

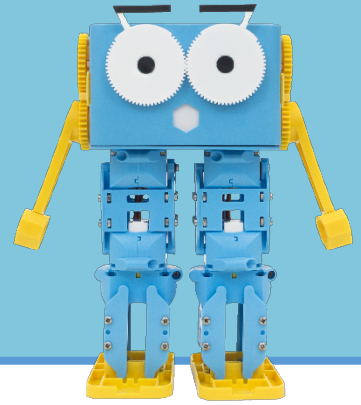
# Lesson 1.11 – Introduction to Functions

**Education Level:** Second Level (Age 7-11)

**Lesson Duration:** 45 minutes

**Prerequisite Knowledge:** Lessons 1.1-1.10

**Device Compatibility:** Laptop, PC or Tablet



## Lesson Overview

In this lesson, we will introduce functions, another way to reduce the amount of repeated code and helps to break down tasks by creating small methods who are responsible for doing one or two things only. This will be introduced by getting students to think about tasks they do every day that could be defined as a function before breaking down a new program to include functions.

### Learning Objectives

- Understand what we use functions for and when to use them
- Implement a function using Scratch either on a new program or altering an existing program
- Describe how to break down a task into smaller manageable steps

### Key Vocabulary

- Functions
- Repeat
- Control
- Method
- Dance routine
- Breakdown

### Resources & Equipment

- Marty the Robot
- Marty Workbook (Lesson 2)
- Laptops/Computers/Tablets
- Access to the Scratch editor

### Additional Reading

- Educator's Guide
- Introduction to Programming with Marty using Scratch

### Learning Plan & Activities

1. Introduction to functions as a way to breakdown a task and focus on a specific bit of functionality or sub-task. Relate this back to a textbook being divided into chapters where each chapter and sub-section of that chapter will focus on something specific
2. Ask students to think about their morning routine – what do they do each morning? How could we break this up into a function? For example, things like brushing our teeth, getting dressed – these are all things that we can do without thinking in too much detail like brush up and down
3. Note that functions are also a way to reduce the amount of duplicated code that we create, using example of a song where we break each section up into verse or chorus
4. Programming task where students are asked to think about the dance routine that they programmed for Marty, but this time ask students to create functions of different dance moves and then call these functions in different sequences to change the dance routine easily and repeat things without reusing all of the individual movement blocks

## Additional Challenges

- Ask students to go back through some different programs like the remote control and see how they would change that to make use of functions

## Curriculum Benchmarks

### Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark    ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.11
Digital Literacy	TCH 0-01a	●
Craft, Design, Engineering and Graphics	TCH 1-09a	●
	TCH 0-11a	●
Computing Science	TCH 0-13a	●
	TCH 1-13a	●
	TCH 2-13a	●
	TCH 3-13a	○
	TCH 0-14a	●
	TCH 0-14b	●
	TCH 1-14a	●
	TCH 1-14b	●
	TCH 2-14a	●
	TCH 3-14a	○
	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 1.11
Computing	1-a	●
	1-b	●
	1-c	●
	1-e	●
	2-a	●
	2-b	●
	2-c	●
	3-a	●
	3-b	○
	3-d	○
	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	●

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

● = Fully Addresses Benchmark    ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.11
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP003	○
	ACTDIP004	●
	ACTDIK008	●
	ACTDIP009	○
	ACTDIP010	●
	ACTDIP011	●
	ACTDIP012	●
	ACTDIP013	●
	ACTDIP017	●
	ACTDIP019	●
	ACTDIP020	●
	ACTDIP027	○
	ACTDIP028	○
	ACTDIP029	●
	ACTDIP031	○
	ACTDIP041	○
Design & Technologies	ACTDEP005	○
	ACTDEP006	●
	ACTDEP009	●
	ACTDEP015	○
	ACTDEP018	●