

{ create.withcode.uk }

interactive python tutorials  
for beginners



print(" :-(")

# Student Workbook

Name	
Class	
Teacher	

## Learning Objectives:

Objective	Before	After
3.1: understand the difference between syntax, logic and runtime errors		
3.2: be able to debug code using IDE tools and error messages		

## Reflection:

I'd like to know / ask / find out ...	Action taken...

## Starter:

Why do you think errors in program code are called bugs?

## Theory:



Fill in the blanks below to make notes.  
Scan the QR code if you need any help.

The smallest mistake in your python code can \_\_\_\_\_

There are three types of error: syntax errors, \_\_\_\_\_ errors and \_\_\_\_\_ errors. With practice, you'll soon pick up experience in debugging all three types of error but for now we'll focus on syntax errors.

Syntax means \_\_\_\_\_

You'll get a syntax error when you break the rules of the programming language (e.g. \_\_\_\_\_)

Syntax errors prevent your code from \_\_\_\_\_

Even if your code is full of syntax errors you'll only see an error message for \_\_\_\_\_

You'll know you've got a syntax error because \_\_\_\_\_ will appear as soon as you try to run your code.

These error messages may look intimidating, but they always give you a clue which \_\_\_\_\_ to start looking at to find the problem.

The line number on an error message might not be exactly where the error is. The error might be on \_\_\_\_\_

### Tips for debugging:

Ask yourself \_\_\_\_\_

Check that quotation marks and brackets are all \_\_\_\_\_ which means \_\_\_\_\_

Check your spelling and \_\_\_\_\_ which means \_\_\_\_\_

Check indentation which means \_\_\_\_\_

## Debug:



Circle the errors on the code on the left and explain how to fix each one on the right

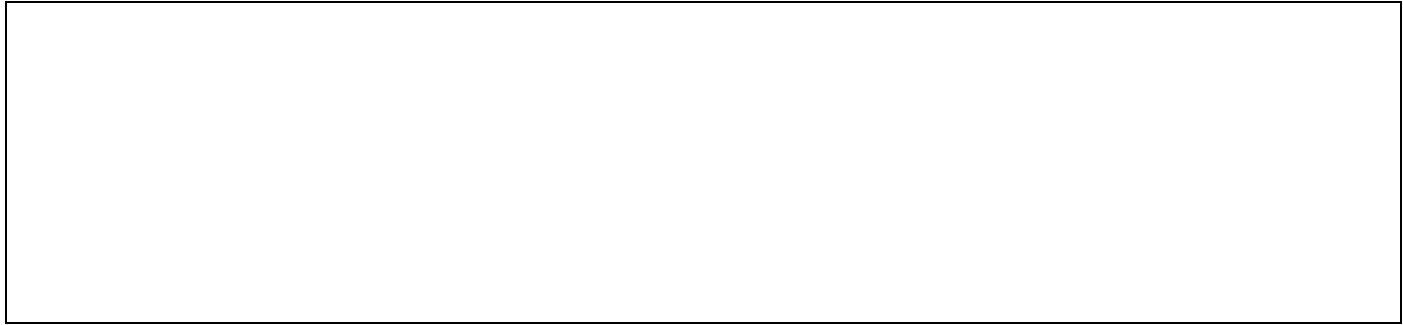
### Code

```
1 # Python Syntax errors: try it
2
3 print("Itsy Bitsy spider climbing up the spout)
4
5 print("down came the rain and washed the spider out")
6
7 print ("Out came the sun and dried up all the rain"
8     print("Now Itsy Bitsy spider went up the spout again!")
```

### Notes:

```
1 # Python Syntax errors: debug it
2
3 print Baa baa black sheep, have you any wool?
4 PRINT Yes sir, yes sir, three bags full!
5 print("One for the master, one for the dame,")
6 Print('And one for the little boy who lives down the lane.")
```

### Notes:



## Extend:



Debugging is intimidating to begin with because the error messages might not make much sense yet. It's very satisfying when you can solve your own problems and even more satisfying if you can solve other people's.

Often debugging means looking at code that you don't fully understand yet, but the same rules we've used so far can still help.

Here's some code that should draw some shapes with some syntax errors thrown in for you to find and fix. Scan the QR code and click on **Debug** to sabotage the code so you can practice debugging it.

j	k	c	p	s	g	n
e	m	i	t	n	u	r
e	e	g	a	p	u	r
n	r	o	r	r	e	a
m	s	l	c	k	i	h
h	r	a	r	i	c	t
k	s	y	n	t	a	x

type of error which might not make the program crash but the program output may be unexpected because the programmer wrote the wrong instructions in code

(5) | \_\_\_\_ / (5)  
e \_\_\_\_

<p>type of error which makes the program crash whilst it's running because it tries to do something impossible</p>	<p>(7) r _____ / (5) e _____</p>	
<p>type of error which prevents code from running at all because the rules of the programming language have been broken</p>	<p>(6) s _____ / (5) e _____</p>	