



Hillview International School: Year 9

# Programming in Python:

## For and While loops

# Lesson outcomes

By the end of this lesson, you will be able to:

- Write and use while loops
- Write and use for loops
- Understand when and why to use one loop or the other

# Why do we need loops?



# Why do we need loops?

- Computers often need to do the same thing over and over again
- Loops mean we don't need to write every single instruction
- We just write a few lines of code and repeat them!



# Two types of loops

## While loops

- Repeats until a condition is no longer met
- Ideal when you don't know how many times to repeat
  - Testing passwords
  - Building lists

## For loops

- Repeats a given number of times
- Ideal when you know how many times to repeat
  - Processing lists

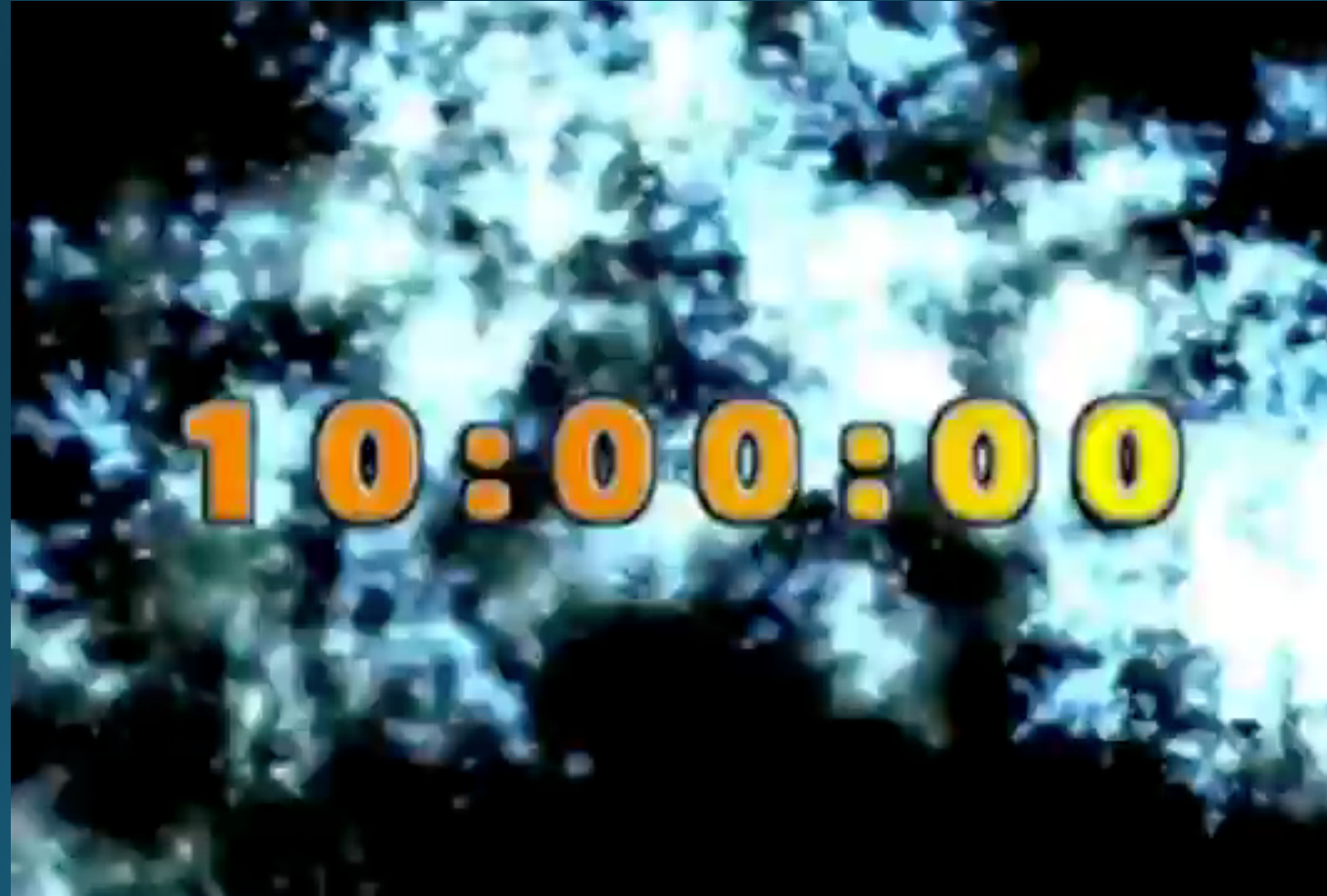
# While loops

```
while <condition is TRUE>:  
    # Execute this code
```

**Example:**

```
while is_password_correct == False:  
    password = input("Please enter your password:")  
    if password == "Hillview":  
        is_password_correct = True
```

# Activity 1: Password test



# Activity 2: Student enrolment



09:58



# Introducing for loops

```
for <counter> in range(<from>:<upto>):  
    # Execute this code
```

**Example:**

```
# Print the numbers 0 to 9  
for counter in range(0:10):  
    print(str(counter))
```

# Activity 3: Print a list of numbers



10:00

# Homework exercise

Write a program that:

- Asks the user to enter a positive even number
  - Use a while loop that continues until they do
- Prints the value of that number divided by 2
- Finally prints the numbers from zero up to the number entered
  - Use a for loop

# Lesson summary

You should now be able to:

- Write and use while loops
- Write and use for loops
- Understand when and why to use one loop or the other

# On Wednesday:

- The List data type
- Processing lists with for loops