

AS and A LEVEL COMPUTER SCIENCE

KS4-KS5 Transition checkpoint summer task – Email abrown@wbs.school and teyre@wbs.school with your Python program, before our 1st YR12 Computing lesson (September 2020)

First : make sure you've read through all text and watched all videos here:

<http://www.pythonschool.net/oop/introduction-to-object-oriented-programming/>

Start at (screenshot from above OOP weblink):

Introduction to Object-oriented Programming

All of the code you have been producing so far has used the **structured** approach to programming. Structured programming is characterised by the following features:

- The breaking down of a main problem into sub-problems
- The use of functions or procedures to solve these sub-problems
- The use of both global and local variables to store data
- The use of parameters to pass data to the functions or procedures

Work through to the end of Task 8 (screenshot from above OOP weblink):

Task 8

Use the above video to help you improve the management menu so that we can select different crop types to manage.

Practice makes perfect

Over the past several sections you have developed a simple simulation of a crop. One that reacts to the amount of light and water available (the weather) and grows based on these conditions. You have developed sub-classes that inherit functionality from your original crop class to create classes that more closely represent actual crop types: wheat and potato.

Then attempt the below – Don't worry if you get stuck! OOP is pretty tough initially, just see how far you get over the summer 😊 Work at it steadily and spread it out so you don't get bogged down / have to rush it. Trying to do it all the night before lesson or all at very start is a mistake. If you get a problem leave it and then come back to it later. Look through the above Weblink again - the answers are all there, you just have to adapt and extract them. Don't worry and spend hours and hours, just do what you feel happy / comfortable with – whatever you do will help you in YR12. Problems: abrown@wbs.school teyre@wbs.school (any time)



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Problem solving and programming

RPG character simulator

Planet of Fightcraft wants you to build character classes for their new game.

Each character will have the following things:

- Name
- Type (Barbarian, Elf, Wizard, Dragon, Knight)
- Health
- Power
- Special attack power
- Speed

All characters start with 100 health

Different creatures have different power ratings (B: 70, E: 30, W: 50, D: 90, K: 60)

Different creatures have different special attack power ratings (B: 20, E: 60, W: 70, D: 40, K: 10)

Different creatures have different speed ratings (B: 50, E: 10, W: 30, D: 50, K: 60)

Tasks (refer back to OOP web tutorial above if required, blue task optional)

1. Generate a random name: en-da-fu and el-kar-tuk could be names, so you could make a name generator which sticks together three syllables from 'word banks'
2. Create the generic character class. Test to see if you can create multiple characters
3. Create subclasses corresponding to different types of creature (B, E, W, D & K)
4. Make a program that randomly generates 10 of these creatures to add into a list
5. Make a method in the character class that enables printing out of each character's stats to the console
6. Create a menu system that lets you add and delete characters and print out the list until you are happy with the team
7. Create methods to let you edit any character's stats and add this to your menu system
8. Create a way to save your team to a file and load it up again if needed

