Teacher PD Database 2022

Resources: <https://github.com/SteveRodkiss/CS4HSVIC22>

### Overview- Combining Standards for Programming and Database

Review the current

[Task](https://docs.google.com/document/d/1YbcGwVDWU7NZrd0chO4uMwZI0mopALDDIKx2daSH85c/edit?usp=sharing)

and

[Assessment.](https://docs.google.com/document/d/1xYWdWvBKcto8fztx_4xw6xz7QcgZJh-ysvtziN55pno/edit?usp=sharingabase%202022)

and

[Exemplars](https://drive.google.com/file/d/1Ytr4opwXB6gIrnNO5b4ZDBgXi3hBE_Xv/view?usp=sharing)

Discussion of how this fits in a [program of learning](https://docs.google.com/document/d/1kC2LAkOuCfjEN8aIAjnlb3ujVA8hOo7yS5TGylF9_Nc/edit?usp=sharing). How it might fit in [new standards](https://ncea.education.govt.nz/technology/digital-technologies?view=assessment).

### Current Program of Learning Level 1

In preparation for the task, students have to become competent in Python and SQL. Here’s the best resources we have found so far.

### Python Resources:

[Burnside Webpage Beginner Python](https://sites.google.com/burnside.school.nz/bhs-digital-technologies/junior/10dgt/y10-3-python-programming)

[Microsoft Beginner Series](https://www.youtube.com/watch?v=jFCNu1-Xdsw&list=PLlrxD0HtieHhS8VzuMCfQD4uJ9yne1mE6)

[W3Schools- Python](https://www.w3schools.com/python/default.asp)

Time to Play!

Python Pre-test:

If you want to try them out use this JOIN link: <https://replit.com/teams/join/ubwxxnukjfjljsxpnumkwnqzozynvloj-staffpd-database-2022>

Or

Use this link to import all into your own repl.it team(s) to use with your classes:

<https://replit.com/teams/import/bvlemqihtnjuxeov-Yr11-Python-Pretest>

### SQL and Database Design Resources:

[Burnside High School Website](https://sites.google.com/burnside.school.nz/bhs-digital-technologies/resources/skills/programming/sql)

[W3 Schools SQL](https://www.w3schools.com/sql/sql_intro.asp)

[Khan Academy SQL](https://www.khanacademy.org/computing/computer-programming/sql)

Time to Play!- SQLite Studio.

Download link: <https://sqlitestudio.pl/>

### Time to Get Programming!!!

Let’s plan and build a complete database application in Python and SQLite.

Brief:

A Basic Backpack. I need a program to store all the items I have in my backpack. It should let me add items, remove items and display all the items nicely.

Extensions: Items can have classifications eg. food, utility, weapon etc.

Or….

A Quiz Program. I need a quiz program that stores questions and answers in a database and can run a quiz using that data. For added flexibility, I want users to be able to add, remove and update their own questions and answers so they can use it for any subject.

You could write two programs; one for the quiz that reads the data and another for the interface that allows users to add, remove and update the database.

There should be nicely formatted questions, an indication of whether they get the answer right or wrong and a final score.

Extension- Questions and answers could be multi-choice.

Or something else?

Steps:

1. Plan the data- ERD (nb. This is actually not required at level 1 but why not)
2. Create the Database- SQLite Studio
3. Enter Sample data
4. Write and test some views and/or queries
5. Write a basic Python program to connect and show data- test
6. Refine program to create a function to show data nicely- test
7. Add functionality, testing as we go- INSERT, DELETE,UPDATE
8. Plan interface/menu/flow of complete program- Flowchart/Pseudocode
9. Build Final Program.
10. Extension/Refinement/Human Proof.

### Q&A- Step Ups, Assessment and time to Think

Discussion about the practicalities, problems that you might have about using it.

Look at the exemplars in more depth

Look at how it fits in Level 1,2,and 3 with the [Step Ups](https://docs.google.com/document/d/1r6X4hnFkRbX1EWE3yqrE9s2jrKRjdKGk1nkHEnMA71c/edit?usp=sharing) Document

The Python Quiz Series: <https://github.com/SteveRodkiss/PythonQuizSeries>

The BackPack Video Series: <https://www.youtube.com/playlist?list=PLbxeTux6kwSA820YFX21tO6uE30_0i1y8>

Extension:

Let’s Create a basic Flask app!

Maybe join repl.it classroom for flask? <https://replit.com/teams/join/aczziwsghtyrjoklpmqjqlbuqmnjmlqo-cdtt-flaskpd-2021>

Further Reading

The Python Quiz Series: <https://github.com/SteveRodkiss/PythonQuizSeries>

And Flask Common Tasks: <https://github.com/SteveRodkiss/FlaskCommonTasks>