

GU ROCKETRY - CODING WITH ROCKETS

LESSON NOTES

BEGINNING THE LESSON

Link to Repl:

- <https://replit.com/@gurocketry/Coding-with-Rockets>

Notes:

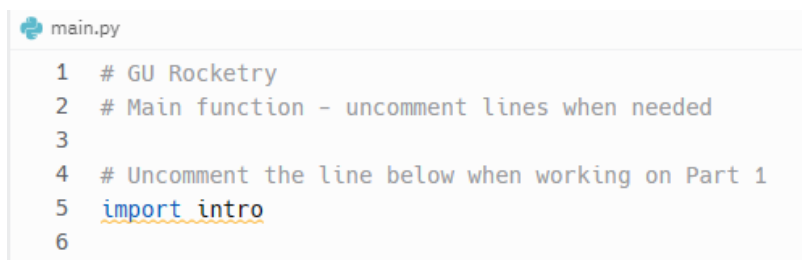
- If logging into the gurocketry account, make a FORK of the repl before handing it to pupils
- Pupils may be able to create their own accounts instead, then they should FORK the repl to their personal account before starting
- View the code on one side of the screen, and the console window on the other, and familiarise pupils with the "Run" and "Stop" buttons

When moving on to the next part:

- Ask pupils if they have any questions
- If possible, give examples of how we use the coding concept in rocketry, e.g. "We use loops to keep asking the flight computer sensors for new information"
- Make sure `main.py` has the correct line uncommented

PART 1 - INTRODUCTION & VARIABLES

Make sure `main.py` has `import intro` uncommented, i.e.



```
main.py
1 # GU Rocketry
2 # Main function - uncomment lines when needed
3
4 # Uncomment the line below when working on Part 1
5 import intro
6
```

Extra tasks for curiosity:

- What happens when you print the variable multiple times? Why would it be useful to not have to type it again and again instead?

PART 2 - INTRODUCTION & VARIABLES

- Introduce the `def` keyword
- Make sure pupils understand indentation using the TAB key

Extra tasks for curiosity:

- Why is there a `destination` variable in between some of the function's brackets? Briefly explain how parameters work.

PART 3 - MAKING DECISIONS USING THE "IF" STATEMENT

- Again, indentation might be weird
- Make sure the correct fields are being used (`has_parachute`, `has_rats_in_cockpit`, `fuel_level`)

Extra tasks for curiosity:

- Explain the `and` and `or` operators
- Give examples, e.g. `if speed == 0: parachutes.deploy()`

PART 4 - LET'S PLAY A GAME

Before starting:

- Close the Console window for this task (OR drag to the same side as `game.py`)
- Make sure the Output window is open
- The monitor may be too small to display the game, in this case, zoom out the browser window so it fits
- Make sure when the "Run" button is clicked, the output shows correctly and isn't disrupted

Notes:

- Explain how the three variables affect each other

Extra tasks for curiosity:

- Go through the `game.py` code and point out where concepts have been used (variables, if statements, etc.)
- Ask questions to see if pupils understand the concepts