How many events can be formed altogether?
If the sample space is infinite, then an infinite number of events can be formed.
If the sample space is finite, how many events can be formed?
Example: Suppose that the sample space is $S = \{\bullet, \star, \square\}$.
The events that describe the 1 shape that was chosen are:

$A = \{\bullet\}$ "the dot was chosen"
$B = \{\star\}$ "the star was chosen"
$C = \{\square\}$ "the box was chosen"
$D = \{\bullet, \star\}$ "the dot or star was chosen"
$E = \{\bullet, \square\}$ "the dot or box was chosen"
$F = \{\star, \square\}$ "the star or box was chosen"
$G = \{\bullet, \star, \square\} = S$ "the dot, star, or box was chosen"
$H = \emptyset$ "none of the shapes was chosen"

For instance, if the dot is chosen, then event A occurs. Also event D occurs in that case, and event E occurs, and event G (i.e., S) also occurs.

In this case, there were three outcomes in the sample space S, i.e., we might say $|S| = 3$. I.e., the size of the sample space is 3. We were able to form $8 = 2^3$ events in this case.

In general, if the sample space S contains a finite number n of items, then there are 2^n possible events that can be formed. To see this, notice that when we build an event, we have 2 possible decisions to make for each item, namely, do we include the item, or do we leave it out, of the event?