OOP Chains (Order of Operation Chains)

Learning Goal: Learn to work carefully with the order of operations, showing steps along the way. Watch out for "sexy" simplifications (incorrect simplifications that are oh so tempting).

Directions: Cut out a page of tiles and whammies for each pair or group of students. Mix them all together so that the proper order is not obvious. Tell the students that each problem has four correct tiles to get from the original problem to the simplified form. However, each problem also has a whammy that is there to throw them off course. They need to correctly find the OOP Chains and correctly identify all the whammies.

Whammies:

$\dfrac{(2^4 - 3^4) + 3}{(-6)(-2) - 4}$	$-4\left[9(-2 + 7)\right]$	$\dfrac{64 - 49}{-3(4 + 9)}$	$\dfrac{6}{-6}$
$\dfrac{7\left[6 - (-2)\right]}{9 - 4 - 5}$	$10 \div 10 + 3(-6)$	$\dfrac{8 + 12 + 4}{8 - 4}$	$(0 \cdot 3)(-3)^2$

Worksheet: If you'd like a worksheet for students to take notes on the steps, there is also a worksheet included on page 3.

$\dfrac{-2-(-4)}{-3+(-3)}$	$\dfrac{-2+4}{-6}$	$\dfrac{2}{-6}$	$-\dfrac{1}{3}$
$-4\big[12-3(-2+7)\big]$	$-4\big[12-3(5)\big]$	$-4[-3]$	12
$\dfrac{(2-3)^4+3}{(-6)(-2)-4}$	$\dfrac{(-1)^4+3}{12-4}$	$\dfrac{1+3}{8}$	$\dfrac{1}{2}$
$\dfrac{8^2-7^2}{-3\left(4-3^2\right)}$	$\dfrac{64-49}{-3(4-9)}$	$\dfrac{15}{-3(-5)}$	1
$\left(2-2^2\cdot 3\right)(-3)^2$	$(2-4\cdot 3)(9)$	$(2-12)(9)$	-90
$10\div 2\cdot 5+3(1-7)$	$5\cdot 5+3(-6)$	$25-18$	7
$\dfrac{\left|8-12\right|+(-2)^2}{2^3-2^2}$	$\dfrac{\left|-4\right|+4}{8-4}$	$\dfrac{4+4}{4}$	2
$\dfrac{9-2\big[6-(2-4)\big]}{9-2^2-5}$	$\dfrac{9-2\big[6-(-2)\big]}{9-4-5}$	$\dfrac{9-2[8]}{0}$	Undefined

OOP Chains Worksheet

$$\dfrac{-2-(-4)}{-3+(-3)}$$			
$-4\left[12-3(-2+7)\right]$			
$$\dfrac{(2-3)^4+3}{(-6)(-2)-4}$$			
$$\dfrac{8^2-7^2}{-3\left(4-3^2\right)}$$			
$\left(2-2^2\cdot 3\right)(-3)^2$			
$10\div 2\cdot 5+3(1-7)$			
$$\dfrac{\left|8-12\right|+(-2)^2}{2^3-2^2}$$			
$$\dfrac{9-2\left[6-(2-4)\right]}{9-2^2-5}$$			