

EDUC 1233-002

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Lesson Plan Assignment

March 7th, 2020

Multiplication Strategies

March 5, 2020

Grade 4 Math

10:30 am

Big Ideas/Rationale/Essential Understanding

- Point of the lesson: Introduce strategies to understand how to multiply the numbers 0,1 and 2 (using addition)
- Should be able to recognize that in multiplication with 0, the answer will always be zero, no matter the placement of zero in the equation (example 0×3 or 5×0)
- Should be able to understand that in a multiplication question with 1, the answer remains whatever you are multiplying it by (example 1×33 is 33)
- Should be able to recognize the addition aspect of multiplying 2 by any number (example 2×44 or 2×18)
- Should be able to look at an equation and know that to find the answer of a multiplication question with 0,1,2
- Ex: with 2 you double the number you are using (example 2×8 is 8 doubled= 16)

Outcomes

- Learners are expected to know basic multiplication using traditional, visual or object methods, should already understand basic single digit multiplication (2x3, 1x5 or 3x3)
- Alberta Education Program of Studies Outcomes:
 - *I Can* apply the properties of 0 and 1 for multiplication
 - *I Can* describe and apply mental mathematics strategies to determine basic multiplication facts to 9×9
 - *I Can* demonstrate an understanding of multiplication (2- or 3-digit by 1-digit) to solve problems by
 - using arrays to represent multiplication
 - connecting concrete representations to symbolic representations
 - estimating products

Assessment

- Able to connect and apply strategies for multiplication of numbers 1-10
- Students have had time to discuss with their peers and use their initial knowledge to build off of the new information that was presented to them
- Combined new ideas and reflected on showing proof as to why 0 is always 0 no matter the largeness or placement of the number
- Can now identify and understand multiplication with 0,1 and 2, and can effectively reach an answer using the strategies given through the book
- They were able to identify proofs to this answer and demonstrated skills that helped me be sure that they understood the lesson

- Students used a whiteboard to explain their “proof” equations visually that helped teach their peers and myself

Differentiation for Learners

- Some students have attention difficulties and require extra help
- Before the lesson, complete -minute silent meditation breathing exercise following recess to bring all of the attention together and relieve energy before lesson period
- The constant involvement of students in the discussion to keep attention focused and immersed in the lesson/book that is being read
- Having a few students who have greater learning difficulties not disrupt the class by silently reading alone or not being completely involved in the lesson is allowed. It avoids taking away the learning of the other students who can sit quietly and pay attention to the lesson, allowing them to participate and in-turn be able to learn.
- Bigger repetition of requirements and steps in the lesson
- Environmental: Sit near the front of the classroom where the teacher is present to help keep them in check and listening to the lesson
- Visual aspect: Display picture of absolute zero poem on the projector for those who could not listen attentively enough so they can still participate with the class and peer discussion

Resources/Materials

- “ The Best of Times” book by Greg Tang (math strategies that multiply)
- In-class projector (To display a picture of the book page that is being read aloud)

Introduction/Hook

- Introduce new fun math book to help with multiplication strategies
- Brainstorm period for students before the lesson
- Ask them if they have any helpful or fun strategies for quick multiplication before the lesson begins

Closure

- Wrap up discussion on the book and finish with several example questions students should answer using the newly learned strategies
- A discussion-based question that allows an understanding of what the students actually learned
- I ended the lesson by asking students what was something new that they learned today and asked to share it with the class

Actual Lesson Plan used In-Class

Math 4.1: Mentor Teacher Caitlin Price

Math strategies book (March 5, 2020 @ 10:30am)

Poems

Absolute Zero

Zero is a cinch to do,
The answer is right in front of you.
For every problem, it's the same,
Zilch or zero is its name!

One Way

One is simple as can be,
It's known as the identity.
The answer to identify?
It's the one you multiply!

Two Step

Two is very fast and fun,
Quickly double and you're done.
What's that you say, be more precise?
Okay then, just add it twice!

- Read absolute zero, one way and two step page in the story (display on the projector a picture of the poem being read after
 - Ask them to speak to their peers about what the poem means
- Come back together and ask them to tell me what they talked about and explain what the poem means in regards to the multiplication of 0,1 and 2
- DISCUSS that whether it is 12×0 or 0×5 (does not matter the placement of the zero, even if it is in the middle like $6 \times 0 \times 4$)
- **Examples:** $0 \times 5 = 0$, $1 \times 57 = 57$, $2 \times 6 = 12$ (6 doubled)
- Ask them to come up with 2 proofs (examples of equations) to explain WHY whenever you multiply something by 0, it is always 0, when you multiply anything by 1 it remains what you are multiplying it with and with 2, you use addition by doubling what you are multiplying
- Give them time to discuss with their peers and come up with visual proofs and examples. Then come back to the lesson and select those with their hands up to answer with one of their proofs and show the class using the whiteboard, around 3 would then be explained.

Reflection/Self-Assessment

Outcomes and Assessment

Going into my lesson, I was aware of the specific Alberta Education Program of Studies outcomes that needed to be reached through this. I also kept in mind assessment and its formative and summative stages. In my education class, we spoke about how each province has certain educational outcomes teachers must meet depending on grade during the school year.

Since my lesson was in math, I knew that the students had already been learning multiplication and have been for a week or so. While they have a somewhat basic knowledge of multiplication, they do not know any strategies to help them reach the answers. After these lessons, students should be able to apply the properties of 0,1 and 2 for multiplication. They should also be able to demonstrate an understanding of multiplication with 2 or 3 digit numbers and solve them using arrays, by connecting representations and estimating products. I knew that using a fun, coloured poem book for the lesson would help the grade four students want to learn and listen more to what is being taught. I was aware of their pre-existing knowledge since not much earlier they were given a math sheet to review what they already knew about multiplication. Through this, I understood that we needed to speak more about basic strategies for multiplications with the numbers 0,1 and 2 to simplify equations. The book that I chose had strategies for multiplication with the numbers 1-10, by using a poem and visual reference. I read the pages on numbers 0,1 and 2 during my lesson which follows the program outcomes. By listening to their peer discussion I could understand that most/if not all of the students have a basic understanding of what the poems meant and how they are applied to multiplication questions. They were able to self-assess and could understand if they knew the subject matter or not. After we came back as a class and discussed using their opinions on the question I asked them, I noticed that they made the connections I wanted them to make and they properly understood what was being asked of them. They could not only vocally describe the why in words but could also draw and represent it visually which is a strong indication of their learning. I assessed that the students effectively understood the lesson through the book I read aloud to them and I was pleased with what they could do with the information given to them.

Hook

The hook or introduction of the lesson began with kindness meditation. Every day after recess there is a quick 2-minute meditation breathing exercise to calm everyone down. They practice their breathing while thinking about who they are thankful for in their life. It allowed a sense of calmness in the classroom which helped before I began my lesson. As they settled for the lesson, I began by asking them what strategies they had to help them with multiplication. It created an open class discussion and allowed them to know that I am listening to their opinions. I was able to assess their prior knowledge through this and by asking for them to give me examples with their answers. I could see that they had their strategies but had not yet been taught any that were essential in multiplication. Because of this, I knew that the lesson was important and the pages about 0,1 and 2 would fit perfectly into the timeline.

Participation Task

The participation task I chose was one that I figured would best fit the style of learning for the students. Most of them have short attention spans and cannot sit still, while fully listening for very long. It is always important to involve them in the discussion and they are never taught from textbooks or presentation style. I knew that by reading a poem book with the rhyming and pictures it would entertain them and grasp them to the subject. Creating instances for them to discuss with their peers was essential for me to observe the conversations but also for those who may not be as advanced and struggling to understand. They were engaged in discussions with their peers and were actively thinking, which created deep thinking. When it was a full class

discussion they were prepared with answers because they were given time to reflect. They enjoyed the riddle-like poem and saw it as something to solve, which furthered engagement. During the class discussion, those who raised their hands to answer what they spoke about were asked to demonstrate on the whiteboard a visual example. This was helpful for them and the other students to see the equations visually but also increased participation among students as they had a sense of control during part of the lesson. They were motivated to learn and were able to use specific examples to prove their learning. This use of participation helped my lesson succeed and created a positive learning environment for both the students and myself.

Differentiation

Having been at my field study classroom for around 6 months has allowed me to learn and understand each of the students pretty well. Before my lesson, I knew that around $\frac{1}{3}$ of the students have IPPs and diagnosed or undiagnosed learning/behavioural disabilities. Lessons in this classroom are difficult because most cannot pay attention for long-duration periods and there is always talking and something disrupting. It is not ideal or realistic to assume that they can sit for 30 minutes silently and listen to a lesson about multiplication without any issues. We have a student with autism who doesn't participate in class and only does work on the Ipad. He works most often with a special teacher, doing different work so planning differentiation with him was not essential. Others have mild to severe forms of ADHD so planning the lesson was about satisfying their needs but also adhering to those who can sit still and want to learn. Reading a book was helpful for all learning styles because it was visual but also interesting. Those students were more engaged and enjoyed the poem style. Since there was no worksheet involved I did not have to change any font size or question length. During the discussion period, I did make a point

to speak specifically to them since they isolate themselves from their peers sometimes and I wanted to make sure they were listening. I asked them to give me their examples and we discussed it. This was very helpful in keeping those students engaged in the lesson, and while they did still have problems with interrupting at times, it was resolved and we continued with the lesson. Planning a lesson made me think very critically about differentiation and how it is very difficult to accommodate every student's needs, but it can be done.

Closure

At the end of my lesson, I asked students to share something new that they learned today. Many of them raised their hands and we're proud to explain something new to them. This invited a thoughtful reflection on their learning and helped me understand how much they learned. I was able to recognize that they learned everything I was hoping for them too and felt like they were picking up everything. Having them discuss with their peers also allowed reflective learning, they were able to relate the multiplication strategies to everyday life, like shopping or picking apples.

General

I was uneasy about the lesson, but my mentor teacher helped ease my nerves by talking about doing new things with the class. She explained to them that I am still a student like them, and even though I am old I can still get nervous doing new things. They understood and told stories about times then they felt anxious like doing a play or a ballet recital. This created an open and calm environment for me to step into. I think that overall the lesson went well. I am very pleased with the outcome and proud of myself for overcoming my fear. Reading the poems went well. For the most part, they all listened attentively and if someone spoke out of order I

corrected them when necessary. They listened to the question I asked them to discuss among themselves and had good, deep thinking conversations. I had good control of the classroom and my mentor teacher did not have to step in. I chose students who don't normally partake in class discussions to explain their thoughts and examples because I knew they could. The lesson contributed to student learning by engaging them and creating thoughtful conversations. I learned that some students are more comfortable when they are not placed in situations where they have to interact with their peers. While I understand this, I also learned that it is important to take some of them out of their comfort zones to reach higher levels of learning. By knowing what they learned, I can know that I spoke clearly and loudly and had control of the classroom. Some of the more difficult students also seemed to understand the lessons and partook in it. I watched them more closely and spent a bit longer with them during the discussion period. I think for my next lesson I would create a mini worksheet to accompany the book with a few written questions on it and have each student complete it, so I could have somewhat of a visual "proof" of their learning. Overall I think that my mentor teacher helped me feel comfortable for my lesson and made sure that all of my questions were answered. We worked together on some parts of this and I think this was a large reason for my success. Some students even came up to me after my lesson and congratulated me, which made me feel great. I look forward to creating more lessons throughout my education degree at Mount Royal.