please share it here.

SUCCESS AFTER HIGH SCHOOL

CAP Student Feedback Survey

Grades 6-12: Short Form

Name of **teacher**: [illegible] Date: 10/28/16

Directions: Read each statement and then choose **one** answer choice that you think fits best. There are no right or wrong answers. Your teacher will use your class's responses to better understand what it's like to be a student in this class. Your teacher will not see your individual answers.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	My teacher demonstrates that mistakes are a part of learning.	O	O	✓	O
2.	My teacher asks us to summarize what we have learned in a lesson.	O	O	✓	O
3.	Students push each other to do better work in this class.	O	✓	O	O
4.	I am able to connect what we learn in this class to what we learn in other subjects.	O	✓	O	O
5.	My teacher uses open-ended questions that enable me to think of multiple possible answers.	O	O	✓	O
6.	In discussing my work, my teacher uses a positive tone even if my work needs improvement.	O	O	✓	O
7.	In this class, students review each other's work and provide each other with helpful advice on how to improve.	O	✓	O	O
8.	When asked, I can explain what I am learning and why.	O	✓	O	O
9.	In this class, other students take the time to listen to my ideas.	O	✓	O	O
10.	The level of my work in this class goes beyond what I thought I was able to do.	✓	O	O	O
11.	The material in this class is clearly taught.	O	O	✓	O
12.	If I finish my work early in class, my teacher has me do more challenging work.	O	O	✓	O
13.	My teacher asks me to rate my understanding of what we have learned in class.	O	O	✓	O
14.	To help me understand, my teacher uses my interests to explain difficult ideas to me.	O	O	✓	O

CAP Student Feedback Survey

Grades 6-12: Short Form

		Strongly Agree	Agree	Disagree	Strongly Disagree
15.	In this class, students work together to help each other learn difficult content.	✓	○	○	○
16.	In this class, students are asked to teach (or model) to other classmates a part or whole lesson.	○	○	✓	○
17.	Our class stays on task and does not waste time.	○	✓	○	○
18.	During a lesson, my teacher is quick to change how he or she teaches if the class does not understand (e.g., switch from using written explanations to using diagrams).	○	○	✓	○
19.	My teacher encourages us to accept different points of view when they are expressed in class.	○	✓	○	○
20.	I can show my learning in many ways (e.g., writing, graphs, pictures) in this class.	○	✓	○	○

OPTIONAL: If you have any additional feedback for your teacher, please share it here.

She kinda knows what she is talking about just then sometimes when she is talking about it it's hard to understand. Then when she is trying to help I think she tries, but isn't that good at explaining sometimes I wish Mrs. Leach will explain and actually teach.