**Consecutive Sums of Counting Numbers**

Definition: A consecutive sum of counting numbers can start with any counting number, n, add at least the next counting number, n+1, and stop adding after any amount of consecutive integers.

Examples: 3+4 = 7 7 is a consecutive sum of counting numbers

1+2+3+4+5 = 4+5+6 = 7+8 = 15 15 is a consecutive sum in 3 distinct ways.

**Investigation:**

Carefully collect data. Record in an organized way the data you collect.

Make conjectures as to which counting numbers are consecutive sums of 2 numbers, of 3 numbers, … and which are NOT consecutive sums at all. Explain why these patterns hold.

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**Extension**

For numbers that are consecutive sums, investigate patterns that predict the number of distinct ways a number can be written as consecutive sums. (e.g. 15 can be written 3 ways.)

(A teacher may want to suggest that students explore the rules that pertain to arithmetic sequences.)