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Write up a brief outline indicating:
a) **Your research question:** How do we engage unmotivated students towards math?
b) **Why are you concerned - why is this question important to you?**
Some concerns we have:

- It's unclear if the student knows the work or not
- The potential of the student falling behind and the negative impact on their exams.
- When they are not engaged, they are not paying attention. They can be distracting other students as well
- Students should come to school excited and ready to learn. If they are not engaged, they will not want to learn.
- Every student learns differently, so we need to know a variety of ways to engage them.

This question is important to us because we want to be able to help students who are struggling or who are not fully engaged in the lessons we are teaching when we become teachers. We want to learn how to implement different strategies before, during and after lessons to continue to motivate students and give them opportunities to be engaged.

**Describe the context in which you will collect the data. (Will you observe or survey a class, a small group, or one student?)** We will observe one or two students, this way, we can really examine student engagement and focus on only 2 students. By only focusing on one or two students, we are able to make close examinations.

c) **Where might you look for information to create an intervention?**

- **Classmates? Professor? Textbook? Other resources**? We can look for information to create an intervention via the internet, talking to our cooperating teachers, and discussing topics with our professors who have experience working with children. When you get advice from someone who has witnessed lack of engagement, you will be able to know what to look out for and how to help these students. Moreover, we can look at the textbook for any advice regarding this issue and where in our lesson plans, we could best engage them (hook, mini lesson, etc).

d) **How could you collect data so that you will know if your plan resulted in change?** (What will the formative and summative assessments be?)
**Formative assessments:** We can do lesson exit tickets so that the students can summarize what they have learned. Exit tickets are short and simple, but can tell us so much about our students

and the knowledge they retained. In addition, we can do a thumbs up if they understood the lesson and a thumbs down if they did not.

**Summative assessments:** We would see how the student does on upcoming math exams and quizzes given by our cooperating teachers. This will allow students to focus on one unit/lesson at a time, and this would hopefully make them less stressed because there will not be much material on these quizzes/exams. If the students do well on the exam/quizzes, we would know if the strategies we've implemented for the student worked/didn't work. We will also know if they've become motivated/engaged in math.

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## Action Plans / Methodology

**Gianna:** After student teaching for a few weeks now, I was able to observe a few ways that my cooperating teachers have been able to motivate students who may not enjoy math, or are unmotivated during lessons. The first method that I witnessed and I really enjoyed was the use of behavior tracking charts. My cooperating teachers used a small index card and added little star stickers each day that the student was motivated or on task. After the student reached 5 stars, they were able to get a special prize. This incentive motivates students to pay attention and keep focus.

Another method that I saw that I would use in the classroom is to have more "hands-on" tasks. When it comes to math, educators can do a lot of fun activities with their students. They have many resources to use, such as TeachersPayTeachers, and even pinterest. You can find many fun math activities and allow students to experience math in an exciting way. In this course, we have done a lot of hands-on activities that we can bring with us in our future classrooms. For example, the measurement task made measurements fun for students, and it was an engaging way to learn about measurement.

A change that I am planning to make for students is to allow them to receive awards/prizes for their hard work. If I see a student working hard and efficiently, I will give them a small treat or prize. Treats can be lollipops, small toys, bonus points on a test or quiz, and even a "no homework" pass. In the classroom I am in, we give out incentives to those students who are unmotivated. For example, I work one-on-one with a boy who does not like math at all. He is not motivated. When the class does their work, he is looking around the room and complaining about doing the work. I tell him, "If you finish the first question, and then do the rest, I will give you a lollipop at the end of the day." This motivates him because he then has a small treat to look forward to at the end of the day. Some educators are against this because it seems like bribery, but honestly, this method has worked for years. I remember being in elementary school, and my teachers would offer us incentives for working hard. I see it as a reward, and if it gets the students motivated, engaged, and focused, there is absolutely no harm in offering them a small treat.

**Michael:** In my classroom, I have noticed my cooperating teacher relating math problems to something children will like. For example, when it was the weekend of Halloween, the students were learning multiplication and using arrays to solve the problems. The problem was about candy, specifically a Hershey's chocolate bar and there was a picture of it. This was used to show children that the chocolate bar can be an array. A teacher also can make a math problem relatable to the students. For instance, if you are teaching time, you could make a problem focusing on your morning, something like my EECE 360 professor suggested: "I woke up and it took me 2 minutes to get dressed and 10 minutes to brush my teeth. Then I ate breakfast for 20 minutes and took the bus for 25 minutes to get to school. How many minutes did it take me to arrive at school?" There can be different strategies to solve problems and I saw that it makes students engaged and excited to use their method which works best for them to learn. Moreover, if they came back from gym or lunch, I saw that having a brain break or a time for them to play with their lava lamps allows them to re-energize and feel ready to do math.

There is extrinsic motivation, in which my cooperating teacher hole punches a student's card and if they receive 10 hole punches, they can receive a prize. I can use this method to see if the pupils are being motivated to do the work. In addition, I can sit with the unmotivated students and help them with the problem by asking guiding questions, but I can show them that they can do it and it serves as effective motivation. It showcases to them that they can do it and that I believe in them and that praise can positively affect them. I plan to try this with an unmotivated student. These are some incentives that I would try. We have a chart focusing on "CUBES", as it helps students with word problems. The C stands for Circling the numbers, the U is to underline the question, the B is to box the key words, the E is to Eliminate/Evaluate which parts of the problem are not needed, and the S is to Solve and Check, which allows students to do the problem and to check it. I see not all students use this approach, but it is important and I believe that if it is explained correctly on why it is beneficial for them, they will be motivated and engaged in word problems.

**Stephanie:** So far my experience with seeing math in the 3rd grade classroom I'm currently in is not the best. In general I feel like the lessons are rushed, the students are not engaged enough or motivated and there are not many manipulatives offered to help students struggling with some of the concepts being taught. In my class, I have noticed about 2 students who are very unmotivated and not engaged at all in the math lessons. I know one student seems to know the material but another student doesn't seem like he knows the material hence while he may not be motivated or engaged. These students prefer to draw, or read a book and just have their head down during the lesson. I've been thinking of ways of how I could help these two individual students become more engaged/motivated in the lessons being taught. I know one way to motivate students is allowing them to be able to go to the back of the room and play math games on the computer based on what is being learned in class to get them more interested since just the standard watching the lessons on the whiteboard is not enough for them.

I think giving the student a choice could also benefit them, so for example. The first

10-15 minutes if the student can show that they are focusing and showing effort, then they can be offered 3-5 mins of doing something after that they enjoy, like drawing or reading a book. I think this would be a great way to motivate them to want to try and show effort because they will get to do something they enjoy after.

Presenting these students with manipulatives can also help with the math being taught. Students are currently learning about division and multiplication strategies. In my student teaching class, we were shown a video of a teacher conducting a third grade math lesson on multiplication and division. I was able to get some ideas from the video, such as using playing cards for multiplication. The card game was War but instead of who had the highest card, the students had to multiply the two number cards and the student who got it correct the fastest they won that set of cards. I thought this was a cool and engaging way to be able to motivate students. Overall, I think the best way to help these two students in mind is to work with them one and one, allowing them to have a choice on what they feel would help them at that given moment, and offering incentives such as being able to read/draw after a certain amount of time, allowing time to play math games, and etc…

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## Statistical Inquiry

Our statistical inquiry revolves around student motivation. We will engage in our statistical inquiry by doing a lot of research. We will look into why some students are motivated, but our main focus will be on why some students are not motivated at all. We will look at other educators' experiences and ideas. We will also observe in our own classrooms to see when we notice students losing focus/motivation. We will observe what motivates the students in the classroom, and what makes them uninterested in the lesson. One formative assessment we plan to use is an exit slip. We will ask the unmotivated student why they do not feel excited while learning math. We will also ask them what ways can we change the way we teach in order to make them motivated to learn. Student feedback is extremely important, especially because the students are the ones we are talking about/worried about. The exit slip will help us see what is going on mentally for the student. They will be able to tell us why they feel unmotivated. We feel that allowing the student to write about why they are unmotivated is a good strategy because some students feel embarrassed to talk about their feelings. We want to make sure that our students are always excited to learn and that they have motivation to be successful.

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## Reflections / Data & Analysis

**Gianna:** Being able to see my action plan come to life was a rewarding experience. After thinking about my research question, I felt that the best way to get answers as to why students

are unmotivated, and how to motivate them, would be to directly observe in the classroom I am student teaching in. Math is a subject in my classroom that many students love, but we have a few students who are never engaged or motivated. First, I sat and observed the classroom to see what triggers the child's loss of motivation. For one particular student, when my teachers say, “please take out your math notebooks”, his whole mood just changes. I went up to this student and asked if he was okay, and he told me that he does not like math because it is too hard for him to understand. I then sat with this child, and helped him out during the math lesson. This motivated him a little, but not as much as I would have liked. My teachers and I talk about the children's motivation and engagement regularly. I seek a lot of guidance for them, because they have been teaching for a long time and are very positive influences. We notice some things, and bring it to each other's attention. My teachers came up with the idea to start a sticker chart, and since they have done this, we have seen an increase in motivation and engagement in the students who once lacked it.

One question I have is, “How can we raise motivation with the students always depending on a reward?” There are still some struggles that the children face, but when they get excited about their reward, they feel motivated to complete all of their work. Some of the students have even gotten better grades since starting the sticker chart. We were going over the children's math scores, and test grades increased, as well as our students' participation. Small incentives are a great way to excite students, and motivate them to work. In the future, I think that I will try different methods for different students. For example, some students may not be motivated from receiving incentives. They may feel more comfortable with having one-on-one time working with the teacher. From this experience, I was able to take away the fact that motivation comes from within the student. We need to try our best to help our students find this motivation, and allow them to take the time they need. Scolding and rushing our students will not help them find this motivation. From this, I also feel that I developed many new teaching practices. I have gained much more patience than I already had, and I was able to take with me the techniques my teachers used, such as the sticker chart.

**Michael**: When I did my action plan, I was surprised by the results. I worked with one of the unmotivated students and I would say it was successful, but originally I was going to work with two but this specific student was very unmotivated. I first saw him playing with his water bottle and I sat next to him and told him to look at the Promethean Board, as we will learn something new today. The topic was to divide with the numbers 6 and 7, but use multiplication for it and I saw how the two methods: CUBES and asking guiding questions made this intervention successful. The question was from their Envisions textbook: “There are 18 children in a ballet class. They are standing in rows of 6 for a dance recital. How many rows of children are there? **Solve the problem any way you choose.**” The teachers were telling everyone to use CUBES and I saw that did not motivate him to proceed. Next, I asked him the steps of the CUBES method and he told me them and proceeded with each step. However, I noticed that he was stuck on the part of (B), which was boxing the key words. This instantly made me see why he never

wanted to use this method before. Afterwards, I told him that: “keywords are important words. What do you think is important in the question?” I saw that this helped him with answering the question and by asking what strategy can he use allowed thinking to happen and I saw that he did a list of the fact family. I also asked if he could use another strategy, such as an array and he experimented to see if it would work by using his fact family for guidance when finding out the rows. I did notice some drawbacks, which would be him being distracted by his water bottle but more positives, since he did continue working on the independent practice problems and mentioned that it was “easy.” But this thought influenced him to rush through the work and I mentioned: “Are you sure that’s correct?” and right away, he saw his mistake when putting 6 for 42/6. When we came across problems of 42/6 and 42/7, I asked him “What do you notice about these two problems?” I believed this was a great differentiating technique between how he sees the relationship and connection between multiplication and division. He said that he noticed the numbers switched and that helped him with 42/7 when he was confused and almost became unmotivated to continue until I pointed to what he did with 42/6. I asked a guiding question of “6 times what will give you 42” or “7 times what will give you 42”? One question would be: “What is an effective technique to use if a student will not be motivated through guiding questions or by using the CUBES method for word problems?” For the future, I might change my process by asking what they understood first about the problem so I can assess their recall of important details before asking guiding questions on what they could do first to solve.

My main take-aways are that sitting with a student and helping them for some time will show them that you consider their success significant and that you will not give up on them and that can influence a child to do their best because they see someone wants them to do well and helps them achieve more than what the child thinks they are capable of. I did not seek guidance from anyone and I took away that just telling a child to work will not help them reach their goals like I noticed it happened during my experiences in elementary school and in student teaching now. It made me consider research that can be done focusing on the effect of guiding questions and the CUBES method for motivating children to be engaged in math. This can even be shown on a graph showcasing different grades and the effects of these incentives. Overall, this experience proves how much of a lasting positive effect a teacher has on their students. This specific student also likes math, but I could tell he is not motivated to work because of the long school day but with the correct kind of support, he can be motivated.

**Stephanie-** I initially was going to do my action plan on two students but I ended up just focusing on one student because this student really was not engaged, never answering questions and never getting the work completed as opposed to the second student I had in mind which does get the work completed even though hes not always focused and doing other things, he does answer questions sometimes and with a little extra push completes the assignments. Focusing on this one particular student I quickly realized he benefits greatly from one on one instruction which is how I started to implement my action plan. I sat with him during a pull out session with another teacher who gave extra math help to a group of students from my class, during the

session which was a small group of about 7 students, he still was unmotivated, unengaged and just drawing in his notebook and on the multiplication whiteboard provided to each student to work on their multiplication facts. I proceeded to sit with him and say, “ Let’s get started”, what’s 6x4, he was able to give me the answer, then we continued and I just kept calling out the equation, if he didn’t I told him what strategy he would like to use to figure it out since we learned different strategies, most of the the he chose to draw an array. Once we started, and started getting a flow of solving each multiplication fact, I started to tell him I bet you can do this one with your eyes closed, so all the ones that I knew he can solve, I would say that and he would smile and close his eyes. Each time he got it right, I would say “ Great Job, I knew you could do it”, Keep Going! From this encounter I knew this particular student just needed lots of motivation and positive reinforcement. Over the next few weeks, I continued to help this particular student by continuing to work with him one to one, giving him positive reinforcement, verbally asking him what are the next steps to solving the problems and writing it down for him on a separate piece of paper which he then would rewrite it in his notebook. Another time, I started to help this particular student. I asked him “ Why don’t you like math “, he didn't say he didn't like math but he just said that he would rather draw because he loves to draw and he doesn't get enough art. So I told him, maybe we can come up with a plan to allow you to have more drawing time but that depends on you completing your math assignment. So we tried it out, and that day with some help he was able to complete a whole page and got 3 minutes of drawing. My co teacher initially did not want me to work with this particular student but I just know with consistent motivation and positive reinforcement it will help the student, but it won't just happen overnight, it will take time.

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**Next Steps**

**Gianna**: After generating my action plan, I felt that it was most appropriate to put it to the test and bring it into the classroom I am student teaching in. I even observed some of my plans in action with my cooperating teachers. In my future classroom, I plan to use incentives and rewards to motivate and reward students. This works well in the classroom that I am student teaching in. The students love getting stickers for their hard work, and it is such a small way to keep them motivated throughout the lesson. My teachers also started stamping the students' notebooks after they copied their notes. I loved this method, and I plan to incorporate it into the morning routine I have with my students. For example, if the students come in, unpack their belongings, and are ready to work, I will give them a sticker. If they copy all of the notes and are engaged throughout the lesson, I will stamp their notebook with a fun design.

One task that I really enjoyed was the measurement task. I think students would love doing this task because it allows them to be creative. I also feel that this is an engaging task because it is flexible for the students and they can be creative with it. Students would also be motivated because they get to work with their families on this task. Some skills that I want to teach my students are how to pay attention without getting distracted by little things. I want my students to learn that when the teacher is talking, all eyes and ears need to be available. One

resource that I plan to create is a “My Motivation Chart.” I would hand this chart out to each student and if I see they were motivated, I will give them a sticker at the end of the day. When the students get 15 stickers, I will give them a small prize or reward. I think this is a great idea because it will keep the students motivated and they will get rewarded for their great efforts.

**Michael:** After applying the action plan, some “next steps” would be having signs up in my future classroom. Before we start doing math, I would review with the children what mathematicians do, one of which would be using the “CUBES” method. This will motivate them to do their best using this strategy to assist them with the word problems. I would keep asking guiding questions to my students about the task in order to help them and I can see which part they are confused with. On days that my students feel tired, for example on Fridays, I would try incentives like Jolly Ranchers, which I see works with the students now in my classroom. In addition, if they start off a sentence with “I agree/disagree with” or “My partner said”, I would give a hole punch on their card. This will motivate them to continue doing activities like this to receive future prizes. A task I would include would be the Geometry Scavenger Hunt. I loved this task in particular because it shows how math is everywhere in life and students can work on it with their families and it takes them outside too. Some skills I would try to teach next would be trying the problem on their own and seeing how much they can do without my help when they are motivated. Some resources I will provide would be counters to see if that motivates them as well and I would introduce them through division lessons. Pictures are another great method, since it promotes creativity with their understanding and application of the math problem.

**Stephanie-** After putting my action plan into effect, on being able to engage and motivate students in math my experience was overall positive, I know that certain changes won’t happen as quick as you may want them to but any changes you begin to notice is a step in the right direction. I think I would ask the student the question, “How do they feel about math?, or “ How can I help you with math? There might be many reasons why a student is not motivated and engaged, asking them could be one of the main first steps to providing them with the tools they need to be successful in math or any other subject. I would like to implement a rewards system, where the student will earn something of their choice for a short period of time when they complete their work like I did with my student with 3 mins of drawing if he can complete the math classwork. My co teacher wanted me to help another student because he felt like it was a waste of time helping this one particular student which I disagreed with because I do feel that all students deserve a fighting chance and once they know you as a teacher have given up on them, then you're just doing a disservice to that student. I think it is important to always provide positive feedback especially to struggling students as well as give student s choices. For example, every student should not have to complete the assignment the same exact way, maybe a student can act it out, verbally tell you, draw a picture etc. From being in my classroom, and observing math lessons, I do feel like there is not enough engagement or interaction. It’s very

teacher centered and pretty much all from the workbooks. I actually decided to develop my EECE 360 Math on the basis of making sure it was engaging and hands-on which is why I had the students create division word story flip books which they enjoyed doing. I also think including more opportunities for students to lead their own learning and collaborate with peers will also be positive for students and their learning. I feel overall just making lessons/tasks engaging for students, hands on, collaborative and allowing them to have choices are all steps in the right direction especially for struggling students who are unmotivated and unengaged. I think I would provide more math opportunities that are fun for students, like maybe at the end of the day as a class with can play math games on the smartboard, in the morning providing positive feedback to students when they are following the routines and procedures and making sure to have anchor charts and other things around the room to have the students refer back to if they ever need to. I think I would like to teach more skills on being independent because I know students who won't even try on their own before soliciting they help from a teacher, I would implement the Ask 3 and me at the beginning of the school year so students can work on being more independent and less reliant on their teacher. I would also make sure to have manipulatives that students are able to access on their own whenever they may need it to help them with math.

## WORKS CITED

1. ▶ 60-Second Strategy: Ask 3 Before Me ( strategy found via the web that I would like to implement throughout the school year so my students can work on building their independence and become less reliant on the teacher.)