Python in Education

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```
#
#Description:     Ask the user to enter the number of ba
#                 wish to have in their game. If they do
#                 number, the program loops, until a num
#                 entered. Convert the number to an inte
#                 finally return it.
#
##################################################
def get_number_of_treasure_chests():
    while True:
        print("Please enter the number of treasure chest
        treasure = input()
        if treasure.isnumeric():
            treasure = int(treasure)
            break
    return treasure

##################################################
#Name:            get_board_size()
#Input Value:     None
#Return values:   Length of one side of the board (8, 10
#
#Description:     Display a menu asking the user what si
#                 they want to use. The player selects t
#                 size and this is returned. If they cho
#                 option, then the menu is redisplayed.
#
##################################################
def get_board_size():
    while True:
        print("Please choose the size of board you wish
        print("A 8 x 8")
        print("B 10 x 10")
        print("C 12 x 12")
        print("Please enter A, B or C")
```

My background

- I learnt to program in Sinclair BASIC on a 48k ZX Spectrum around 1982/3
- I did a Mode 3 CSE in Computer Science in the Lower Sixth (1986)
- Which was done in Basic on the TRS80
- Did a Maths Degree (some programming but I skipped that module)
- Did my teacher training 1991/92 (elements of programming in LOGO)
- Started working as a Maths Teacher in January 1993
- Bought an Amiga 1200 soon after (played with a programming language called AMOS which was a variant of Basic)
- I used that until about 1997 but didn't move on to a PC initially (PCs were about £1000+)
- Got a PC around 2000/2001 in the second wave of the **Computers for Teacher** Scheme
- Started playing with programming languages and Linux within about 6 months of getting it

Background Pt2

- Settled on C++ as lots of Applications and Games seemed to be using it
- Taught myself on and off for the next few years, but got bogged down and decided I needed external help (2004)
- Discovered that Bolton Uni (still Bolton Institute of Higher Ed) did a Part Time Degree and guaranteed that every module would be accessible in the evenings over the duration of the course.
- At some point in the previous 3-4 years I'd printed off a load of chapters from the Python documentation and worked through some
- Spent the next 4 1/2 years learning C++, SQL stuff, various theory modules and a bit of VB6.
- At this point I was still doing very little with regards to Python.

Background Pt3

- During the final six months of my degree I became responsible for my school's VLE and Website
- We chose Moodle for the VLE and I chose to create a Django based website for some reason
- Basically I'd played with Python (PyQt and Pygame I think) and wanted an excuse to use it for a project
- The site used Django 0.8 I think and content was updated weekly until 2013, when they replaced it with something related to the new VLE they bought in.
- By this point though the curriculum had changed and my school asked me to change from teaching Maths to Computing

The Change to Computing

- From the early 90s onwards IT and ICT as a subject began to develop, initially as part of Design Technology then as a discrete subject
- By 2010 or so it had sort of crystallised into using Microsoft products to solve a project focused problem (Plan a School Prom etc)
- As an outsider looking in, it was very, very... **dull!**
- Late 2011 Ian Livingstone published the '**Next: Gen** report.
- In early 2012 the Royal Society published the **Shutdown, Restart?** report.
- Around the same time a senior executive at Google made a very public speech criticising ICT in this country as not fit for purpose
- Michael Gove announced the dis-application of the National Curriculum for ICT from September 2012, with a new Computer Science focused curriculum to replace it from 2014.
- Which meant in theory we could teach whatever we liked!

A New Era of Computing in Schools?

- Over the next few years many schools began to teach what they thought a new Computing curriculum would look like
- Some continued with their existing ICT curricula
- Some decided they no longer needed to teach anything ICT related and killed all of their courses
- Most schools that took to Computing/Computer Science went down one of two routes:
  - They already did A Level, took whatever their language of choice was there and worked backwards
  - They didn't do any programming already and chose to do something which appeared to have lots of support
- The latter ones often found their way to Python, the earlier ones mostly focused on the .net languages with Small Basic leading them into it.

Computing At School

- Computing At school is part of the BCS (I think we're under the BCS Academy
- Started about 8 years ago as a pressure group to try and bring Computer Science into the school curriculum
- After the curriculum changes were initiated in 2012 CAS submitted proposals for an updated curriculum
  - Computing (the subject) made up of 3 strands
  - Digital Literacy
  - Information Technology
  - Computer Science
- Meanwhile they also sought and were awarded funding by the DfE to set up the Network of Excellence in the Teaching of Computer Science
- This would consist of self selecting Schools and Lead Schools who were happy to act as role models in their local area for other schools
- They would also recruit a network of "Master Teachers" to retrain existing teachers in computing