

Technology Integration Narrative (Samantha Dixon)
A Technological Approach to Order of Operations

My technology integration matrix is broken down into four colors that are my four main activities or procedures for the lesson. The first day will consist of the first two strategies. The first strategy consists of students watching a tutorial that gives instructions on how to complete order of operations problems using the graphing calculators. This directly correlates to NJCCCS standard 4.1.8B1. Here, they are using the procedures stated in the tutorial to complete a short 'Do Now' activity with a few different problems. In terms of NJCCCS for technology, 4.5F4 states they are using calculators as problem solving tools, which they are doing to complete the problems. The NETS-S standards for technology for these particular activities were NETS-S 6.A understand and use technology systems and NETS-S 6.D transfer current knowledge to learning of new technologies. I chose these standards because this may be the first time many of these students use a graphing calculator rather than a regular calculator. I felt like this 'Do Now' beginner activity was both teacher centered and student centered. The tutorial serves as a lecture (teacher-centered) but better because they can search for this tutorial either at home or at a later date if they forget how to use it. The different problems should be completed individually and we will go over them at the end to ensure everyone found the answer correctly; this activity is more student-centered.

The second strategy consists of first a presentation of notes and rules. This is completely teacher-centered because it serves as a short lecture. Here, the NJCCCS I used were 4.1.8B.5 says students understand and apply the standard algebraic order of operations which they should have already seen during the 'Do Now' and which will be reinforced now during the lecture. During this activity, I will be using either a PowerPoint or Smartboard presentation. Therefore, they are using technology to gather mathematical information and using information from different sources and media (NETS-S 3.B). After the lecture, we will use a Smartboard interactive activity where students can come up to the board and show steps to solve order of operation problems using the pen and paper method. I felt this strategy was more of a teacher/student-centered activity. I will be conducting the activity but students will be completing the problems and seeing if all students agree.

The second day will consist of the third strategy, which consists of completely student-centered learning. Here, students will be broken into small groups (3-4 members per group) where they will be using a virtual manipulative website. They will be using algebra tiles to come up with their own order of operation equations that they can then solve using pen & paper and graphing calculators. This goes directly with NJCCCS standard 4.3.8D.4 which says create, evaluate, and simplify algebraic expressions involving variables, 4.5F3 which says using graphing calculator and computer software to investigate properties of functions and display quantitative data and 4.5F4 using calculators as solving problem tools. These all directly apply because they are creating and solving their own problems, using computer software to come up with these problems and using calculators to solve the problems. The NETS-S 2.D standard states to contribute to project teams to produce original works or solve problems that also applies because of the groups they are in. I felt like the work they do to solve these problems could also be an assessment because they are going through both ways of solving the problems and these problems need to be checked anyway.

The final strategy is for the same groups to create their own tutorial walking the viewer through how they solved their own order of operations equations using pen and paper and a graphing calculator to check. These tutorials will be uploaded to our personal and private classes' you tube website and could be accessed by all students in the class to use as a study tool. The NJCCCS consisted of 4.5E.1 to create and use representations to organize, record, and communicate mathematics, 4.5F2 use computer software to organize and display quantitative information and 4.5F4 using graphing calculators as problem solving tools. The NETS-S standards consist of NETS-S 2.A interact, collaborate, and publish with peers employing a variety of digital environments and media and NETS-S 2.B communicate information and ideas effectively to multiple audiences using a variety of media and formats. These correlate to uploading the tutorials to you tube. Here, students must use computers, some type of recording software, you tube and graphing calculators