

Function

What is a function

Function - what is it?

“In computer programming, a subroutine is a sequence of program instructions that perform a specific task, packaged as a unit. This unit can then be used in programs wherever that particular task should be performed. “

<https://en.wikipedia.org/wiki/Subroutine>

Function - what is it?

A named block of code

Can be re-used (within programs, other programs, ...)

Function - wash a function metaphor

Imagine a sequence of instructions on how to wash your clothes. Let's name this sequence of instructions `wash`

We can ask someone to do the washing for us by simply asking someone to `wash`

Instructions could be something like:

- Open lid
- Put in clothes
- Close lid
- Choose 40 degrees colored
- Press "Start"

Function - wash a function metaphor

Let's make it possible to pass extra information to the person doing the washing.

It is now possible to ask a person to do the washing **and** pass the wanted temperature.

In programming this is referred to as `arguments` or `parameters`.

Function - wash a function metaphor

Let's make it possible for the person to pass extra information back. Could be useful to know if the washing went well before we proceed with drying etc.

In programming this is referred to as `return value`.

Function - wash a function metaphor

wash

- A named sequence of instruction - can be invoked.
- Extra information passed to set the temperature of the water
- Information passed back (returned) to tell the result of the washing

```
int wash(int temperature) {  
  
    open_lid();  
  
    ...etc  
  
}
```

Function - what is it?

Examples:

<code>puts</code>	writes a string to stream
<code>cos</code>	returns the cosine of an float
<code>print_hello</code>	your own function to output hello
<code>main</code>	starting point of a program

Function - what is it?

```
int putchar(char c);
```

- `int` gives an integer back to tell if things went ok (or not)
- `putchar` the name of the function
- `char` the type of the parameter (extra information) passed
- `c` the function's internal name of the parameter passed