Order Up: Using Number Lines to Connect and Access Number Concepts across Grade Levels

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Example starter number sets for index cards

Kindergarten: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

(starting from kindergarten set) 1st: 7-0, 7+1, 2+3, 3+2, 4-3, 3+3, 4+4, 5+5, 9-5, 0+0, 2-2

(starting from kindergarten and/or 1st grade set) 2nd: 18-11, 20-19, 23-18, 25-15, 40-40

(starting from kindergarten and/or 1st grade set) 3rd multiplication: 3x2, 3x1, 3x0, 0x3, 5x2

3rd Fractions: 0, 1/8, 1/4, 3/8, 1/2, 3/4, 7/8, 5/8, 1, 4/8, 9/12, 6/8, 10/20, 6/6

(starting from 3rd grade fractions) 4th-6th Fraction operations: $\frac{1}{2}-\frac{1}{4}, \frac{1}{2}-\frac{1}{8}, \frac{1}{2}+\frac{1}{4}, \frac{1}{2}+\frac{1}{8}, \frac{1}{2}+\frac{1}{2}, \frac{3}{8}-\frac{1}{8}, \frac{1}{4}-\frac{1}{8}$

(starting from 3rd grade fractions) 5th-6th Fraction operations: $\frac{1}{2}\times\frac{1}{4}, \frac{1}{2}\times\frac{2}{8}, \frac{1}{2}\div\frac{1}{4}, \frac{1}{4}\div\frac{1}{2}, \frac{1}{2}\div\frac{1}{2}, \frac{3}{2}\times\frac{1}{2}, \frac{3}{2}\times\frac{1}{4}$

6th-7th integers and integer operations: Integers -8 through 8, any integer expressions that lead to -8 through 8

8th Rational and irrational numbers (starting from 6th-7th integers and integer operations): add different approximations for pi, radical expressions, exponents

Basic number line tasks

Task 1: Put numbers in order from least to greatest.

Task 2: Pick three and put them in order from least to greatest.

Task 3: Start with Task 2. Have students create cards to fill in missing values.

Questions to ask teachers

1) How do these numbers directly relate to your grade-level standards either directly or indirectly?
2) What vocabulary words are important to fully understanding the number sets?
3) How does the number line help you understand relationships between number and operation?

Note- a great next activity would to be to have teachers create their own sets of numbers.

Questions to ask students

1) How did you decide where to place each number?
2) What patterns do you notice? Are there any conjectures that you can make about specific operations or numbers?
3) Are the numbers equal distances apart? Should they be?
4) What other numbers or expressions might fit in this set? Why?