

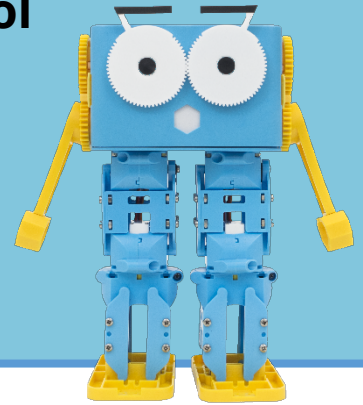
# Lesson 2.3 – Building a Marty Remote Control

**Education Level:** Third/Fourth Level (Ages 11-14)

**Lesson Duration:** 90 minutes (can be split across sessions)

**Prerequisite Knowledge:** Lesson 2.1 & 2.2

**Device Compatibility:** Laptop or PC



## Lesson Overview

In this lesson, we follow on from the introduction to Marty in the first and second lesson by creating a remote control for Marty using the Python language and the MartyPy library. This will introduce simple programming concepts such as input/output text streams, if statements and functions.

### Learning Objectives

- Understand and describe if statements in Python code
- Understand and describe functions in Python code
- Build a remote control for Marty in Python

### Key Vocabulary

- Python
- Coding
- Script
- If Statement
- Functions
- Input/Output (I/O)
- GUI

### Resources & Equipment

- Marty the Robot
- Python editor
- Access to computers/laptops (with Python installed)
- Marty workbook (Lesson 3)

### Additional Reading

- Educator's Guide
- Get Started with MartyPy
- Teachers guide to creating a remote control
- Tkinter documentation
- MartyPy documentation

### Learning Plan & Activities

1. Introduce the concept of If Statements
  - a. Give examples of real-life situations that could be transformed into if statements
  - b. Ask students to think up some examples of if statements using real-life situations
  - c. Show examples of Python code and given certain inputs/conditions ask students to explain what they think the output will be
2. Programming task for students to incorporate if statements to make decisions for which movement Marty should make
3. Introduce the concept of Functions
  - a. Show examples of Python code and ask students to trace the code in terms of what happens and why
4. Using a combination of if statements and functions, students should create a remote control for Marty that takes user input as a command to tell Marty what to do

### Additional Challenges

- Add extra functionalities into their remote-control program, so there could be a command that tells Marty to dance!
- Students could start to build an interface for their remote control, using a library such as Tkinter to build the graphical user interface

## Curriculum Benchmarks

### Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark    ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 2.3
Digital Literacy	TCH 4-01a	○
Technological Developments in Society & Business	TCH 0-05a	●
Craft, Design, Engineering & Graphics	TCH 1-12a	○
	TCH 3-12a	○
Computing Science	TCH 0-13a	●
	TCH 1-13a	○
	TCH 2-13a	●
	TCH 3-13a	●
	TCH 3-13b	○
	TCH 0-14a	●
	TCH 0-14b	○
	TCH 1-14a	●
	TCH 1-14b	○
	TCH 2-14a	●
	TCH 2-14b	○
	TCH 3-14a	○
	TCH 4-14c	○
	TCH 0-15a	●
	TCH 1-15a	●
	TCH 2-15a	●
	TCH 3-15a	○

### National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark    ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 2.3
Computing	1-a	●
	1-b	●
	1-c	●
	1-d	●
	1-e	●
	2-a	●
	2-b	●
	2-c	●
	2-f	○
	3-a	●
	3-b	○
	3-c	○
	3-d	●
	3-g	○
	3-h	○

	4-a	○
	4-b	○
Design & Technology	1.1-a	●
	1.1-b	●
	1.3-b	●
	2.1-b	○
	2.3-b	●
	2.4-d	●
	3.1-b	●
	3.1-d	○
	3.3-c	●
	3.4-d	●

### Australian F-10 Curriculum – Digital Technologies, Design & Technologies

● = Fully Addresses Benchmark    ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 2.3
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP003	○
	ACTDIP004	●
	ACTDIP009	○
	ACTDIP010	●
	ACTDIP011	●
	ACTDIP012	○
	ACTDIP013	●
	ACTDIP018	○
	ACTDIP019	○
	ACTDIP020	○
	ACTDIP021	○
	ACTDIP027	○
	ACTDIP028	○
	ACTDIP029	○
	ACTDIP030	○
	ACTDIP031	○
	ACTDIP039	○
	ACTDIP040	○
Design & Technologies	ACTDEK001	○
	ACTDEK002	○
	ACTDEP006	●
	ACTDEP007	○
	ACTDEP008	○
	ACTDEP009	●
	ACTDEP011	○
	ACTDEP015	○
ACTDEP018	○	