

Evaluating Expressions

Grade: 5		Subject: Math	
Materials: active board, white boards, markers, expression cards, practice problems		Technology Needed: n/a	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input checked="" type="checkbox"/> Guided practice <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> PBL <input type="checkbox"/> Learning Centers <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Modeling <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input checked="" type="checkbox"/> Independent activity <input type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input checked="" type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain:	
Standard(s) 5.OA.2 Write simple expressions that record calculations with numbers. Interpret numerical expressions without evaluating them		Differentiation Below Proficiency: -Have them evaluate similar expressions -Give them fewer problems to avoid frustration -Provided more one-on-one time -Use visuals and manipulatives Above Proficiency: -Give them more complex expressions -Have them evaluate the challenge expression -Have them explain the process to other learners -Allow them to play an expression game (similar to scrabble) until others have completed their work. Approaching/Emerging Proficiency: -Teach lesson as is Modalities/Learning Preferences: -Visual: Video, Evaluate the expressions on the board -Auditory: Video, Talk through the steps on the board -Kinesthetic: Have students transitioning around the room -Tactile: Have students use manipulatives	
Objective(s) -By the end of the lesson, students will be able to create simple expressions, to represent how to solve the word problems given to them. -By the end of the lesson, students will be able to evaluate expressions by using order of operations. Bloom's Taxonomy Cognitive Level: Create/Evaluate			
Classroom Management- (grouping(s), movement/transitions, etc.) -Students will begin the lesson at their desks and transition to the front as their part of the expression is read. Students will then remain at their desks as we move through the explain portion of the lesson. When we work through the practice problems we will have some students working independently and some working in small group. We will end the lesson by tackling the challenge problem in whole group.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students are expected to: -Pay attention during the engage so they can help build the expressions -Do practice problems on their whiteboards and show their work -Complete their practice problems and ask for guidance -Attempt the challenge problem	
Minutes	Procedures		
5	Set-up/Prep: -Pull up video -Have the word problems ready to go -Break up the expressions, that represent the word problems broken, into pieces ensuring there is one for each student -Print out their practice problems		
10	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) -Transition into the lesson, by doing division of the day as students need to continually practice this skill. -If students show their work and attempt to complete the problem to the best of their ability, they can play deck of destiny. -Deck of Destiny is where all the students write a number on their board, I draw a card, give them clues, and they have to guess the number. If they had the number written on their board, they get a treat. I will use this throughout the engage to keep students focused. -Hand out slips of paper containing parts of an expression to the students. -Each student will receive a slip of paper containing one part of an expression. -"Today we are going to create expressions as a class." -"You each received a slip of paper that contains part of an expression. Everyone has something different."		

Evaluating Expressions

	<p>-“I am going to read a word problem. If you have part of the expression that will help us solve the problem, please come forward to help us create the expression.”</p> <p>-“You need to be paying attention to figure out what expression you belong to”</p> <p>-Begin reading off word problems and having them piece together the expressions, that represent the problem. Go until everyone has had a turn and all the expressions are created.</p>
<p>10</p>	<p>Explain: (concepts, procedures, vocabulary, etc.)</p> <p>-“Now we are going to solve the expressions we created by using our order of operations.”</p> <p>-“Can anyone remember the acronym we used yesterday to help us remember our order of operations?”</p> <p>-PEMA (Parenthesis, Exponents, Multiplication & Division), and Addition & Subtraction) or PEMDAS.”</p> <p>-Review the acronyms and how we use them. Then show them this video as a refresher: https://www.youtube.com/watch?v=ZzeDWFhYv3E</p> <p>-“Please take out your whiteboards so we can begin working on our expressions”</p> <p>-Work through the expressions created at the beginning of the lesson using PEMDAS</p> <p>-Have the students try it on their boards before walking them through it.</p> <p>-Pull more complex problems from the book for students to work through</p> <p>-Have students create expressions to match word problems as there is several practice problems requiring them to do so</p>
<p>15-20</p>	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>-“Now I am going to have you guys practice some of these problems on your own.”</p> <p>-Have the teacher helper hand out the practice sheets.</p> <p>-Help students with a couple of the problems.</p> <p>-“Use scratch paper if you need more room to work.”</p> <p>-Pull certain students who need more one-on-one time to work through the problems</p> <p>-If resources are available: have students break into small groups with an educator to guide them as needed.</p> <p>-“When you finish I want you to try and evaluate the challenge expression on the board.”</p>
<p>5</p>	<p>Review (wrap up and transition to next activity):</p> <p>-Give students the opportunity to share their answer for the challenge problem.</p> <p>-Evaluate the challenge expression using/reviewing order of operations.</p> <p>-Have students hand in their worksheets so you can assess how well they reached the objective.</p>
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.</p> <p>-In the beginning of the lesson see if students are able to recognize when their part fits into an expression we are trying to create.</p> <p>-During the lesson, I will be checking the work on the white boards to see if they are grasping the concept as well as walking around while they do their practice problems and checking their answers.</p> <p>Consideration for Back-up Plan:</p> <p>-If students are having difficulties, evaluating the practice expressions we will work through them together.</p>	<p>Summative Assessment (linked back to objectives) End of lesson:</p> <p>-Check students practice problems</p> <p>If applicable- overall unit, chapter, concept, etc.:</p> <p>-n/a</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p> <p>This is my reflection after I taught this lesson. I have since changed the lesson based on my reflection.</p> <p>This lesson helped me develop as an educator as I took the lesson beyond the lesson plan. I added elements to keep the flow of the classroom routine. They transitioned into the lesson by doing fact practice on their iPads. Then we did a division problem for the day because division is a skill they need to continuously practice. Following the division of the day, we did Deck of Destiny. Which is where all the students write a number on their board, I draw a card, give them clues, and they have to guess the number. If they had the number written on their board, they get a treat. During the engage activity I used Deck of Destiny as a short break, so they could refocus as the activity got lengthy. Next time, I would partner them up so we could do fewer problems and move the activity along quicker.</p> <p>I transitioned into my guided instruction by using a video to refresh their minds of PEMDAS/PEMA. We worked together through a couple of problems from the engagement activity. They worked through these problems rather quickly, so I pulled more complex ones from the book.</p>	

Evaluating Expressions

They were becoming proficient at evaluating expressions. Therefore, I wish I would have spent more time on creating expressions to solve word problems because there were some practice problems requiring them to do so. The students ultimately did a great job using PEMDAS to evaluate expressions which was the intended objective of this lesson.

During the explore portion of the lesson, I had the luxury of having additional educators in the room. Therefore, I was able to divide students who needed additional assistance into one of the three small groups and the rest worked independently with a paraprofessional walking around providing guidance when needed. For the students working in groups I had them work as time allotted because it was more important for them to reach the objective rather than complete all the problems. I wanted them to have a chance to gain a deep understanding of how order of operations work, when evaluating expressions. I had several additional tasks for my high flyers because I wanted to make sure I reached them. I had an extra page they could work on in their workbooks, a challenge problem, and an expression game for them to play. This worked out well as it kept them moving, providing more time for those in small groups to keep working. Having all these additional resources enabled students' success during their exploration.

The challenge at the end of the lesson was a success because it built several students confidence and encouraged them to keep challenging themselves. I was so surprised how well the students worked through the expression as it required multiple steps to evaluate. I had several students surprised at their ability to evaluate the long expression using PEMDAS. My teacher had commented on the amount of confidence certain students gained from completing the problem which I was so excited to hear. The teacher allowed me to teach the entire hour and a half math block which challenged me to be flexible and add extension activities to keep students engaged the entire time.