

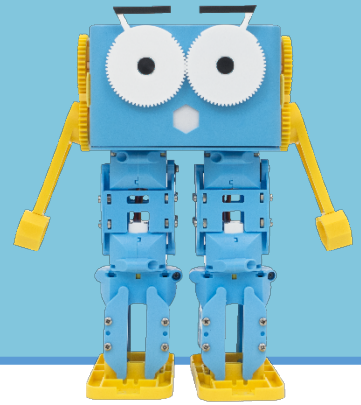
Lesson 1.14 – Obstacle Course Challenge 1

Education Level: Second Level (Age 7-11)

Lesson Duration: 45 minutes

Prerequisite Knowledge: Lessons 1.1-1.13

Device Compatibility: Laptop, PC or Tablet



Lesson Overview

Students will now have a solid understanding of how Marty works, how we can program him and what simple programming concepts can be used to help with this. In this lesson, students will design a small obstacle course to get a feel for what kind of environment robots can work in, before either building or using the one provided to get students to firstly walk Marty around the course using their remote control before programming him to go around it without help!

Learning Objectives

- Take into consideration the kind of obstacles that Marty could tackle based on his size and movement and also the environment that he could react to
- Use concepts such as if statements, loops and functions to build a program to allow Marty to go around a pre-defined obstacle course

Key Vocabulary

- Script
- If statements
- Functions
- Environment
- Obstacles
- Repeat/Loops
- Interaction

Resources & Equipment

- Marty the Robot
- Marty Workbook (Lesson 5)
- Laptops/Computers/Tablets
- Access to the Scratch editor
- Obstacle course mat/layout
- Remote control program created in Lesson 1.6

Additional Reading

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

Learning Plan & Activities

1. Ask students what environments that they think we could use robots in and why
 - a. What about Marty? Where do you think we could use him? Why?
2. Recap of concepts if statements, loops and functions
3. Ask students to design their own obstacle course for Marty to go around
 - a. Class can then either vote and build their favourite or use the layout provided
4. Breaking up into small groups with a device and a Marty, get students to use their remote control to walk Marty around the obstacle course and take notes of how they did this and what moves had to be made at certain parts
5. Programming task to program Marty to go around the obstacle course without using the remote control or touching him

Additional Challenges

- Time how long it takes each teams Marty to go around the obstacle course – is anyone faster? How did they program Marty to be faster?
- Add in some small obstacles to make things more difficult and see if student teams can change the code that they have to tackle this obstacle too

Curriculum Benchmarks

Curriculum for Excellence – Technologies Benchmark Guide

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.14
Digital Literacy	TCH 0-01a	●
Technological Developments in Society & Business	TCH 0-07a	●
	TCH 1-07a	●
	TCH 2-07a	○
Craft, Design, Engineering and Graphics	TCH 0-09a	●
	TCH 1-09a	●
	TCH 2-09a	○
	TCH 3-09a	○
	TCH 0-10a	●
	TCH 0-11a	●
	TCH 1-11a	●
	TCH 2-11a	●
	TCH 0-12a	●
	TCH 1-12a	●
Computing Science	TCH 0-13a	●
	TCH 1-13a	●
	TCH 2-13a	●
	TCH 3-13a	○
	TCH 3-13b	○
	TCH 4-13a	○
	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	○
TCH 4-15a	○	

National Curriculum – Computing, Design & Technology

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.14
Computing	1-a	●
	1-b	●
	1-c	●
	1-e	●
	2-a	●
	2-b	●
	2-c	●
	3-a	●
	3-b	○
	3-d	○
	3-g	○
	4-a	○
	4-b	○
	Design & Technology	1.1-a
1.1-b		●
1.2-a		○
1.3-a		○
1.3-b		●
2.1-a		●
2.1-b		○
2.2-a		○
2.3-b		●
3.1-b		●
3.1-e		○
3.2-a		○
3.3-c		○

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

● = Fully Addresses Benchmark ○ = Partially Addresses Benchmark

Curriculum Organiser	Benchmark Covered	Lesson 1.14
Digital Technologies	ACTDIK001	●
	ACTDIK002	●
	ACTDIP003	○
	ACTDIP004	●
	ACTDIK008	○
	ACTDIP009	●
	ACTDIP010	●
	ACTDIP011	●
	ACTDIP012	●
	ACTDIP013	●
	ACTDIP017	●

	ACTDIP019	●
	ACTDIP020	●
	ACTDIP021	○
	ACTDIP027	●
	ACTDIP028	○
	ACTDIP029	●
	ACTDIP031	○
	ACTDIP038	○
	ACTDIP039	○
	ACTDIP040	○
	ACTDIP042	○
Design & Technologies	ACTDEK001	○
	ACTDEK004	○
	ACTDEP005	○
	ACTDEP006	●
	ACTDEP007	○
	ACTDEP008	○
	ACTDEP009	●
	ACTDEK010	○
	ACTDEK013	●
	ACTDEP015	●
	ACTDEP016	○
	ACTDEP017	●
	ACTDEP018	●
	ACTDEP025	○
ACTDEP026	○	