

Y7 PC2 Revision Guide

Computing, Woodham Academy

This guide covers everything you need for your Y7 PC2 end of year assessment. There are seven sections, just like the assessment itself: About You (your tutor group, no marks), Typing, Python Programming, Python Fixing Errors, Python Program Flow, Python Operators, and Networks. Each section gives you the key facts, worked examples, and practice questions to test yourself. All answers are at the very end of the guide so you can mark your own work once you have finished.

Section 1: Typing

Symbols you need to name

You will be shown four symbols and asked to pick the correct name.

Symbol	Correct name	Watch out for
#	Hash, or Octothorpe	"Octothorne" is a misspelling
*	Asterisk	"Asterix" is the Gaulish cartoon character, not the symbol
@	Ampersat (or "at sign")	Not ampersand
&	Ampersand	Not ampersat

The easy mix-ups are **asterisk vs Asterix** and **ampersand vs ampersat**. Asterisk and ampersand are the symbols; Asterix is a cartoon character and ampersat is a different symbol.

Why the F and J keys have bumps

The bumps on F and J tell you where to put your **index fingers without looking**. This is the home row position for touch typing. When you can feel both bumps, your other fingers are in the right place automatically.

Keyboard shortcuts

These four shortcuts come up every year. Learn them.

Shortcut	Action
Ctrl + C	Copy
Ctrl + V	Paste
Ctrl + X	Cut
Ctrl + S	Save

A trick to remember them: **C** is for Copy, **V** is right next to C so it's Paste, **X** looks like scissors so it's Cut, and **S** is for Save.

Capital letters and caps lock

To type **one** capital letter, **hold down the Shift key** while you press the letter. Caps lock is for typing several capitals in a row, but using it for whole sentences makes you look like you are **shouting**, which is rude in messages and not appropriate in formal writing.

Quick check (Section 1)

1. What is the proper name for the symbol #?
2. What is the symbol * called?
3. What is the symbol @ called?
4. What is the symbol & called?
5. Why do the F and J keys have bumps on them?
6. What does Ctrl + C do?
7. What does Ctrl + V do?
8. What does Ctrl + X do?
9. What does Ctrl + S do?
10. What is the best way to type just one capital letter?

Section 2: Python Programming

Data types

Python stores different kinds of information in different ways. You need to know three of them.

Data type	What it stores	Example
Integer	A whole number	42
Float	A decimal number	3.14
String	Characters (text)	"Hello"

The red # symbol

In Python (and in IDLE in particular) a # symbol marks a **comment**. Anything after it on that line is ignored by the computer. Comments are notes left by the programmer for humans to read.

```
# This is a comment, the computer ignores it
print('Hello')  # so is this bit after the hash
```

Colour coding in IDLE

When you write Python in IDLE, it colours different parts of your code automatically:

- **Green** text is what will be **printed** (anything inside quotes, the string).
- **Purple** is for built-in functions like `print` and `input`.
- **Red** is for comments.
- **Black** is for the rest of your code (variables, numbers, operators).

The one you need to know for the assessment is **green for text that will be printed**.

The F5 key

Pressing **F5** in IDLE **runs the current program**. It will ask you to save first if you have not saved.

What does `int(input(...))` do?

```
yourAnswer = int(input("Enter a number"))
```

Breaking it down from the inside out:

- `input("Enter a number")` asks the user to type something. Whatever they type is a string.
- `int(...)` wraps that string and converts it into an integer.
- `yourAnswer =` stores the result in a variable called `yourAnswer`.

The key point is the `int()` part. It **expects you to enter an integer** (a whole number). If you type `hello` the program will crash with an error.

Quick check (Section 2)

1. What is an integer?
2. What is a float?
3. What is a string?
4. What does the red # symbol mean in Python?
5. What colour does Python use for text that will be printed?
6. What does the F5 key do in IDLE?
7. What does `int(input("Enter a number"))` expect the user to enter?

Section 3: Python Fixing Errors

This section is all about spotting **syntax errors**, mistakes in the way the code is written that stop Python from understanding it. You will be shown four versions of a command and asked which one is correct.

Rules to check every time

1. **Every opening quote needs a matching closing quote.** If you see " at the start, there must be a " at the end of the same string.
2. **Every opening bracket needs a matching closing bracket.** Round brackets () go in pairs.
3. **Variable names cannot contain spaces.** Use no space at all (`dogname`) or an underscore (`dog_name`), never a real space (`dog name`).
4. **Variable names never go in quotes when you create them.** `"dogname" = input()` is wrong because the quotes turn it into a string, not a variable name.

Worked examples

Spot the correct print command:

- `print("I love programming")` correct: matching quotes, matching brackets
- `print(I love programming)` wrong: missing opening quote
- `print("I love programming)` wrong: missing closing quote
- `print(I love programming)` wrong: no quotes at all

Spot the correct input command:

- `dogname = input()` correct: no space in variable, matching brackets
- `dog name = input()` wrong: space in variable name
- `dogname = input())` wrong: extra closing bracket
- `"dogname" = input()` wrong: cannot assign to a string

Spot the correct print with a variable:

- `print("Good morning",name)` correct: text in quotes, variable outside quotes, both inside the brackets
- `print("Good morning"),name` wrong: variable is outside the brackets
- `print("Good morning,name)` wrong: missing closing quote, so `name)` is treated as part of the text
- `print "Good morning",name)` wrong: missing opening bracket

Quick check (Section 3)

1. Which of these has no error: `print("Well done")`, `print("Well done)`, or `print(Well done")`?
2. Which of these has no error: `username = input()`, `user name = input()`, or `"username" = input()`?

3. Which of these has no error: `print("Hello", name)`, `print("Hello,name)`, or `print("Hello"),name`?

Section 4: Python Program Flow

For loops vs while loops

There are two kinds of loop in Python and the difference matters.

Loop type	When to use it
for loop	When you know in advance (or can work out) how many times the code needs to run
while loop	When you need to keep going until something happens, and you do not know in advance how many goes that will take

if is not a loop. `if` is a selection statement; it picks between options but does not repeat anything.

Sequence, Selection, Iteration

Every Python program is built from three kinds of building block.

Sequence is code that runs **line by line, in order**, top to bottom, with no decisions and no repeats.

```
print('Please enter your name:')
name = input()
print('Good morning', name)
```

Selection is code that **makes a decision** using `if`, `elif`, or `else`. Only some parts of the code run, depending on the answer.

```
faveSubject = input()
if faveSubject == 'Computing':
    print('Learning how computers work is great')
else:
    print('I am sad you did not pick computing')
```

Iteration is code that **repeats**. It uses a `for` loop or a `while` loop.

```
for loopCounter in range(10):
    print(loopCounter)
```

Tracing code: how to work out what will print

For trace questions, read the code line by line and write down what happens.

Example 1: what will print if the user enters the word `one`?

```
print('Enter 1 for an insult, 2 for a compliment or 3 for advice')
choice = input()
if choice == '1':
    print('Your hair is a mess!')
elif choice == '2':
    print('You look amazing today')
elif choice == '3':
```

```
print('Stop being lazy and just look out of the window')
else:
    print('You did not enter 1,2 or 3!')
```

Walk through it. The user types `one`. Is `one` equal to `'1'`? No, the string `'one'` is different from the string `'1'`. Is `one` equal to `'2'`? No. Is it equal to `'3'`? No. None of the `if` or `elif` conditions are true, so the code runs the `else` branch and prints **"You did not enter 1,2 or 3!"**.

Example 2: what will this for loop print?

```
for loopCounter in range(10):
    print(loopCounter)
```

`range(10)` produces the numbers **0, 1, 2, 3, 4, 5, 6, 7, 8, 9**. That is ten numbers, but it starts at 0 and stops **before** 10. The loop prints the value of `loopCounter` each time, so the output is **0 1 2 3 4 5 6 7 8 9**.

Common mistakes to avoid:

- Thinking it counts from 1: it starts from 0.
- Thinking it goes up to 10: it stops before 10.
- Forgetting to print the value of the variable, and printing the word `"loopCounter"` instead. The brackets after `print` mean the value of the variable is printed, not its name.

Quick check (Section 4)

1. Which loop do you use when you know how many times to repeat?
2. Which loop do you use when you need to keep going until something happens?
3. Is `if` a loop?
4. What is sequence?
5. What is selection?
6. What is iteration?
7. What will `for x in range(5): print(x)` print?

Section 5: Python Operators

Symbol names

Symbol	Name	Watch out for
*	Asterisk	Not "Asterix" (cartoon character), not "Obelix" (his friend)
#	Octothorpe (or hash)	Not "Octothorne"

Maths in Python

Python uses these symbols for arithmetic. They are not always the same as in maths lessons.

Symbol	Operation
+	Add
-	Subtract
*	Multiply (not x, and not ×)
/	Divide (not ÷)

Comparison operators

These let your code compare two values and get back True or False.

Symbol	Meaning
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

A trick to remember which way round < and > go: the open mouth always points at the bigger number. 5 > 3 and 3 < 5 are both true.

What does a variable do?

A variable **stores a value which can change**. The value can be updated as the program runs, which is exactly why it is called a *variable*.

```
score = 0
score = score + 1    # now score holds 1
score = score + 1    # now score holds 2
```

Quick check (Section 5)

1. What is the proper name for the * symbol?
2. Which symbol is used to divide in Python?

3. Which symbol is used to multiply in Python?
4. What does < mean?
5. What does > mean?
6. What does <= mean?
7. What does >= mean?
8. What does a variable do?

Section 6: Networks

Key abbreviations

LAN stands for **Local Area Network**. A LAN is a network covering a small area such as a single building, like a home or a school.

WAN stands for **Wide Area Network**. A WAN covers a large geographic area, often connecting LANs together over long distances. The internet is the biggest WAN of all.

What is a network?

A network is **2 or more computers connected together** so that they can share data. The smallest possible network is two devices; there is no minimum of five, and a network does not have to involve a server.

The internet vs the World Wide Web

People use these two words as if they mean the same thing, but they do not.

- The **internet** is the global network of computers and the cables, wifi, and infrastructure that connects them. It is the hardware and the connections.
- The **World Wide Web** is the system of **web pages and websites** that you view in a browser. It is one of the services that runs *on* the internet, along with email, online games, and video streaming.

In short: the internet is the network; the World Wide Web is one thing you can do on it.

Wifi vs mobile data

Both let your phone get online, but they work very differently.

- **Wifi** connects to a local **router** (in your house, school, or a cafe) which then connects to the internet through a cable. It is usually free to use once you are connected, and only works within range of the router.
- **Mobile data** connects through your **phone signal**, using cellular masts run by your mobile network (such as EE, O2, or Vodafone). It works almost anywhere you have signal, but it comes out of your monthly data allowance and can be expensive abroad.

Household network device

The device that connects all the gadgets in your house to the internet is a **router**. Your phone, laptop, TV, smart speaker, and games console all connect to the router, and the router connects to your internet provider.

Network cables

The standard cable used to plug computers into a wired network is an **Ethernet** cable. Wifi, Bluetooth, and USB-C are not network cables in the traditional sense; Wifi and Bluetooth are wireless, and USB-C is for connecting devices to each other or to chargers.

IP addresses

An **IP address** is a unique number that identifies a device on a network. Every device that connects to the internet has one. The purpose is to **identify the device so that data can be sent to the right place**, in the same way that a postal address identifies a house so that a letter can be delivered.

Quick check (Section 6)

1. What does LAN stand for?
2. What does WAN stand for?
3. How many computers does it take to make a network?
4. In one sentence, what is the difference between the internet and the World Wide Web?
5. In one sentence, what is the difference between wifi and mobile data?
6. What is the device called that connects household devices to the internet?
7. What is the standard wired network cable called?
8. What is the purpose of an IP address?

Final tips for the assessment

Read every question carefully. Several questions look almost identical (the keyboard shortcut questions all have the same four options, just in a different order), so do not skim.

For symbol naming, watch out for the trick spellings (**Asterix** for **Asterisk**, **Octothorne** for **Octothorpe**, **Ampersat** for **Ampersand**). They sound nearly the same but only one is correct.

For "spot the error" questions, count the quotes and brackets carefully. Every opening one needs a matching closing one.

For tracing Python code, work through it one line at a time and write down what is happening. Do not try to do it in your head.

For network questions, remember the difference between **internet** (the connections) and **World Wide Web** (the pages), and between **wifi** (router) and **mobile data** (phone signal).

Good luck.

Answers

Section 1: Typing

1. Hash, or Octothorpe.
2. Asterisk.
3. Ampersat (or at sign).
4. Ampersand.
5. So you know where to put your index fingers without looking.
6. Copy.
7. Paste.
8. Cut.
9. Save.
10. Hold down the Shift key.

Section 2: Python Programming

1. A whole number.
2. A decimal number.
3. Characters (text).
4. It marks the line as a comment, which the computer ignores.
5. Green.
6. It runs the current program.
7. An integer (a whole number).

Section 3: Python Fixing Errors

1. `print("Well done").`
2. `username = input().`
3. `print("Hello",name).`

Section 4: Python Program Flow

1. For loop.
2. While loop.
3. No, `if` is selection, not a loop.
4. Code that runs line by line in order.
5. Code that makes a decision using `if`, `elif`, or `else`.
6. Code that repeats, using a `for` or `while` loop.
7. `0 1 2 3 4.`

Section 5: Python Operators

1. Asterisk.
2. / (forward slash).
3. * (asterisk).
4. Less than.
5. Greater than.
6. Less than or equal to.
7. Greater than or equal to.
8. Stores a value which can change.

Section 6: Networks

1. Local Area Network.
2. Wide Area Network.
3. 2 or more.
4. The internet is the global network of connected computers; the World Wide Web is the system of web pages that runs on it.
5. Wifi connects to a local router which connects to the internet; mobile data connects through cellular masts run by your phone network.
6. A router.
7. Ethernet.
8. To identify a device on a network so that data can be sent to the right place.