Use Math.random or Random's methods?

Maybe you've found some code on the internet, on how to randomize a character, and it comes back with code that you see on this slide.

```
int random = (int) (Math.random() * (26)) + 65;
```

The Math.random method uses an instance of the Random class, and invokes the nextDouble method on that class.

The first time you call Math.random, a single new instance of java.util.Random is created, and used for all subsequent calls.

Common Usage of Math.random, getting a range of numbers

```
int r = (int) (Math.random() * (upper - lower)) + lower;
```

This was a pattern used a lot, because until JDK 17, the Random.nextInt method only supported an upper bound.

When you use Random, you have to use an instance of it.

What's a seed?

In most programming languages, the random functions, aren't truly random.

Algorithms exist that create distributions of numbers, that achieve what a random distribution might look like, over a large range of values.

These are called **pseudorandom number generators**, and they're dependent on an **initial value** called a seed.