

Marty the Robot Workbook

Responding to Our Environment

Student Name:

Lesson 1 – Bump Switches

Match up the concept to the short description below,

If Statements

Two or more things
happening at the same
time

Variables

Responsible for doing
one thing that we can call
to carry out the actions
for us

Loops

A way to make decisions
by checking a condition

**Running in
Parallel**

Holds values and
remembers them for us

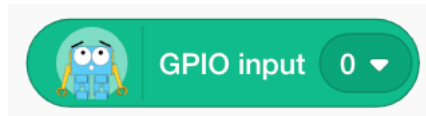
Functions

Repeats some statements
a certain number of times

Use the space below to plan out your bump switch programs for Marty,

How Bump Switches Work

When the bump switch reads 1 then the switch has been pressed. We check this value using the GPIO input block with either input number 0 or 1 (if there are two bump switches connected!)

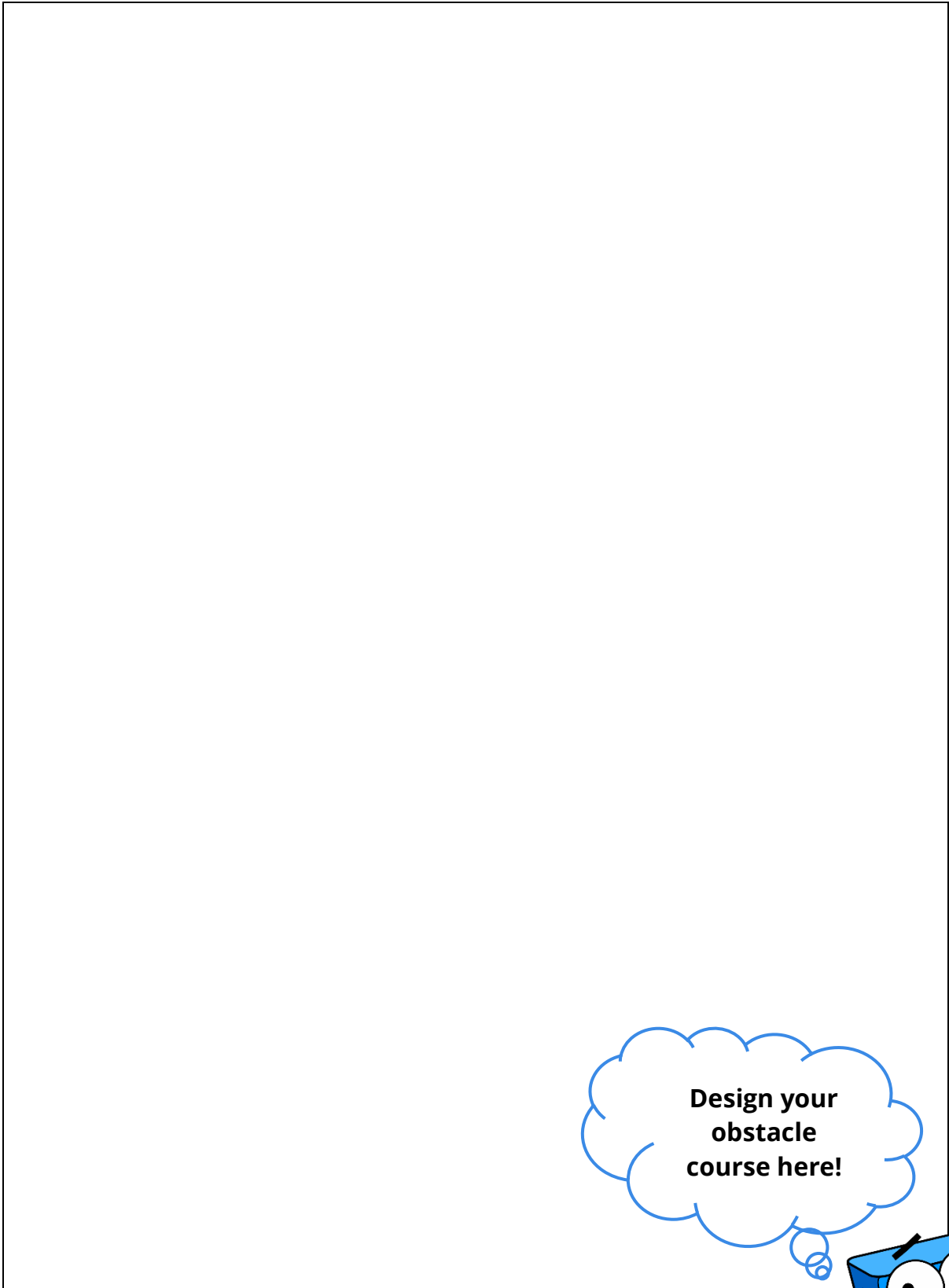


Stop Walking When I Walk into Something

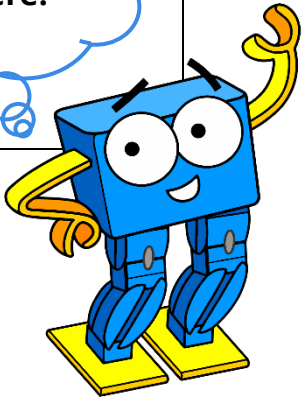
What can we program Marty to do when the bump switches are on the following body parts?

Bump Switch Attached to...	Activity Ideas
Front of feed	<i>Stop when there is something in front of use that is blocking the way</i>
Arms	
Underneath Feet	

Lesson 2 – Obstacle Course 2



**Design your
obstacle
course here!**



Use this space to plan out your program!

Obstacle Section:

Obstacle Section:

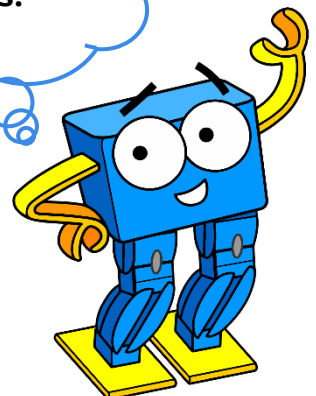
Obstacle Section:

Obstacle Section:

Obstacle Section:

Bump Switch Location(s)

**Where will you
put the bump
switches!**



Lesson 3 – Secret Handshake

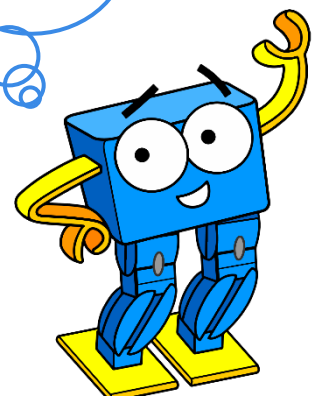
Try storing the following values as variables so you can monitor them on the screen in Scratch and fill in the table!

Pick two other body parts and see how their values change – right hip, right knee, left hip or left knee

<i>Motor</i>	<i>Standing Still</i>	<i>Walking</i>	<i>Applying Small Force to Joint</i>
Left Arm			
Right Arm			

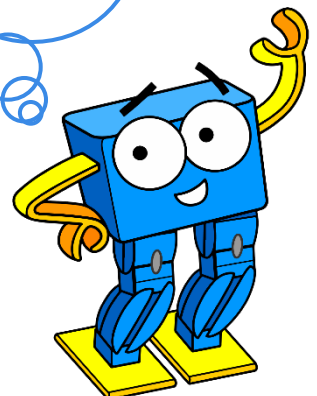
**Why do you think
the values change?**

What causes it?



Use this space to plan out your handshake program!

**Now for
the secret
handshake...**



Secret Handshake Move 1:

Secret Handshake Move 2:

Secret Handshake Move 3:

Lesson 4 – Accelerometers

Which of the items in the list below contain accelerometers? Draw pictures of the items in the correct box!

<i>Does Contain</i>	<i>Does Not Contain</i>

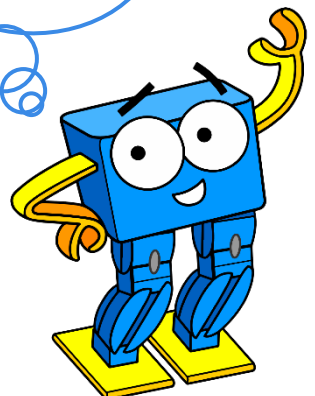
Mobile Phones	Robots	Games Controllers
Washing Machines	Smart Watch	Televisions

Try storing the following values as variables so you can monitor them on the screen in Scratch and fill in the tables!

<i>Accelerometer</i>	<i>Standing Still</i>	<i>Walking Forwards</i>	<i>Sidestepping to the Left</i>
X			
Y			
Z			

<i>Accelerometer</i>	<i>Moving Slowly Up and Down</i>	<i>Tilting Marty Forwards Slowly</i>	<i>Moving Slowly Left to Right</i>
X			
Y			
Z			

Don't forget to multiply the accelerometer value by 1000 to get something easy to read



Which of the accelerometer values change when Marty moves from left to right?

Which of the accelerometer values change when Marty is moved up and down?

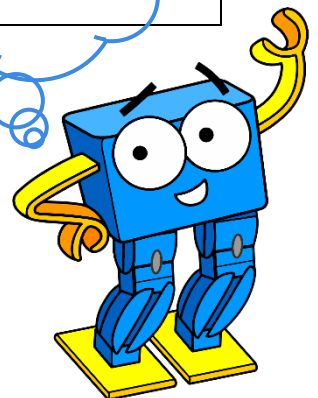
Which of the accelerometer values change when Marty is tilted forwards and backwards?

Short Description of Game:

How to Play:

Game Character(s):

**Do a small
drawing of your
main character!**



Programming Plans & Notes:

