

We are performing a research study using ASSISTments, an **online tutoring program** that gives immediate feedback to teachers, students, school administrators, and parents!

This assignment takes approximately 40 minutes to complete. It includes a 16 problem pretest, a 7 minute video and 16 problem learning intervention in which students work on order of operations problems, and a 16 problem posttest to assess learning gains.

Common Core	Content Topic	Problem Set ID
5.OA.A.1	Order of Operations	PSAYURR



**Click here to learn more!**

Want to assign without a preview? Click [here to see how!](#)

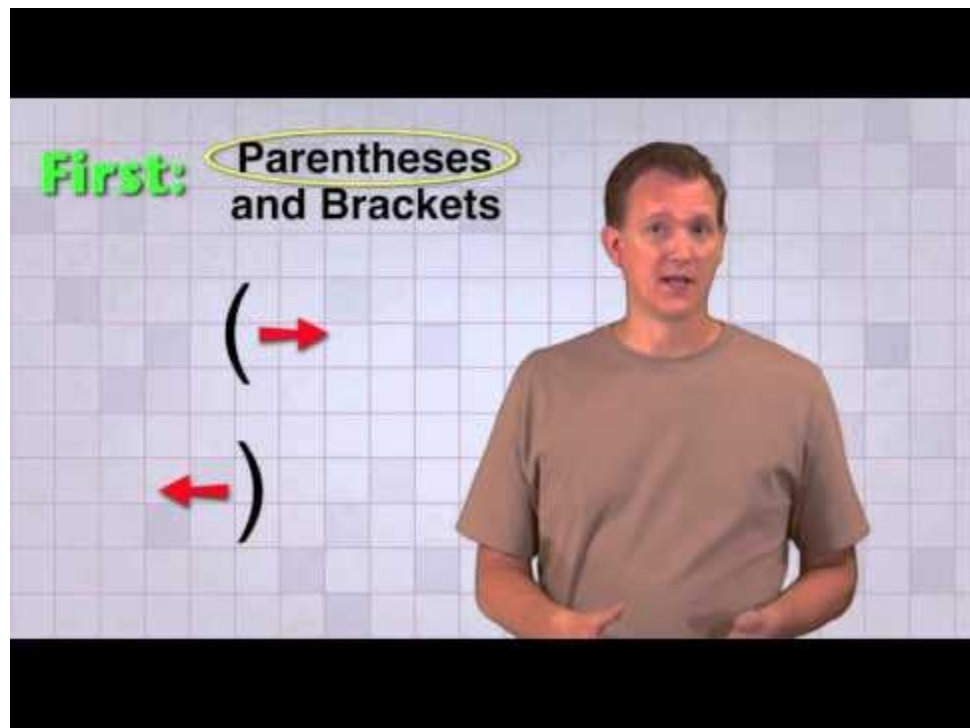
If you have questions, please e-mail [assistments-research@wpi.edu](mailto:assistments-research@wpi.edu)

## Study Overview

- ❖ All students will be given the same **pretest consisting of 16 problems** where they will simplify algebraic expressions using order of operations
- ❖ Students will then watch a **7 minute video** on using the Order of Operations (See next slide)
- ❖ Each student will be randomly assigned to **one of seven conditions** where they will simplify algebraic expressions using the order of operations. Each **condition alters the format or appearance** of the algebraic expression
- ❖ Finally, all students will be given the same **posttest consisting of 16 problems** where they will simplify a **different set** of algebraic expressions using order of operations

## Intervention Training Video

This video will be displayed to students in every condition and will not let them proceed in the study until the video finishes playing



## Neutral Condition

One group of students will have a **neutral** set of algebraic expressions

$$14 - 3 \times 4 - 1$$

## Mixed Spaces Condition

One group of students will have a set of algebraic expressions where **some** of the problems are spaced to visually imply operational precedence

$$14 - 3 \times 4 - 1$$

## Consistent Spaces Condition

One group of students will have a set of algebraic expressions where **all** of the problems are spaced to visually imply operational precedence

$$14 - 3 \times 4 - 1$$

## Mixed Parentheses Condition

One group of students will have a set of algebraic expressions where **some** of the problems have superfluous parentheses to imply precedence

$$14-(3\times 4)-1$$

## Consistent Parentheses Condition

One group of students will have a set of algebraic expressions where **all** of the problems have superfluous parentheses to imply precedence

$$14-(3\times 4)-1$$



## Mixed Negative Spaces Condition

One group of students will have a set of algebraic expressions where **some** of the problems are spaced to visually **impair** operational precedence

$$14-3 \times 4-1$$

## Consistent Negative Spaces Condition

One group of students will have a set of algebraic expressions where **all** of the problems are spaced to visually **impair** operational precedence

$$14-3 \times 4-1$$

## Next Steps

1. Determine if this content matches your current curriculum, or if it can be used as review.
2. Assign the problem set for your students to complete.
3. The problem set can be assigned using ID PSAYURR.

## Want More Information?

For more information on this study and more like it, please visit [graspableresearch.com](http://graspableresearch.com)

Step-by-step instructions on how to run this study in your class are available under the “Studies” tab