Definition (Lower set). A *lower set* is a subset *S* of a poset **P** if, if a point is inside, all points below it are inside as well. In formulas:

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S is a lower set of $\mathbf{P} \equiv \forall x \in S, \forall y \in \mathbf{P} : y \leq_{\mathbf{P}} x \Rightarrow y \in S$.