

# Set of Natural Numbers

## Definition: Set of Natural Numbers

The set of Natural Numbers is the smallest set such that,

- $0 \in \mathbb{N}$
- $n \in \mathbb{N} \rightarrow n + 1 \in \mathbb{N}$

This definition contains 3 of the 5 ideas behind Peano axioms. They are,

- $0 \in \mathbb{N}$
- $n \in \mathbb{N} \rightarrow n + 1 \in \mathbb{N}$
- $n + 1 = 0 \rightarrow n \notin \mathbb{N}$
- $n + 1 = m + 1 \rightarrow n = m$
- $(0 \in A \wedge n \in A \rightarrow n + 1 \in A) \rightarrow A \subseteq \mathbb{N}$