# Programming for Everybody

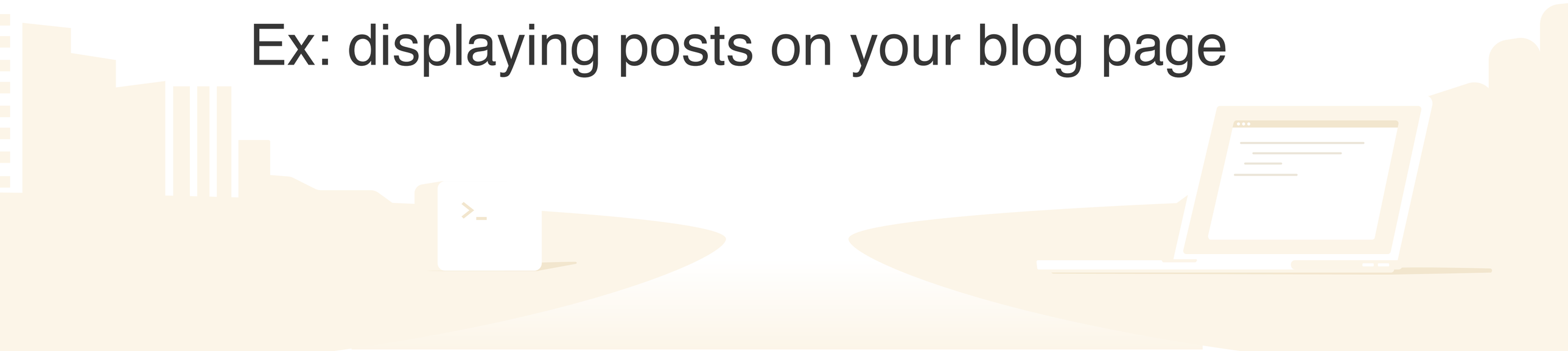
## 3. Loops and iterators

le wagon

# Why looping?

**To repeat an action in Ruby!**

Ex: displaying posts on your blog page

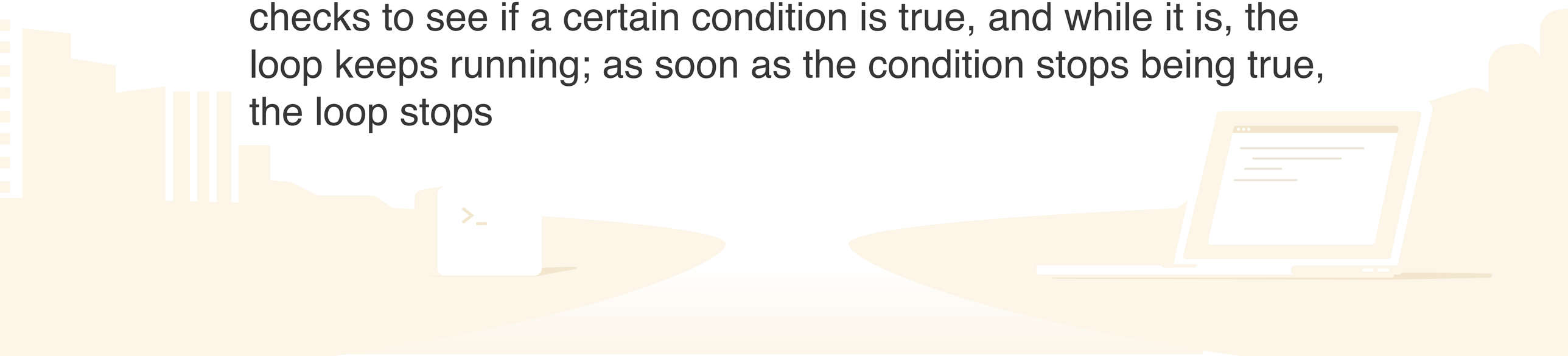


# While

the number of times we'll be looping is **unknown**

repeats an action in Ruby while a certain condition is **true**

checks to see if a certain condition is true, and while it is, the loop keeps running; as soon as the condition stops being true, the loop stops

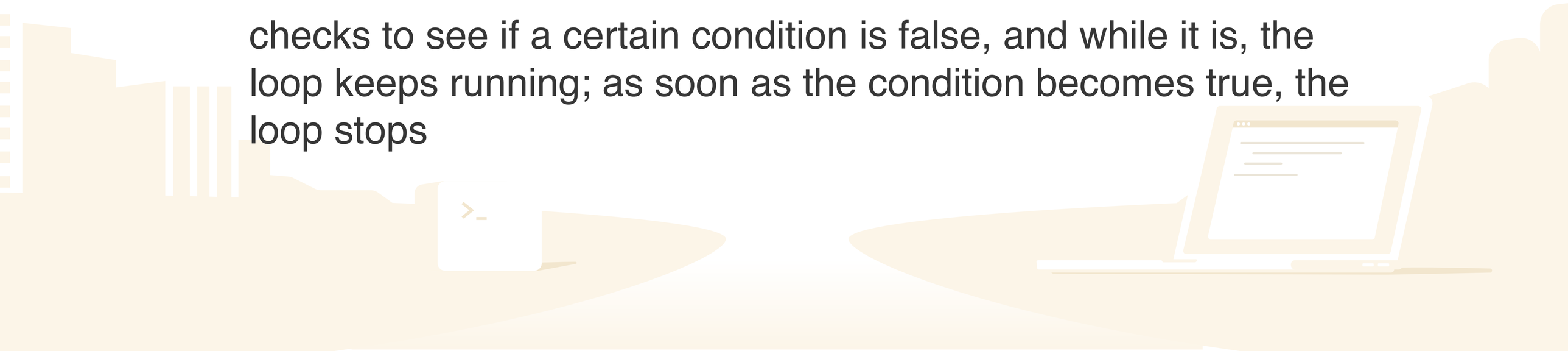


# Until

the number of times the action will be repeated is also **unknown**

repeats an action in Ruby while a certain condition is **false**

checks to see if a certain condition is false, and while it is, the loop keeps running; as soon as the condition becomes true, the loop stops



# Beware of infinite loops!

```
counter = 1

while counter < 11
    puts counter
    counter = counter + 1   (same as counter +=1)
end
```

if we'd forgotten to **increment the counter** the loop would have kept checking it counter was less than 11

and because 1 is always less than 11, the loop would never have ended!

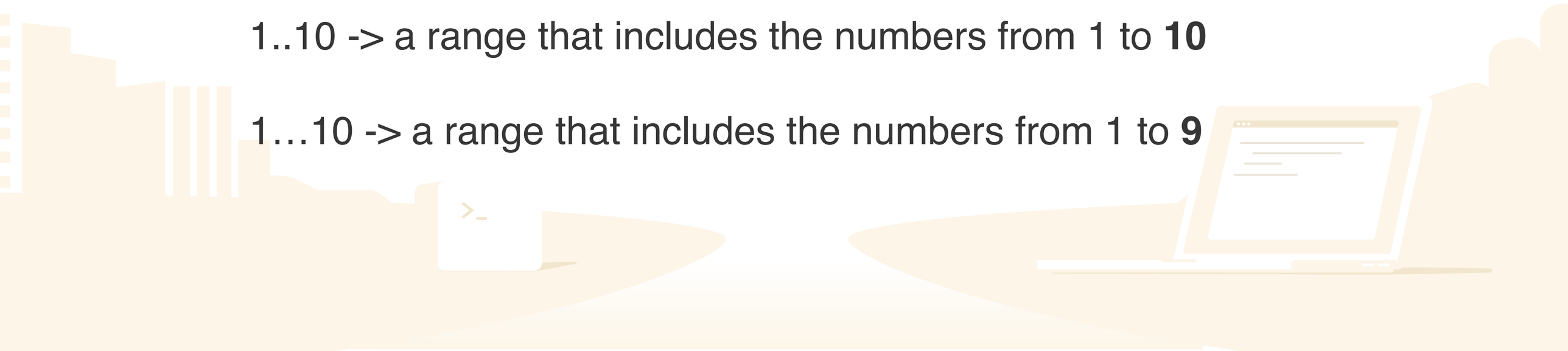
# For

the number of times the action will be repeated is **known**

to repeat an action in Ruby within a certain **range** of elements

1..10 -> a range that includes the numbers from 1 to **10**

1…10 -> a range that includes the numbers from 1 to **9**

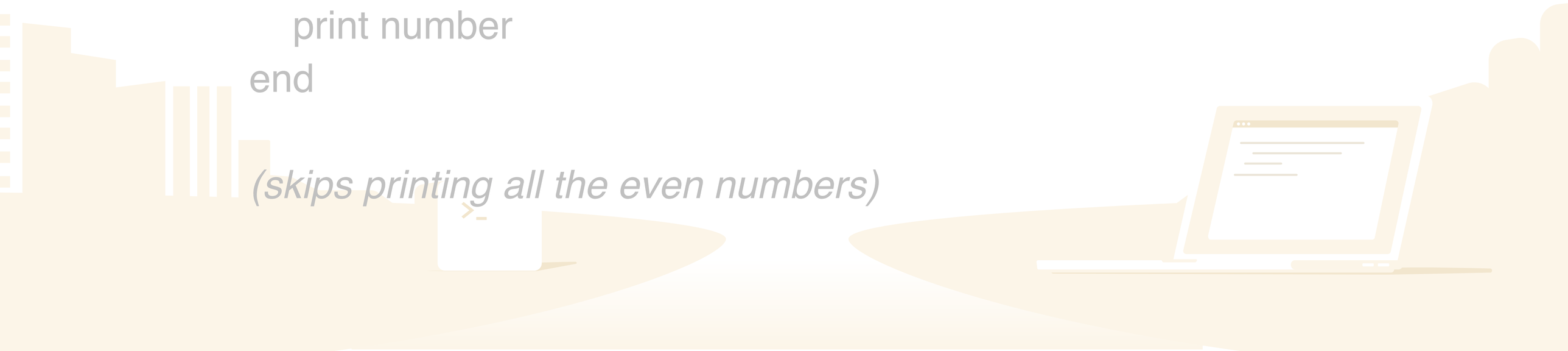


# Next

used to skip over certain steps in the loop

```
for number in 1..5
    next if number % 2 == 0
    print number
end
```

*(skips printing all the even numbers)*

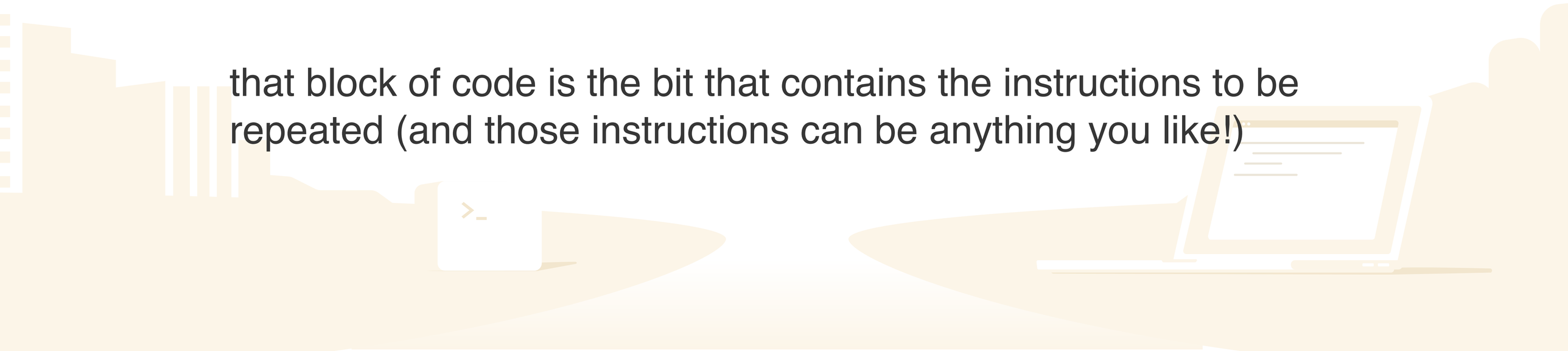


# Iterators

anther way to loop in Ruby!

an **iterator** is a Ruby method that repeatedly invokes a block of code

that block of code is the bit that contains the instructions to be repeated (and those instructions can be anything you like!)



# Loop

it’s the simplest iterator of all

```
loop { print "Hello, world!" }
```

is the same as

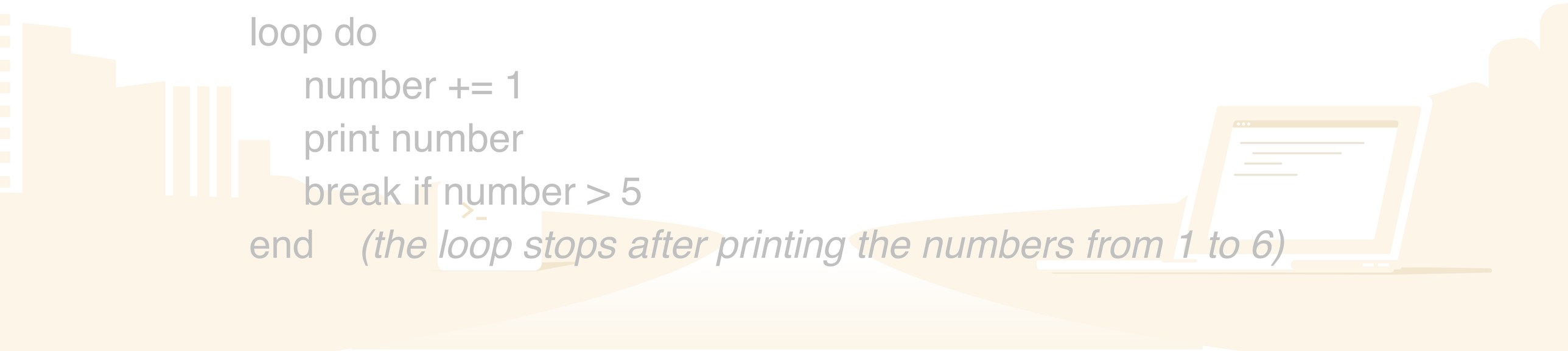
```
loop do
  print "Hello, world!"
end
```

# Loop (cont.)

when using the loop method we need to use “**break"** to break the loop as soon as a certain condition is met

```
number = 0

loop do
    number += 1
    print number
    break if number > 5
end    (the loop stops after printing the numbers from 1 to 6)
```



# Each

a more powerful operator that can apply an expression to **each element** of a **collection**, one at a time

```
collection_name.each do | item |
    #do something to each item
end
```

the name between | | can be anything -> it’s just a placeholder for each element of the collection you’re applying .each to

# Times

does something to an item a **specified number of times**

```
10.times do
    #do something
end
```

# Thank you!