There is also a larger application of the well-ordering principle:

- Let $A \subseteq N$
- Assume that we can show: $\forall n \in A, \exists m \in A$ with $m < n$.
- Then: $A = \emptyset$.

Why?

If $A \neq \emptyset$, it has a least element. Call it q.
Then there exists $r < q$ with $r \in A$. But this contradicts the minimality of q.