How to approach a proof by induction

- Let $\mathbb{N}^{\geq n_0} = \{n \in \mathbb{N} | n \geq n_0\}$. Find a way of defining a logical statement $P(n)$ (that depends on a parameter n) so that what you want to prove is:

$$\forall n \in \mathbb{N}^{\geq n_0}, P(n)$$

- Prove the base case: show $P(n_0)$ is true
- Say "Let N be arbitrary".
- State the Inductive Hypothesis: "$P(N)$ is true"
- Show that $P(N) \to P(N+1)$
- Point out that N was arbitrary so the result holds for all $N \geq n_0$.
- Optional: say "Q.E.D."