Classes

What is an object?

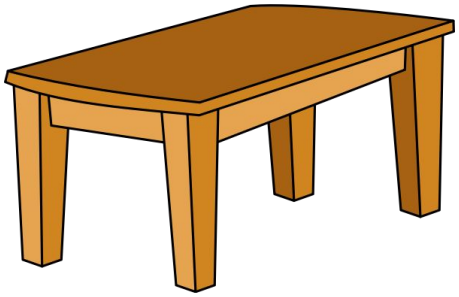
What do you think an object is?

What is an object?

What do you think an object is?

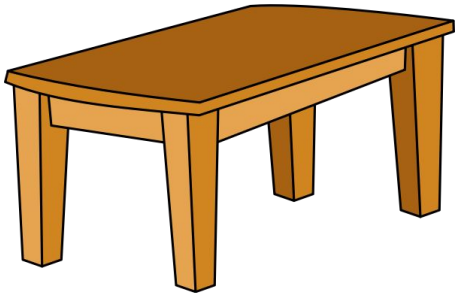
What is an object?

What do you think an object is?



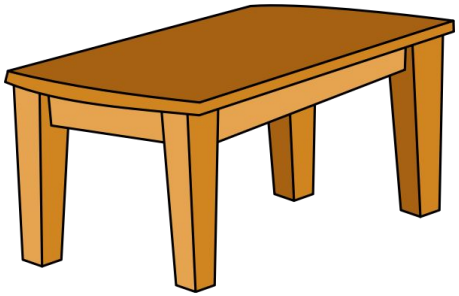
What is an object?

What do you think an object is?



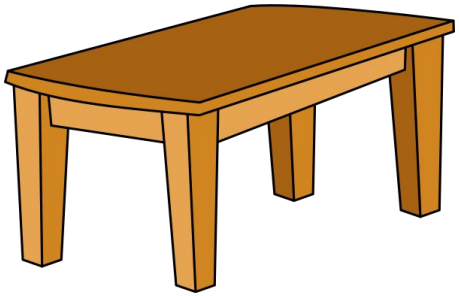
What is an object?

What do you think an object is?



What is an object?

What do you think an object is?



What is an object in code?

An object is something that we know information about and that can do things

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name

Age

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name

Age

Colour

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name **Owner**

Age

Colour

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name

Owner

Age

Weight

Colour

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What information might we know about a cat?

Name	**Owner**
Age	**Weight**
Colour	**Microchip #**

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

Eat

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

Eat

Scratch

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

Eat

Scratch

Sleep

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

Eat

Scratch

Sleep

Purr

What is an object in code?

An object is something that we know information about and that can sometimes do things

Like a cat!

What things might a cat do?

Meow

Sleep

Eat

Purr

Scratch

Jump

What does that look like in Python?

Let’s have a look at how we might make a Cat object in Python code!

What does that look like in Python?

Let's have a look at how we might make a Cat object in Python code!

```
class Cat():
    def __init__(self, name, age, colour):
        self.name = name
        self.age = age
        self.colour = colour
```

Here we tell python that we are making a new type (or class) of object called Cat

What does that look like in Python?

Let's have a look at how we might make a Cat object in Python code!

__init__ is how we tell Python how to make a new Cat

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour
```

What does that look like in Python?

Let's have a look at how we might make a Cat object in Python code!

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour
```

Here we tell Python what information we need to know about the Cat

Note: self is special and we always need it

What does that look like in Python?

Let's have a look at how we might make a Cat object in Python code!

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour
```

Here we save the information we got so we can use it again

What does that look like in Python?

How do we make a new Cat?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

emmy = Cat(“Emmy”, 3, “Dark brown”)
```

What does that look like in Python?

What does this print out?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

emmy = Cat(“Emmy”, 3, “Dark brown”)
print(emmy.name)
print(emmy.age)
print(emmy.colour)
```

What does that look like in Python?

What does this print out?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

emmy = Cat(“Emmy”, 3, “Dark brown”)
print(emmy.name)
print(emmy.age)
print(emmy.colour)
```

```
Emmy
3
Dark Brown
```

What about doing things?

We said an object was something with information that could sometimes do things. Our Cat object doesn't do anything right now - let's add a way for it to meow!

What about doing things?

We said an object was something with information that could sometimes do things. Our Cat object doesn't do anything right now - let's add a way for it to meow!

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print("Meow")
```

What about doing things?

What does this code do?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print(“Meow”)

emmy = Cat(“Emmy”, 3, “Dark brown”)
emmy.meow()
```

What about doing things?

What does this code do?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print(“Meow”)

emmy = Cat(“Emmy”, 3, “Dark brown”)
emmy.meow()
```

Meow

What else can it do?

Let’s have our cat have a Birthday that makes it get older by 1 year!

What else can it do?

Let’s have our cat have a Birthday that makes it get older by 1 year!

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print(“Meow”)

  def birthday(self):
    self.age = self.age + 1
```

What else can it do?

What does this code do?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print(“Meow”)

  def birthday(self):
    self.age = self.age + 1

emmy = Cat(“Emmy”, 3, “Dark brown”)
emmy.birthday()
print(emmy.age)
```

What else can it do?

What does this code do?

```
class Cat():
  def __init__(self, name, age, colour):
    self.name = name
    self.age = age
    self.colour = colour

  def meow(self):
    print(“Meow”)

  def birthday(self):
    self.age = self.age + 1

emmy = Cat(“Emmy”, 3, “Dark brown”)
emmy.birthday()
print(emmy.age)
```

4

I have more than 1 cat!

Emmy has a little sister, Saphira! Let’s add her to our code too!

```
cat1 = Cat(“Emmy”, 3, “Dark brown”)
cat2 = Cat(“Saphira”, 1, “Grey”)
```

Cat Crime!

There has been a cat crime!

One of the cats has gotten on the kitchen counter and eaten some of my lunch!

They both look innocent but they left a hair behind at the scene of the crime! Let’s write some code to work out who did it

Cat Crime

Who did it??

```
cat1 = Cat(“Emmy”, 3, “Dark brown”)
cat2 = Cat(“Saphira”, 1, “Grey”)

hair_colour = “Grey”

if hair_colour == cat1.colour:
  print(“That hair belongs to”, cat1.name)
elif hair_colour == cat2.colour:
  print(“That hair belongs to”, cat2.name)
```

Cat Crime

Who did it??

```
cat1 = Cat(“Emmy”, 3, “Dark brown”)
cat2 = Cat(“Saphira”, 1, “Grey”)

hair_colour = “Grey”

if hair_colour == cat1.colour:
  print(“That hair belongs to”, cat1.name)
elif hair_colour == cat2.colour:
  print(“That hair belongs to”, cat2.name)
```

```
That hair belongs to Saphira
```