

# Notes

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<https://learn.unity.com/project/beginner-gameplay-scripting>

## Scripts as Behavior Components

Different ways to add and create a script

## Variables and Functions

Introduction to Variables and Functions (also referred to as method). Differences between void and functions that return data. Uses Debug.Log to see the results.

## Conventions and Syntax

Dot operator allows you to access a compound item in Unity. ";;", indentation and comments

## IF Statements

Decide IF condition is satisfied.

## Loops

For Loop, While loop, Do While Loop and Foreach Loop.

"WhileLoop" tests the condition before the loop body.

"DoWhileLoop" tests the condition at the end of the body.

## Scope and Access Modifiers

Difference between Private and Public functions. If the public variable located at "void Start()," it will not be overridden by the value at the inspector. All variables are private unless it is declared as public. Other scripts can access public variables.

## Awake and Start

Awake is called first, even if the script component is disabled. Used for references between scripts and initialization. Start is called before the first update.

## Update and FixedUpdate

### Update

- Called every frame
- Used for regular updates such as:
  - Moving non-physics objects
  - Simple Timers
  - Receive Input
- Update interval times vary

### FixedUpdate

- Called every physics step
- Intervals are consistent
- Used for regular updates such as:
  - Adjust physics (Rigidbody) objects.

## Vector Maths

dot product

cross product

## Enabling and Disabling Components

```
myLight.enabled = !myLight.enabled;
```

Can work as a toggle

## Look At

It moves the camera to face a moving object constantly.

## Linear Interpolation

Examples of how to perform linear interpolation on Unity.

## Destroy

Destroy the component; the object is still present; only its mesh render is no longer visible. You can also add time to wait after the destroy command.

## GetButton and GetKey

Ways to set up buttons. Like GetButton Up, GetButton Down, GetButton. Buttons need to be specified on the input menu.

## GetAxis

Returns a value instead of being press or not press. From -1 to 0. It even includes dead zone for joysticks.

## OnMouseDown

To detect a click on GUI text element or a collider.

## GetComponent

Accessing public variables from other scripts using GetComponent. It should be used on the awake since it is expensive in terms of processing power.

## DeltaTime

It's the time between each Update or FixedUpdate. Used to smooth values or movement.

## Data Types

Value

- int
- float

- bool
- char
- Structs (contain one or more variable)
  - Vector3
  - Quaterion

Reference (Object of a class)

- Classes
  - Transform
  - GameObject

## Classes

Container for variables and functions.

## Instantiate

Creates clones of game objects (prefabs). Can use position, rotation, and a Rigidbody.

## Arrays

Collection of data of the same type together.

## Invoke

Call a function after a specified time delay.

## Enumerations

A special data type that has a specific subset of sub-values. Like a Compass (North , East, South, West).

## Switch Statements

Alternative to IF condition. Compare a single variable to a series of constants.