TERMINOLOGY

OUTCOME SPACE : This is the set of all possible outcomes (Ω)
OUTCOME : An element of the outcome space (ω)
EVENT : A subset of the outcome space.

Note that outcome space and events are sets, while the outcome is an element of the set.

One way to think about this is whenever you're dealing with an uncertain experiment, the outcome space is the set of all outcomes that are possible. The event then can be thought of as applying a filter on the outcome space. The event contains the outcomes that satisfy the condition of the filter.

EXAMPLE: Assume you're flipping a fair, 6-sided die.
Your outcome space would be $\{1, 2, 3, 4, 5, 6\}$
Now if you apply the filter "even outcomes only"
then your event is $\{2, 4, 6\}$.

Similarly, if my filter was "outcomes ≥ 7", then my event would be ϕ. → empty set

Therefore, the event can be a null set or the entire outcome space