Strong Induction

Prove: It takes $n-1$ breaks to reduce an $n$-square chocolate bar to $n$ individual squares.
Set-up and Base case:

Let P(n) be the predicate: it takes n-1 breaks to reduce an n-square chocolate bar to n individual pieces. We will prove P(n) is true for all n>0 using strong induction.

Base case: When you have a 1-square chocolate bar, it requires 0 breaks because it is already in 1 individual piece. Thus P(1) is true
Inductive Step

Inductive step: We assume for induction the P(k) is true for $1 \leq k < n$. We will prove P(n) is true. Since $n > 1$, we can break our chocolate into two pieces, one with $a$ squares, and one with $b$ squares, where $a + b = n$, and $1 \leq a < n$ and $1 \leq b < n$. Using our inductive assumption, it requires $a - 1$ breaks to separate the first piece, and $b - 1$ breaks to separate the second piece. Adding up all the breaks, we have $(a - 1) + (b - 1) + 1 = n - 1$ breaks.