Welcome to the Labs

Scissors Paper Rock!

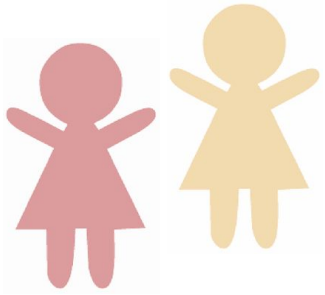
Who are the tutors?

Who are you?

Ultimate Scissors Paper Rock

1. Start with a partner
2. play scissors paper rock!

Who will be the champion?



Ultimate Scissors Paper Rock

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3. If you win they become your cheer squad!
   And their squad becomes your squad!
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5. Keep playing until there is only one person left!

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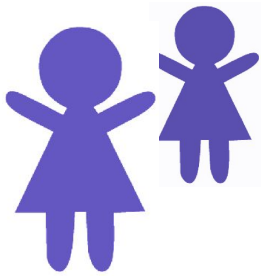

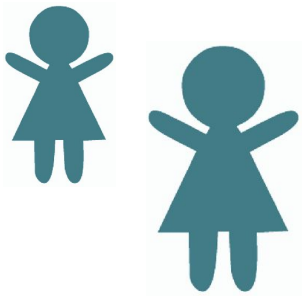

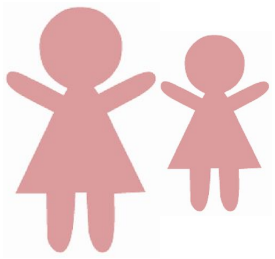

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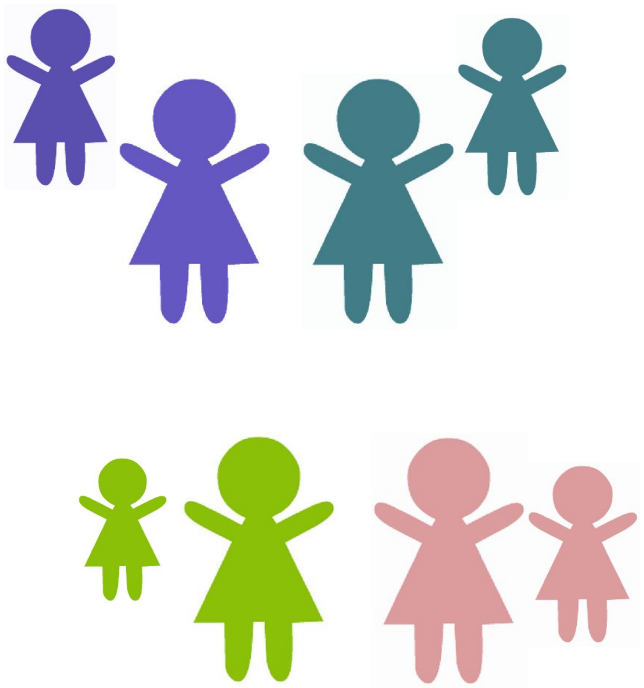

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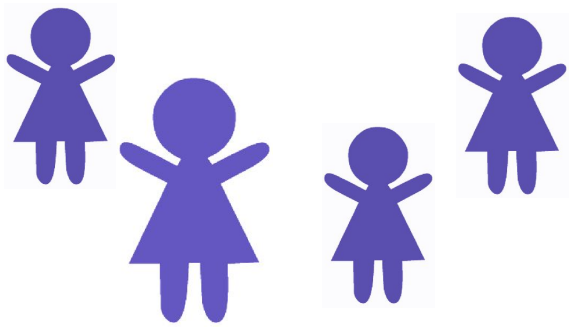

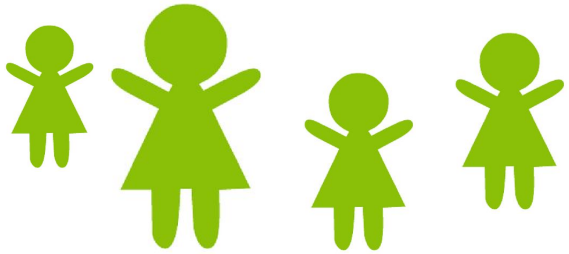

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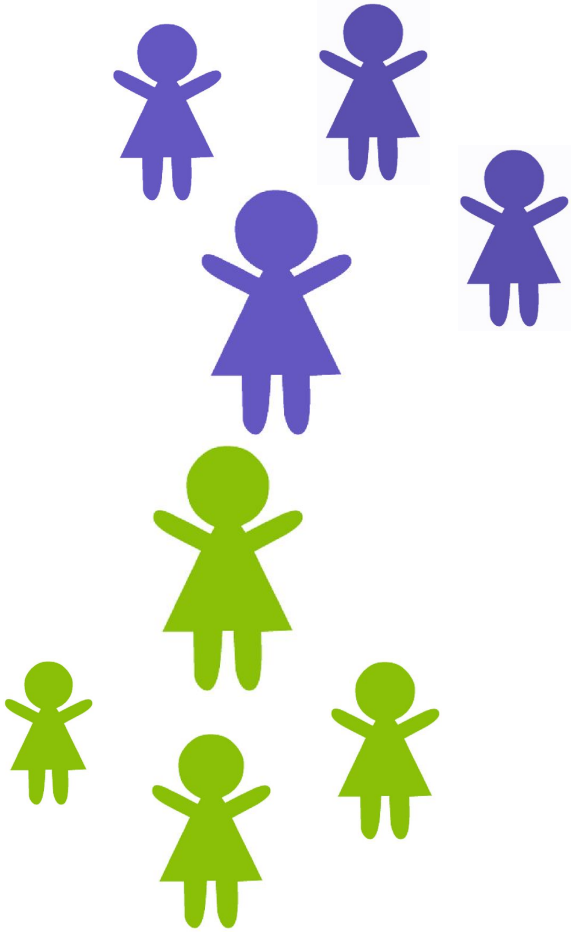

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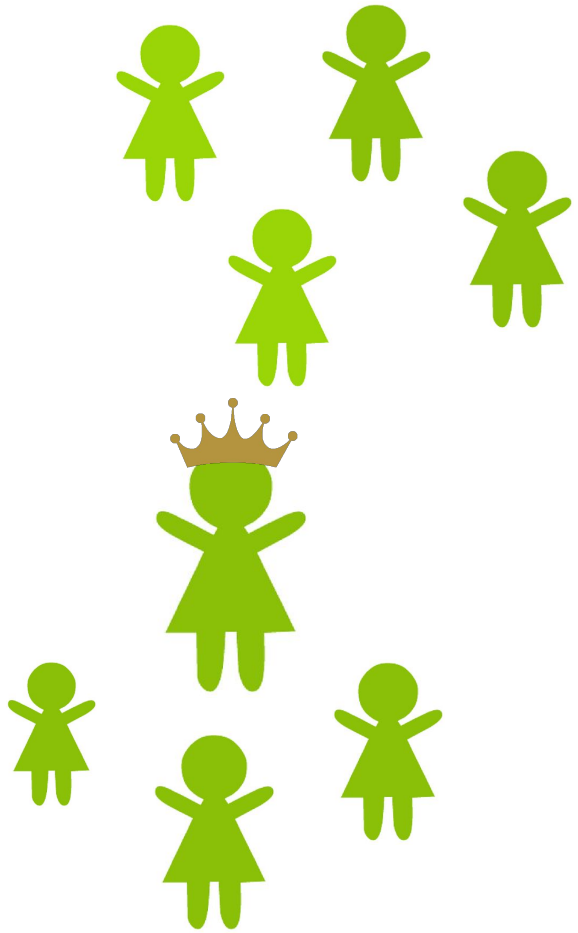


Log on

Log on and jump on the GPN website

girlsprogramming.network/workshop

You can see:

- These **slides** (to take a look back or go on ahead).
- A digital copy of your **workbook**.
- Help bits of text you can **copy and paste**!

There's also links to places where you can do more programming!

Tell us you're here!

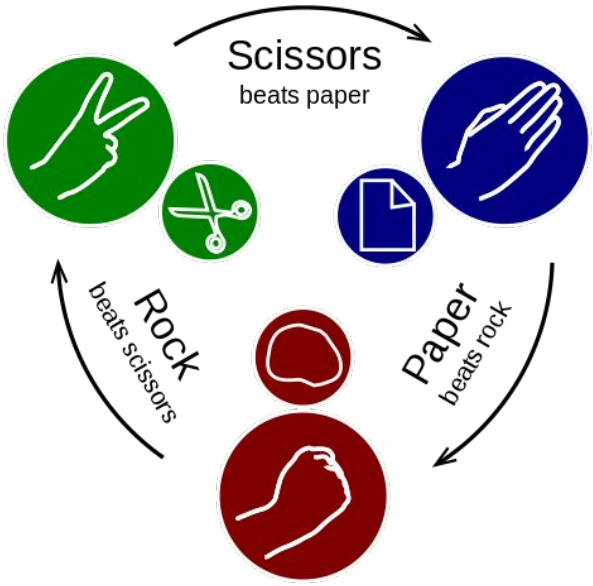
Click on the
Start of Day Survey
and fill it in now!

Today’s project!

Scissors Paper Rock!

Best of Three?

Let’s go round the room, and play some Scissors Paper Rock!



It’s what we’ll be programming today, so have a think about some of the actions required to play!

Scissors Paper Rock

How did you go? Did you win?

Some of the things that we need to do to play scissors paper rock include:

- We have to select a move (out of scissors, paper and rock)
- Our opponent has to select a move
- We need to know what combinations of move result in win, lose or tie.
- We need to compare our moves to see who won!
- We have to congratulate the winner!

We'll be programming these actions today! Our opponent is going to be the computer.

Using the workbook!

The workbooks will help you put your project together!

Each **Part** of the workbook is made of tasks!

Tasks - The parts of your project

Follow the tasks **in order** to make the project!

Hints - Helpers for your tasks!

Stuck on a task, we might have given you a hint to help you **figure it out**!

The hints have **unrelated** examples, or tips. **Don't copy and paste** in the code, you'll end up with something **CRAZY**!

Task 6.2: Add a blah to your code!

This has instructions on how to do a part of the project

1. **Start by doing this part**
2. **Then you can do this part**

Task 6.1: Make the thing do blah!

Make your project do blah ….

Hint

A clue, an example or some extra information to help you **figure out** the answer.

```
print('This example is not part of the project' )
```

Using the workbook!

The workbooks will help you put your project together!

Check off before you move on from a **Part**! Do some bonuses while you wait!

Checklist - Am I done yet?

Make sure you can tick off every box in this section before you go to the next Part.

Lecture Markers
This tells you you'll find out how to do things for this section during the names lecture.

Bonus Activities
Stuck waiting at a lecture marker?
Try a purple bonus. They add extra functionality to your project along the way.

☑ **CHECKPOINT** ☑

If you can tick all of these off you're ready to move the next part!
☐ Your program does blah
☐ Your program does blob

★ **BONUS 4.3: Do some extra!**

Something to try if you have spare time before the next lecture!

Intro to programming

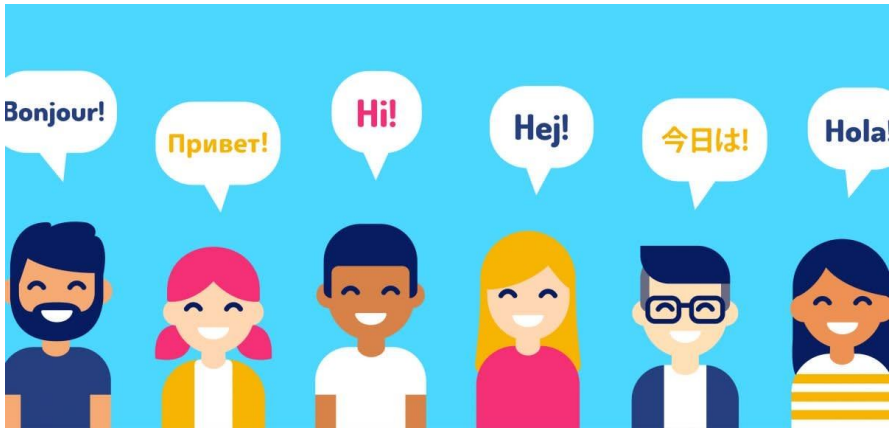
What is programming?

Programming is not a bunch of crazy numbers!

It's giving computers a set of instructions!

A special language

Humans have languages like English, French, Spanish, Mandarin



https://images.saymedia-content.com/.image/t_share/MTc0MTAyNzI3ODUxMjU1MjQx/how-to-easily-learn-a-language.jpg

And computers have languages like Python, Java, C and PHP

Problem solving

Programming is how we get computers to solve complicated problems for us, saving us both time and effort!

This might be solving maths problems or counting words in a paragraph!

People are smart, computers are dumb!

Computers do exactly what they're told. They follow instructions given to them in order, just like a cook following a recipe.

If the instructions are not in the correct order, we will end up with a mess!

Everyone/thing has strengths!

- Incomplete instructions are okay - we can fill in the blanks!
- Improves everyday

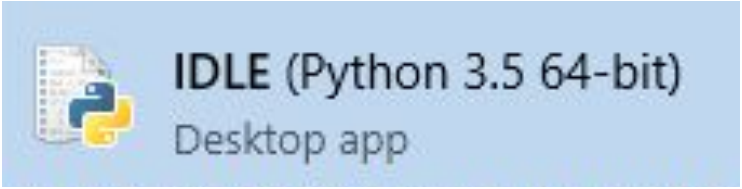
- Incomplete instructions are not okay
- Improves when you tell it how to

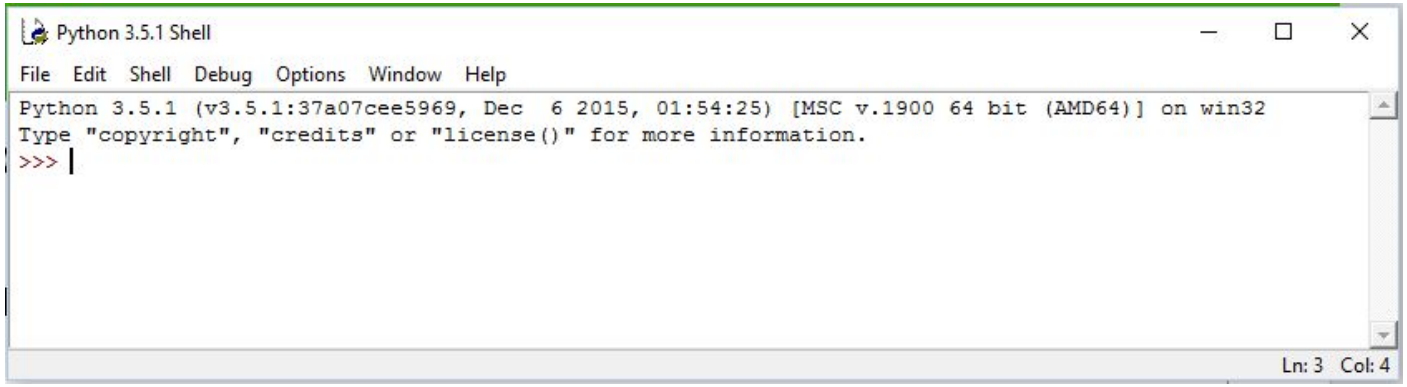
Intro to Python

Let’s get coding!

Where do we program? In IDLE

Click the start button and type IDLE!





Make a mistake!

Type by **button mashing** the keyboard!

Then press enter!

```
asdf asdjlkj;pa j;k4uroei
```

Did you get a big red error message?

Mistakes are great!

SyntaxError: Invalid Syntax

Good work you made an error!

ImportError: No module named humour

- Programmers make A LOT of errors!
- Errors give us hints to find mistakes
- Run your code often to get the hints!!
- Mistakes won't break computers!

KeyError: 'Hairy Potter'

```
AttributeError:
'NoneType' object
has no attribute
'foo'
```

```
TypeError: Can't
convert 'int' object
to str implicitly
```

Write some code!

Type this into the window

Then press enter!

```
print('hello world')
```

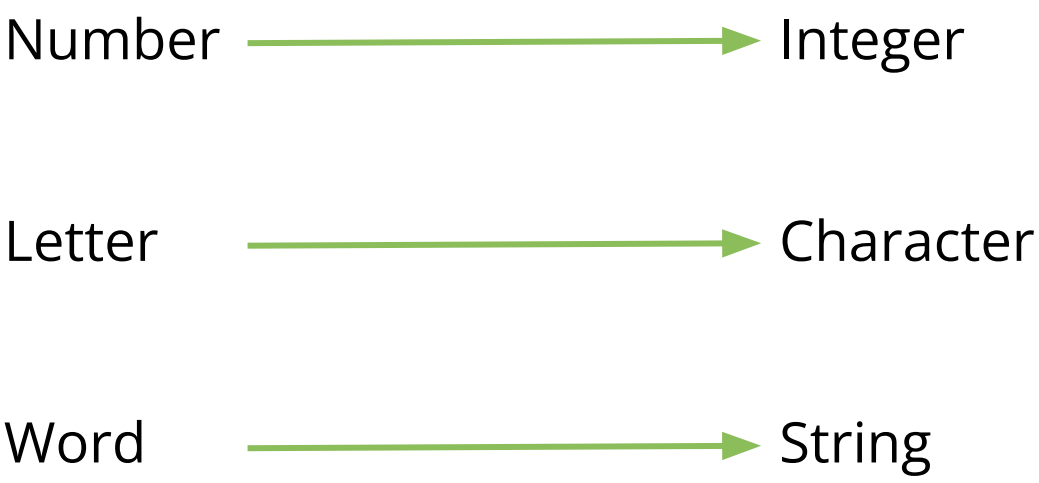
Did it print:

```
hello world
```

???

Data types

In programming, we have special names for the following:



Let’s look at some examples

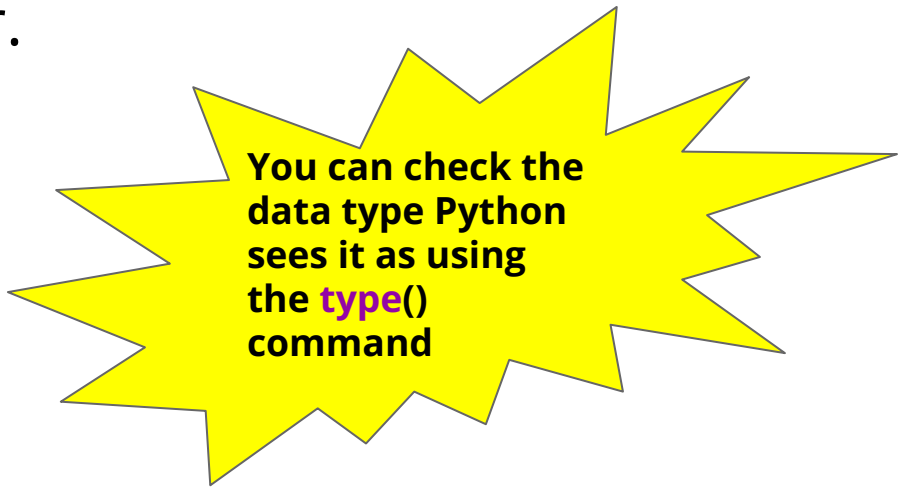
Characters - not always letters

What do all of these have in common?

“A” ‘6’ “f” ‘$’

Anything that only takes up only one space and is surrounded by ‘single’ or “double” quotes, is considered a **character** by the computer.

```
type("5") = char
type(5) = int
```



Strings

Strings are a group of more than one **character** put together and surrounded with `"quotes"`

All of these are strings:

```
"Dog"
        "my name is"
                  "123 hahaha"
                              "$%#^&@(){}[]"
```

A calculator for words!?

What do you think these bits of code do?
Try them and see!

```
>>> "cat" + "dog"
```

```
>>> "tortoise" * 3
```

Calculator for... words!?

What do you think these bits of code do?
Try them and see!

```
>>> "cat" + "dog"
catdog

>>> "tortoise" * 3
```

Calculator for... words!?

What do you think these bits of code do?
Try them and see!

```
>>> "cat" + "dog"
catdog

>>> "tortoise" * 3
tortoisetortoisetortoise
```

Calculator for words and number?

If we can do calculations with numbers, and calculations with words, can we do calculations with words *and* numbers?

Try writing this!

```
>>> 1 + "1"
```

```
>>> "100" * 2
```

How do we deal with this problem? See next slide!

Type casting

We tell the computer exactly what type we want to use!

We can turn a string into an integer using int()

```
>>> 5 + int("5")
```

Similarly, we turn an integer into a string using str()

```
>>> str(5) + "5"
```

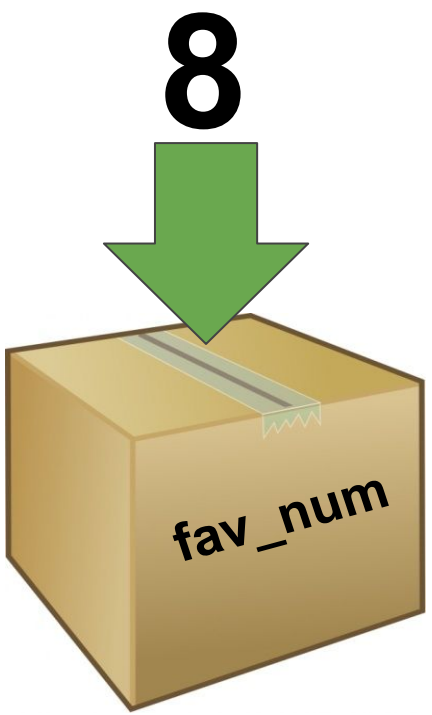
No Storing is Boring!

It's useful to be able to remember things for later!

Computers remember things in **"variables"**

Variables are like putting things into a **labeled cardboard box**.

Let's make our favourite number 8 today!



Variables

Instead of writing the number 8, we can write fav_num.


```
fav_num - 6
```

=> 2

```
fav_num + 21
```

=> 29

```
fav_num * 2
```

=> 16

```
fav_num / 2
```

=> 4

Variables

Instead of writing the number 8, we can write fav_num.


```
fav_num - 6
```

=> 2

```
fav_num + 21
```

=> 29

```
fav_num * 2
```

=> 16

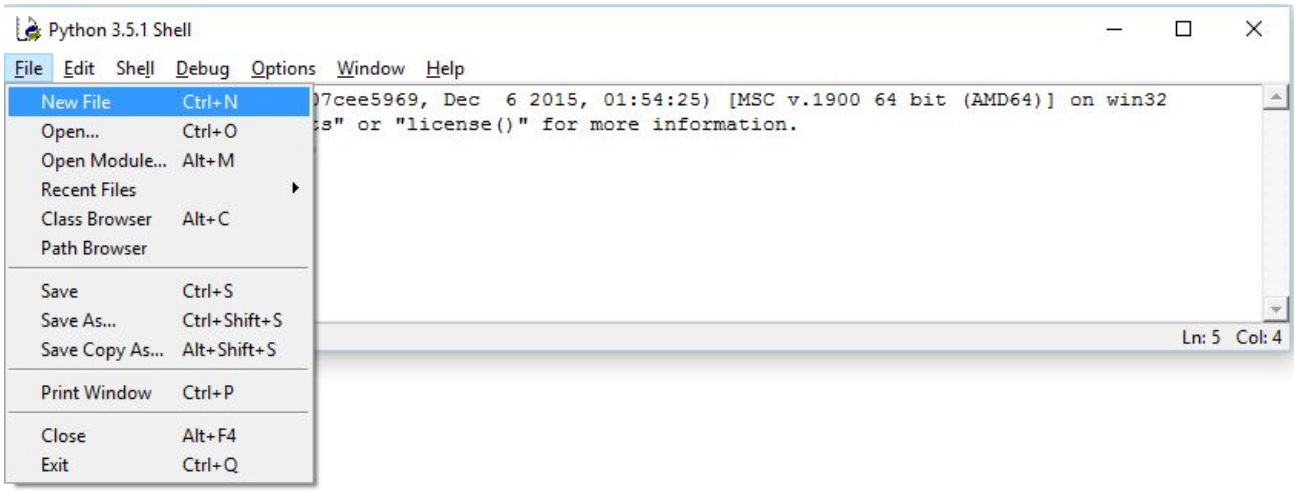
```
f                2
```

But writing 8 is much shorter than writing `fav_num`???

We'll come back to this later!

Coding in a file!

Code in a file is code we can run multiple times! Make a reusable “hello world”!



1. Make a new file called hello.py, like the picture
2. Put your `print('hello world')` code in it
3. Run your file using the F5 key

Adding a comment!

Sometimes we want to write things in our file that the computer doesn't look at. We can use **comments** for that!

Sometimes we want to write a note for a people to read

```
# This code was written by Vivian
```

And sometimes we want to not run some code (but don't want to delete it!)

```
# print("Goodbye world!")
```

Try it!

1. Add a comment to your hello.py file
2. Run your code to make sure it doesn't do anything extra!

Asking a question!

It's more fun when we get to interact with the computer!

Try out this code to get the computer to ask you a question!

```
my_name = input('What is your name? ')
print('Hello ' + my_name)
```

What do you think happens?

Asking a question!

```
my_name = input('What is your name? ')
print('Hello ' + my_name)
```

What do you think happens?

```
What is your name? Maddie
Hello Maddie
```

Asking a question!

Store the answer in the variable my_name

Writing input tells the computer to wait for a response

This is the question you want printed to the screen

```
my_name = input('What is your name? ')
print('Hello ' + my_name)
```

What do you think happens?

```
What is your name? Maddie
Hello Maddie
```

We can use the answer the user wrote that we then stored later!

Asking a question!

How would we ask somebody for their favourite type of cake?

How would we print their answer?

Give it a try on your own computer first!

```
What cake do you like? chocolate
chocolate cake for you!
```

Asking a question!

How would we ask somebody for their favourite type of cake?

How would we print their answer?

Give it a try on your own computer first!

```
flavour = input("What cake do you like? ")
```

```
What cake do you like? chocolate
chocolate cake for you!
```

Asking a question!

How would we ask somebody for their favourite type of cake?

How would we print their answer?

Give it a try on your own computer first!

```
flavour = input("What cake do you like? ")
print(flavour + "cake for you"!)
```

```
What cake do you like? chocolate
chocolate cake for you!
```

Project time!

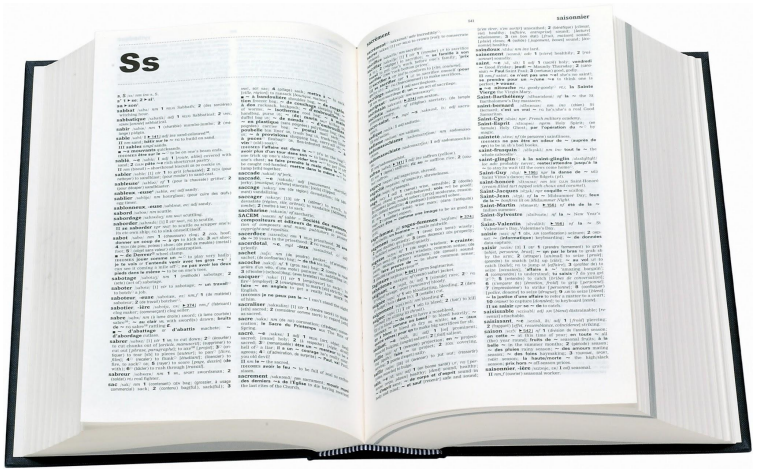
You now know all about printing and variables!

Let's put what we learnt into our project

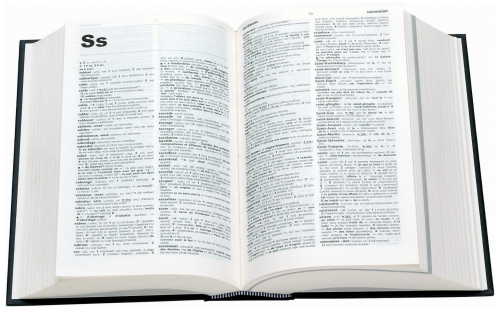
Try to do Part 0 - Part 2

The tutors will be around to help!

Dictionaries



Dictionaries!

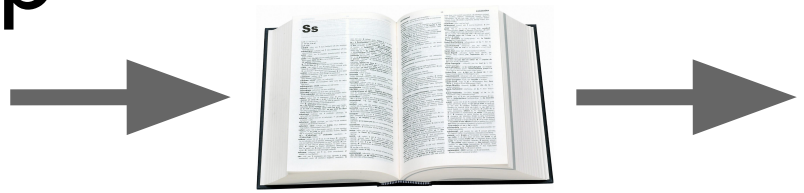


You know dictionaries!

They're great at looking up thing by a word, not a position in a list!

Look up

Hello



Get back

A greeting (salutation) said when meeting someone or acknowledging someone's arrival or presence.

Looking it up!

There are lots of times we want to look something up!

Competition registration

Team Name → List of team members

Phone Book

Name → Phone number

Vending Machine

Treat Name → Price

Looking it up!

Phone Book

Name → Phone number

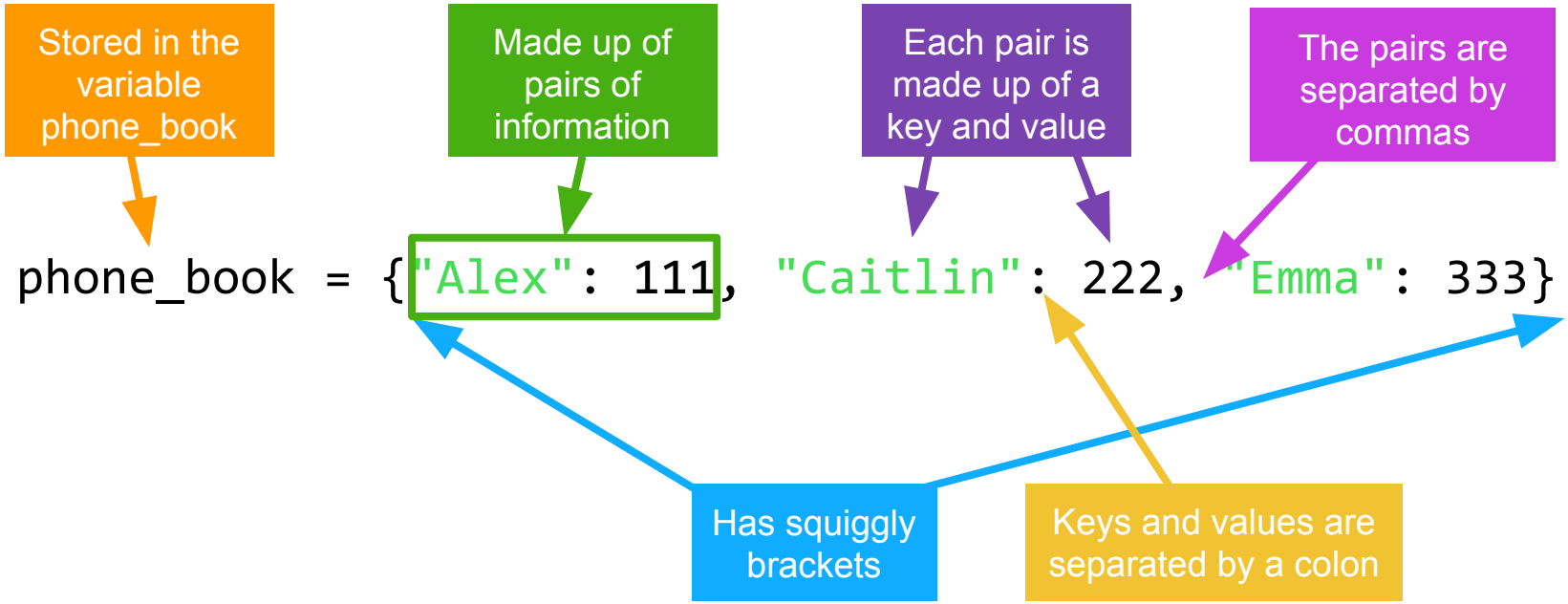
Key

Value

We can use a dictionary for anything with a <u>key → value</u> pattern!

Dictionaries anatomy!

This is a python dictionary!



This dictionary has Alex, Caitlin and Emma's phone numbers

Playing with dictionaries!

Let's try using the phone book in IDLE

1. **Copy in the dictionary! Add your own made up phone number!**

```
phone_book = {"Alex": 111, "Caitlin": 222, "Emma": 333}
```

2. **Try this:** `phone_book["Alex"]`

3. **How would you look up Emma's phone number?**

4. **Look up the name of someone who is not in the phone book? What happens?**

Save it for later!

Sometimes we don't need the info right now.

Let's store it in a variable and use it later!

1. **Look up Alex's phone number and store it in a variable**

```
alexs_number = phone_book["Alex"]
```

2. **Print out a message using alexs_number**

```
print("Alexs number is: ", alexs_number)
```

3. **Repeat task 1 and 2 for another person in the phone book!**

Tuples!

Some data sticks together!

Tuples are like lists that you can't edit or add too!

It's a:

- **list of items**
- **in round brackets**
- **separated by commas**

Tuples are a way of grouping data!

```
("January", "1st")
("December", "25th")
("April", "25th")
```

Tuples in dictionaries!

We can use tuples as the key to a dictionary

1. **Copy in the dictionary! Add your own made up date!**

```
phone_book = {("January", "1st"): "New Years",
              ("December", "25th"): "Christmas Day",
              ("April", "25th"): "ANZAC Day"}
```

2. **Try this:** `phone_book[("January", "1st")]`

3. **How would you look up what happens on the 25th of April**

4. **What happens if you we do:** `phone_book[("25th", "December")]`

Project time!

You now know all about dictionaries!

Let’s put what we learnt into our project

Try to do Part 3

The tutors will be around to help!

If Statements

Conditions!

Conditions let us make decision.

First we test if the condition is met!

Then maybe we'll do the thing

<u>If it's raining</u> take an umbrella

Yep it's raining

..... take an umbrella

Booleans (True and False)

Computers store whether a condition is met in the form of

`True` and `False`

To figure out if something is `True` or `False` we do a comparison

Try typing these into IDLE!	
`5 < 10`	`"Dog" == "dog"`
`3 + 2 == 5`	`"D" in "Dog"`
`5 != 5`	`"Q" not in "Cat"`

Booleans (True and False)

Python has some special comparisons for checking if something is **`in`** something else. **Try these!**

```
>>> "A" in "AEIOU"
>>> "Z" in "AEIOU"
>>> "a" in "AEIOU"
```

```
>>> animals = ["cat", "dog", "goat"]
>>> "banana" in animals
>>> "cat" in animals
```

Conditions

So to know whether to do something, they find out if it's `True`!

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
```

Conditions

So to know whether to do something, they find out if it's `True`!

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fave_num = 5
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That's the condition!

Conditions

So to know whether to do something, they find out if it's `True`!

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
```

That's the condition!

Is it `True` that fave_num is less than 10?

- **Well, fave_num is 5**
- **And it's `True` that 5 is less than 10**
- **So it is `True`!**

Conditions

So to know whether to do something, they find out if it's `True`!

```
fave_num = 5
if True:
    print("that's a small number")
```

Put in the answer to the question

Is it `True` that fave_num is less than 10?

- **Well, fave_num is 5**
- **And it's `True` that 5 is less than 10**
- **So it is `True`!**

Conditions

So to know whether to do something, they find out if it's `True`!

```
fave_num = 5
if True:
    print("that's a small number")
```

What do you think happens?

Conditions

So to know whether to do something, they find out if it's `True`!

```
fave_num = 5
if True:
    print("that's a small number")
```

What do you think happens?

```
>>> that's a small number
```

Conditions

How about a different number???

```
fave_num = 9000
if fave_num < 10:
    print("that's a small number")
```

Conditions

It's `False`!

```
fave_num = 9000
if False:
    print("that's a small number")
```

Put in the answer to the question

Conditions

It's `False`!

```
fave_num = 9000
if False:
    print("that's a small number")
```

What do you think happens?

```
>>>
```

Conditions

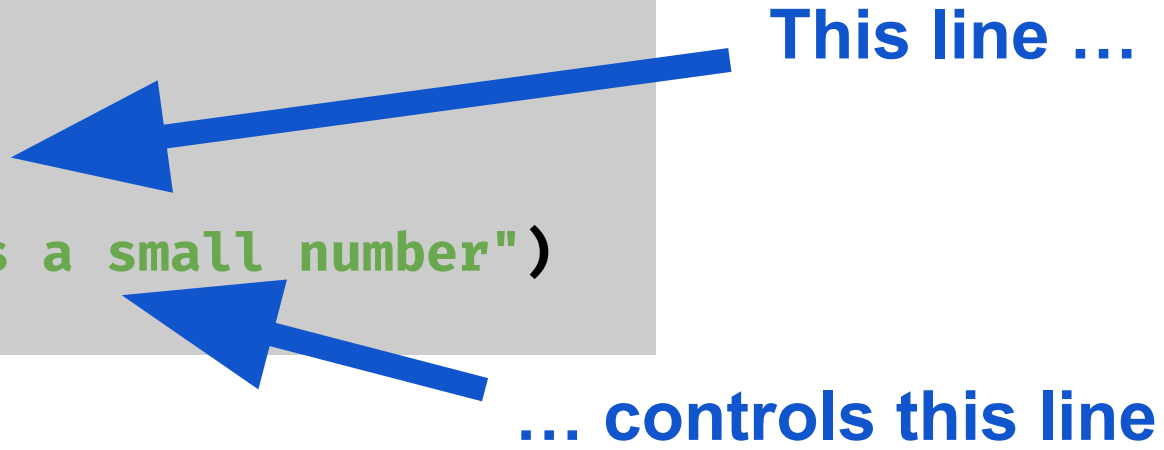
```
fave_num = 9000
if False:
    print("that's a small number")
```

What do you think happens?

```
>>>
```

If statements

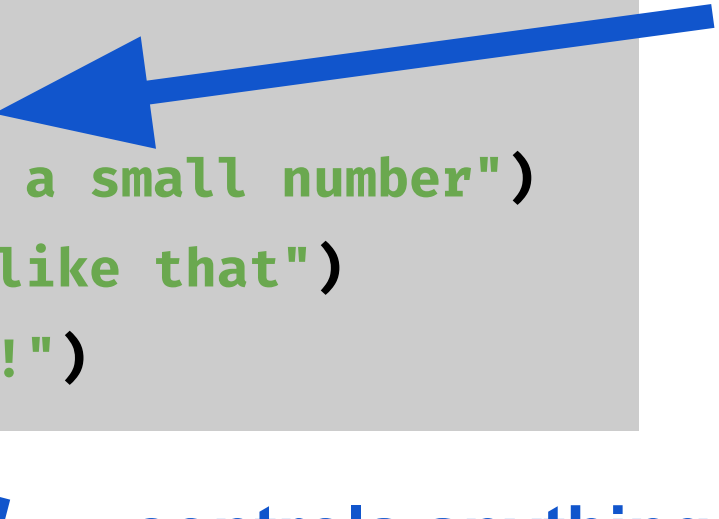
```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
```



If statements

Actually .....

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```



If statements

What do you think happens?

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```

What do you think happens?

If statements

What do you think happens?

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```

```
>>> that's a small number
>>> and I like that
>>> A LOT!!
```

If statements

```
word = "GPN"
if word == "GPN":
  print("GPN is awesome!")
```

What happens??

If statements

```
word = "GPN"
if word == "GPN":
  print("GPN is awesome!")
```

What happens??

```
>>> GPN is awesome!
```

Else statements

```
word = "GPN"
if word == "GPN":
  print("GPN is awesome!")
```

```
What happens??
>>> GPN is awesom
```

But what if we want something different to happen if the word isn't "GPN"

Else statements

```
word = "Chocolate"
       "GPN":
PN is awesome!")

word isn't GPN :(")
```

else statements means something still happens if the **if** statement was **False**

What happens??

Else statements

```
word = "Chocolate"
       "GPN":
PN is awesome!")

    word isn't GPN :(")
```

else
Statements means something still happens if the **if** statement was **False**

```
What happens??
>>> The word isn't GPN :(
```

Elif statements

```
word = "Chocolate"
    "GPN":
PN is awesome!")
== "Chocolate":
MM Chocolate!")

print( The word isn't GPN :(")
```

elif
Means we can give specific instructions for other words

What happens??

Practice Time!

1. Create a new file, call it weather.py
2. Copy this code into your file

```
weather = input("What is the weather? ")
if weather == "raining":
```

3. Add a third line to make it print a special message, but only if the user says "raining"
4. Run your code! Try typing in **raining**, try typing in **sunny**
5. BONUS! Add an else statement, to print a non-rainy message!

Practice Time!

1. Create a new file, call it weather.py
2. Copy this code into your file

```
weather = input("What is the weather? ")
if weather == "raining":
    print("Take an umbrella!")
```

3. Add a third line to make it print a special message, but only if the user says "raining"
4. Run your code! Try typing in **raining**, try typing in **sunny**
5. BONUS! Add an else statement, to print a non-rainy message!

Project Time!

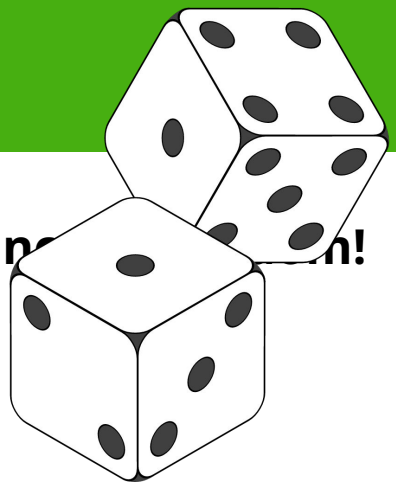
You now know all about `if` and `else`!

See `if` you can do Part 4

The tutors will be around to help!

Random!

That's so random!



There's lots of things in life that are up to chan n!

We want the computer to be random sometimes!

Python lets us **import** common bits of code people use! We're going to use the **random** module!

Using the random module

Let's choose something randomly from a list!

This is like drawing something out of a hat in a raffle!

Try this!

1. **Import the random module!**

```
>>> import random
```

2. **Copy the shopping list into IDLE**

```
>>> shopping_list = ["eggs", "bread", "apples", "milk"]
```

3. **Choose randomly! Try it a few times!**

```
>>> random.choice(shopping_list)
```

Using the random module

You can also assign your random choice to a variable

```
>>> import random
>>> shopping_list = ["eggs", "bread", "apples", "milk"]
>>> random_food = random.choice(shopping_list)
>>> print(random_food)
```

Project Time!

Raaaaaaaaaandom! Can you handle that?

Let’s try use it in our project!

Try to do Part 5

The tutors will be around to

For Loops

Looping through lists!

What would we do if we wanted to print out this list, one word at a time?

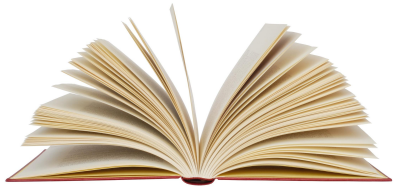
```
words = ['This', 'is', 'a', 'sentence']


print(words[0])
print(words[1])
print(words[2])
print(words[3])
```

What if it had a 100 items??? That would be BORING!

For Loops

For loops allow you to do something for **each** item in a **group** of things

There are many real world examples, like:



For each page in this book:
Read

For each chip in this bag of chips:
Eat

Looping over a list of ints

We can loop through a list:

```
numbers = [1, 2, 3, 4]
for i in numbers:
    print(i)
```

```
What's going to happen?
```

Looping over a list of ints

We can loop through a list:

```
numbers = [1, 2, 3, 4]
for i in numbers:
    print(i)
```

```
What's going to happen?
>>> 1
>>> 2
>>> 3
>>> 4
```

- Each item of the list takes a turn at being the variable i
- Do the body once for each item
- We're done when we run out of items!

Practice Time!

1. Make a new file called yummy.py

2. Copy in this list

```
>>> fruits = ['apple', 'banana', 'mango']
```

3. Add **2 lines of code** that makes your program print out this.
   Use a for loop!

```
>>>Yummy apple
>>>Yummy banana
>>>Yummy mango
```

HINT!

```
numbers = [1, 2, 3, 4]
for i in numbers:
    print(i)
```

How does it work??

Somehow it knows how to get one fruit out at a time!!

It's like it knows english!

```
fruits = ['apple', 'banana', 'mango']
for fruit in fruits:
    print('yummy ' + fruit)
```

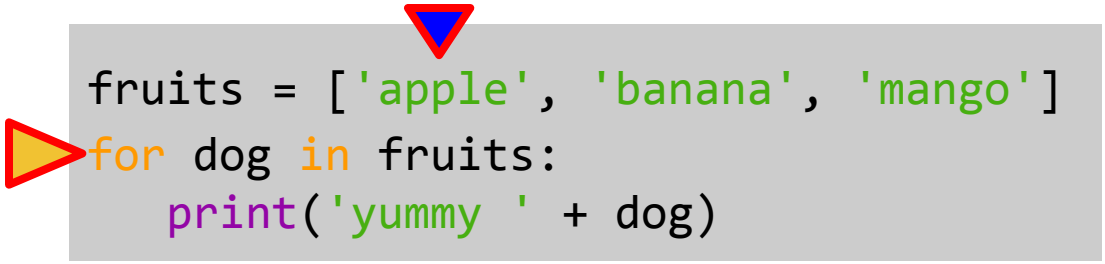
But fruit is just a variable! We could call it anything! Like dog!

```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
>>>Yummy banana
>>>Yummy mango
```

How does it work??

Everything in the list gets to have a turn at being the dog variable



```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!

How does it work??

Everything in the list gets to have a turn at being the dog variable

```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
```

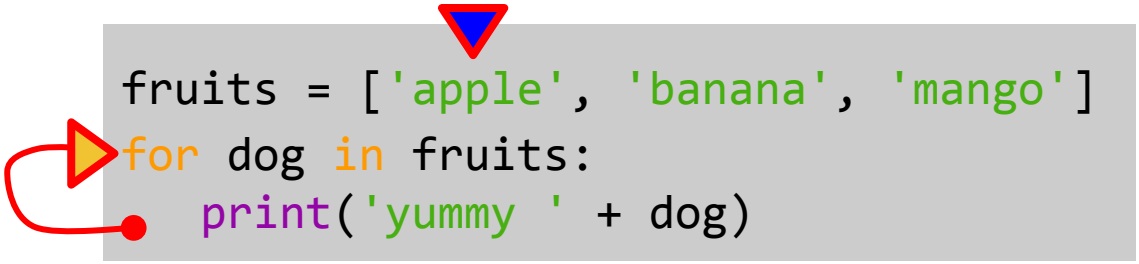
Let's set dog to to the first thing in the list!

dog is now 'apple'!

```
print('yummy ' + dog)
```

How does it work??

Everything in the list gets to have a turn at being the dog variable



```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
```

Let's set dog to to the first thing in the list!

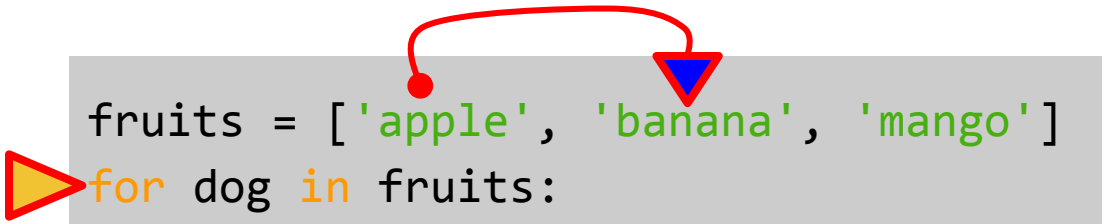
dog is now 'apple'!

```
print('yummy ' + dog)
```

We're at the end of the loop body, back to the top!

How does it work??

Everything in the list gets to have a turn at being the dog variable



```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
print('yummy ' + dog)
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!

How does it work??

Everything in the list gets to have a turn at being the dog variable

```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

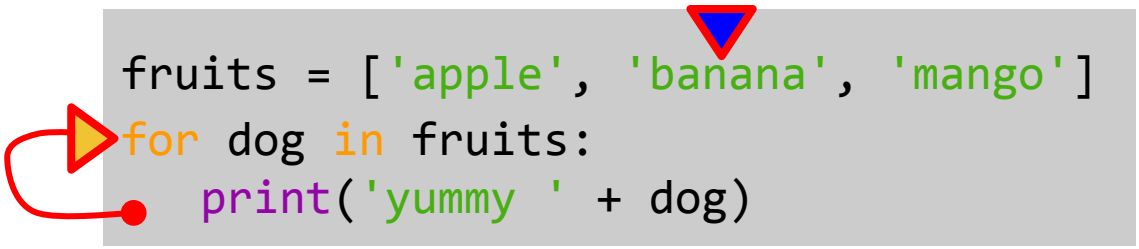
```
>>>Yummy apple
>>>Yummy banana
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
`print('yummy ' + dog)`
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!
`print('yummy ' + dog)`

How does it work??

Everything in the list gets to have a turn at being the dog variable



```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

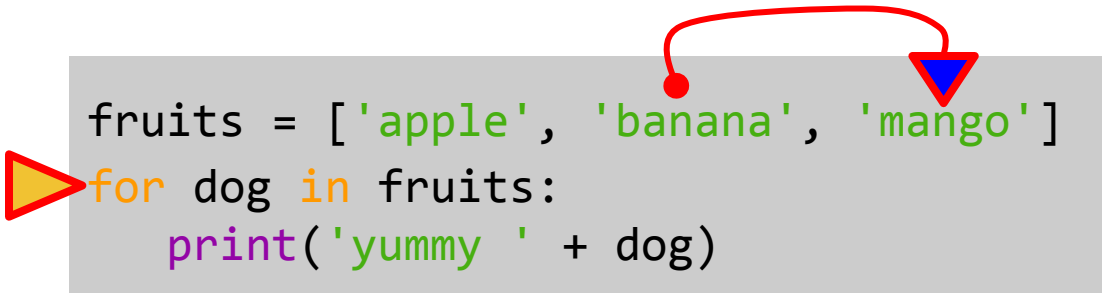
```
>>>Yummy apple
>>>Yummy banana
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
`print('yummy ' + dog)`
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!
`print('yummy ' + dog)`
Out of body, back to the top!

How does it work??

Everything in the list gets to have a turn at being the dog variable



```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
>>>Yummy banana
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
print('yummy ' + dog)
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!
print('yummy ' + dog)
Out of body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'mango'!

How does it work??

Everything in the list gets to have a turn at being the dog variable

```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
>>>Yummy banana
>>>Yummy mango
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
print('yummy ' + dog)
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!
print('yummy ' + dog)
Out of body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'mango'!
print('yummy ' + dog)

How does it work??

Everything in the list gets to have a turn at being the dog variable

```
fruits = ['apple', 'banana', 'mango']
for dog in fruits:
    print('yummy ' + dog)
```

```
>>>Yummy apple
>>>Yummy banana
>>>Yummy mango
```

Let's set dog to to the first thing in the list!
dog is now 'apple'!
print('yummy ' + dog)
We're at the end of the loop body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'banana'!
print('yummy ' + dog)
Out of body, back to the top!

Let's set dog to to the next thing in the list!
dog is now 'mango'!
print('yummy ' + dog)
Out of body, and out of list!!
We're done here!

Generating a List!

Sometimes you don't care about what is in the list!

You just want to repeat 10 times or a 1000 times!

Doing this is boring.....

```
numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

But python will make a list of things for you!
Try this!

1. In IDLE type

```
list(range(50))
```

2. In your yummy.py file, add this after your yummy fruit!

```
for num in range(50):
    print(num)
```

Project Time!

Now you know how to use a for loop!

Try to do Part 6

...if you are up for it!

And Extension parts 7-10

The tutors will be around to help!

More Dictionaries and Lists!

Before we start this lecture
Trying doing Part 0, 1, 2 in your second workbook!

Make your own dictionary!

Before we started with a dictionary with stuff in it!
Let's start from empty!

1. Let's make an empty dictionary in IDLE!
   ```
   phone_book = {}
   ```

2. Let's fill up the phone book!
   Use this code to set a phone number for Janette!
   ```
   phone_book["Janette"] = 999
   ```

3. Add 3 more names and numbers to your dictionary

4. Print out the phone book!

Make your own dictionary!

But how do we add tuples to our dictionary as keys?

1. Let's make an empty dictionary in IDLE!
   ```
   event_diary = {}
   ```

2. Let's fill up the phone book!
   Use this code to set a phone number for Janette!
   ```
   event_diary[("March", "21")] = "Elise's Party"
   ```

3. Add 3 more event dates to your dictionary

4. Print out your event diary!

Project Time!

Now you know even more about Dictionaries and Lists!

In your second workbook,

Try Extension Part 11

The tutors will be around to help!

Tell us what you think!

Click on the
End of Day Form
and fill it in now!