Be the Teacher:
Creating Math Help that Works

Participant Name:	**Jennifer Anson**
District:	**Gouverneur Central School**
Grade Level:	**7**
Subject/Course:	**Math**
Cross-curricular Link:	**Rational Number Operations**
Approximate Time (IN MINUTES):	**40-45 minutes**

CONTENT AND SKILLS

Learning Objectives:
- Students will solve a multi-step problem involving rational numbers.
- Students will create a video using pictures and narration to explain the steps they took to solve it.

Essential Questions (optional):
- How can hearing how someone other than the teacher solved a problem help other students?
- How can teaching a problem help you better understand?
- What are some ways a video explaining a problem can be used?

Students' I can statements . . .
- I can solve a multi-step problem involving rational numbers using the order of operations.
- I can explain the steps involved in solving a multi-step problem by writing a list.
- I can create a video with the solution to help other students by taking a picture of my work and record myself reading the list of how I solved the problem.

How will you meet the needs of SWD and ELL/MLL students?
- Pair work allows peer support and discussion.
- Using the acronym PEMDAS or GEMS will help students remember the order of operations.
- Technology can act as a translator for ELL students if needed.
- Visuals such as the picture make the solution more accessible to all students.

NYS COMPUTER SCIENCE AND DIGITAL FLUENCY STANDARDS
List all standards that authentically align (e.g., K-1.CT.4)

- 7-8.CT.10 Document the iterative design process of developing a computational artifact that incorporates user feedback and preferences.

OTHER SPECIFIC STANDARDS (e.g., Content, SEL Benchmarks)
List all standards that authentically align
https://www.p12.nysed.gov/sss/documents/SELBenchmarks2022.pdf

- NYS-7-NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers.

INSTRUCTIONAL PLAN

List the steps of the lesson, including instructions for the students.
Add and highlight Standard Indicator next to activity that aligns

Hook/Introduction (5 minutes): Students begin by evaluating the problem 8 + 3 (2) = 22. Students are asked to identify the mistake and what they should have done instead.

Review of PEMDAS/GEMS (7 minutes): Following this discussion, as a class review the order or operations using PEMDAS or GEMS; Parenthese or Grouping first, next exponents, then multiplication and division from left to right, finally addition and subtraction from left to right.

Assign Problems (3 minutes): Have students get into pairs and assign each pair a real world multi-step problem that involves rational numbers. (Examples linked below).

Solve the Problem (5-7 minutes): Each pair will first solve their problem on a blank sheet of paper and write a list of the steps they took to solve.

Video Creation (10-13 minutes): Using their chromebook students will take a picture of their solution. Then they will make an audio recording of them reading the list of steps to solve the solution. They will use their picture and audio recording to create a video.

Problem Swap (5 minutes): Each pair will then swap problems and use the video to try solving another problem. They will leave feedback on the rubric (linked below).

Reflection (5 minutes): The class will have a discussion about how the video could be used, how it benefitted them to teach the problem and whether hearing someone else (other than the teacher) explain made it easier or more difficult.

SPECIFIC NEEDS: MATERIALS / RESOURCES / TECHNOLOGY

Add additional resources needed for this lesson such as instructional technology templates, images, videos, etc.

- Chromebooks (1 for each pair) with camera and audio recording capabilities
- Multi Step Problems (examples)
- Rubric