**Final Project Lesson Plan**

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| **Name** | **Date** |
| Kathryn Hill | June 2019 |
| **Grade Level** | **Topic** |
| 5th Grade | Order of Operations |
| **Subject** |
| Math |
| **Lesson Title** |
| Order of Operation  |
| **Lesson Duration** |
| 45 minutes |
| **Standard(s)** |
| MGSE5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. |
| **Lesson Objective(s)** |
| Students will solve problems by applying their understanding of operations with whole numbers incorporating parentheses.  |
| **Materials Needed**  |
| Flipped Classroom VideoOrder of Operations practice page (at home activity)Sway Presentation with PlayPosit Interactive VideoError Analysis page 1 (In-class activity)Error Analysis page 2 (In-class activity)Error Analysis partner sheet (In-class activity)Error Analysis RubricInteractive Websites  |
| **Lesson Description** |
| Watch the introduction rap video to have an idea about the new unit on order of operations.Watch the flipped classroom video at home on how to solve order of operations problems. Come to class with any questions you have about the process.Watch the flipped classroom video all the way through without pausing. Watch the flipped classroom video a second time working the problems with the video. Next, watch the flipped classroom video a third time. Write the problem and solve each problem before watching how to solve it from the video. Check your answer as the video plays and correcting any mistakes you may have made. Last, come to class with the solution to the last problem.To begin the lesson in class, review solving expressions by reviewing their at-home student activity along with the Flipped classroom video. Students solved expression problems following the rules of PEMDAS. As a class, we will go through the Sway Presentation then watch the PlayPosit interactive video and students will answer the question as the video plays. Discuss the answers after the video and clarify any questions. Students will then receive an expression problem that has already solved, however, the solution contains an error and they were to find the error and correct the solution. Pass out the leveled error analysis pages. Students who answered the majority of the answers correctly on their at-home activity will receive page 2, all others will receive page 1. Explain to students to look at the page. The problem shows the original problem, the solution of how Sean solved the problem, and then they need to answer the question “was Sean correct” reminding them their answers need to be in complete sentences. Last they are going to explain their thinking by explaining why Sean was incorrect, where he made is miscalculations, and justifying how to correctly solve the problem. After all students are done answering their page, they will receive a completely blank error analysis partner sheet and are going to trade papers with a partner of the teachers choosing. They will be correcting their peer’s work who worked the same problem as them using the new error analysis partner sheet. They need to use the new error analysis partner page to make the corrections of their peer and NOT write on their peer’s paper. After students are done correcting their peers work, they will get together with their partner and discussed each other’s work, reworking the problem together. Once partners are finished, students will then be directed to the bottom of the page where each page was numbered (page 1, page 2). Students will then move into a larger group based on the number on the bottom of the page. Students will work together to resolve the answer and collaborate on the error and their justifications. Once groups are finished, go over the answers and how to solve each of the problems clarifying any questions |
| **Assessment Plan** |
| Assessment plan is based on how students performed on the error analysis pages using the error analysis rubric.Students who do not score well will receive a remediation plan.Students who score well will have the opportunity to create their own practice pages using the linked websites on the class Weebley page. |
| **Remediation Plan** |
| Students who need to remediate will be pulled into a small group and work together on working problems step-by-step. Students will need to explain the rules as they are working on the problem and identify each step in the process. Remediated students will work on interactive websites practicing order of operations after small group session. These interactive websites will give clarification to students as they work through problems.  |
| **Integrated Technology** |
| Screen-O-Matic flipped classroom videoSway Presentation with PlayPosit interactive videoInteractive learning websites for remediated students  |
| **Benefit of Integrated Technology** |
| **Screen-O-Matic flipped classroom video** - Students are listening to the lesson with the teacher’s voice on how to complete the order of operations. Students are able to watch the video and pause it at any point they need and watch it as many times as they need in order to clarify any confusion. Students are learning the order before they come to class so class time is spent on reinforcing the new material rather than teaching a new concept. **Sway Presentation –** Reviews the rules of order of operations before students complete the interactive PlayPosit example at the end. **PlayPosit interactive video –** This in class activity will give an idea of where students are at in their learning of order of operations. It is one example that asks questions before each process to show students understanding of each step.**Interactive learning websites for remediated students –** Students are able to work through problems on these websites and then explanations are given to students if they were unsuccessful in finding the correct answer. Students are able to work at the pace they need for their understanding.  |