KS3 Python Cheat Sheet

This cheat sheet is designed to provide examples for a number of common programming tasks.

A: VARIABLES

```python
name = "Ada Lovelace"
age = 18
cost = 1.99

new_value = str(old)      Convert to string
new_value = int(old)      Convert to integer
new_value = float(old)    Convert to decimal
```

B: INTERACTING WITH THE USER (Input & Output)

```python
print("Programming in Python is fun!")
   Outputs the string, then starts a new line

fruit = "Apple"    Assign value to a variable
print(fruit)       Outputs a variable's value

print()                    Outputs a blank line

name = input("What is your name?")
   Remember: input() always returns a string

age = int(input("What is your age?"))
Numbers: use int() or float() around input()

print("Hello", name)
Using commas in print() joins strings and
variable together
```

C: MAKING DECISIONS (Selection)

C-1: Decide to run a code block

```python
year_group = 7
if year_group > 6:
    print("Attend High School")
                    Executed if condition is True
```

C-2: Decide to run a code block or another

```python
marks = 80
if marks >= 50:
    print("Pass")        Executed if True
else:
    print("Fail")        Executed if False
```

C-3: Decide between many code blocks

```python
marks = 90
if marks >= 80:
    print("Distinction")
elif marks >= 50:        elif can be used
    print("Pass")           multiple times
else:                    and can be used
    print("Fail")            without else
```

D: REPEATING CODE (Iteration)

D-1: Repeating code 10 times

```python
for number in range(10):    Repeats (x) times
    print(number)
```

D-2: Sum (add-up) the numbers from 5 to 15

```python
total = 0
for number in range(5, 10):  Repeats between
                               start and end
    total = total + number
print(total)
```

D-3: Repeating code based on a condition

```python
password = ""
while password != "qwerty":   Repeats while
                            a condition is True
    password = input("What is the password?")
print("Welcome!")
```

E: TURTLE

E-1: Using the Turtle library

```python
import turtle          Makes turtle available

turtle.up()           Stops drawing on screen
turtle.down()         Starts drawing on screen

turtle.speed()        Sets the animation speed
                       1=slowest, 10=fastest

turtle.goto(x,y)      Go to the x , y position
```

E-2: Turning and moving

```python
turtle.forward(distance)      Go forward by
turtle.backward(distance)     Go backward by

turtle.right(angle)     Turn clockwise angle°
turtle.left(angle)  Turn anticlockwise angle°
```

E-3: Filling shapes with colour

```python
turtle.fillcolor(named_colour)    colour list
                https://trinket.io/docs/colors

turtle.begin_fill() Starts the shape to fill

turtle.end_fill()    Stops the shape to fill
```

F: USEFUL TIPS & TRICKS

F-1: Random Numbers & Options

```python
import random         Makes random available

mystery = random.randint(1, 10)     Returns a
            random number between start & end

col = random.choice(["red","white", "blue"])
        Returns a random choice from a list
```