



Micro-Unit & Structure Tasks

ORDER OF OPERATIONS PASSING ACTIVITY

This activity allows students to focus on ONE step at a time when simplifying numeric expressions in order to attend to the specific procedure. This activity makes students stop after each step, bringing the process to the forefront and the specific problem to the background.

STEP 1: CREATE SHEETS.

- Prepare $\frac{1}{2}$ or $\frac{1}{4}$ sheets with ONE expression for each student.
- It is only necessary to create 4 distinct problems for one cycle of this activity.

STEP 2: REVIEW PROCESS.

- Review the process for simplifying numeric expressions (explain rules) and set clear process steps for the activity.
- Example:
 - (1) Parentheses
 - (2) Exponents
 - (3) Multiplication/Division in order
 - (4) Addition/Subtraction in order
- Let students know that they will not complete the problem they are given, but will only do one step.

STEP 3: HAND OUT SHEETS.

- Hand out the papers and ask students to simplify PARENTHESES only.
- If there are no parentheses, then they are finished with that step.
- It might, however, take two or more steps to complete a particular step.
- Note: Students will often ask if they need to write everything else down... that is the point! The answer is YES!

STEP 4: REPEAT FOR OTHER OPERATIONS.

- Have each student pass the paper to their neighbor who will check their work and then simplify EXPONENTS only.
- Repeat steps 3 & 4 for MULTIPLICATION/DIVISION and again for ADDITION/SUBTRACTION.

STEP 5: DISCUSS INSIGHTS.

- Have students discuss their experience with this activity and what they were focusing on each time.
- Review the steps and goal when using the order of operations to reinforce the students' understanding of the process.
- If this activity is done frequently, the expectations will be clearer and students will have more success.



SPOTLIGHT
ON LANGUAGE-BASED TEACHING



Landmark Teaching Principle™ #3

EXAMPLE PROCESS:

$8/4 + 3(5 - 2)^2$ $8/4 + 3(3)^2$	Student 1...
$8/4 + 3(5 - 2)^2$ $8/4 + 3(3)^2 \checkmark$ $8/4 + 3(9)$	Student 2...
$8/4 + 3(5 - 2)^2$ $8/4 + 3(3)^2$ $8/4 + 3(9) \checkmark$ $2 + 3(9)$ $2 + 27$	Student 3...
$8/4 + 3(5 - 2)^2$ $8/4 + 3(3)^2$ $8/4 + 3(9)$ $2 + 3(9) \checkmark$ $2 + 27 \checkmark$ 29	Student 4...

PARENTHESES

EXPONENTS

MULTIPLICATION &
DIVISION

ADDITION &
SUBTRACTION

HOW DOES THIS MICRO-UNIT & STRUCTURE TASKS?

- The process of simplifying based on the order of operations is broken down into each level of operations.
- Students are given structure and thus less likely to give quasi-answers or sloppy / inaccurate written work when simplifying numeric expressions.
- This activity encourages thoughtful, step problem solving and forces students to slow down and think about the steps.
- Students are guided to complete each step in a structured, sequential process in order to solve the problem.

*Micro-uniting & structuring tasks...
help students to proceed in a step-by-step, success-oriented way.*