STING

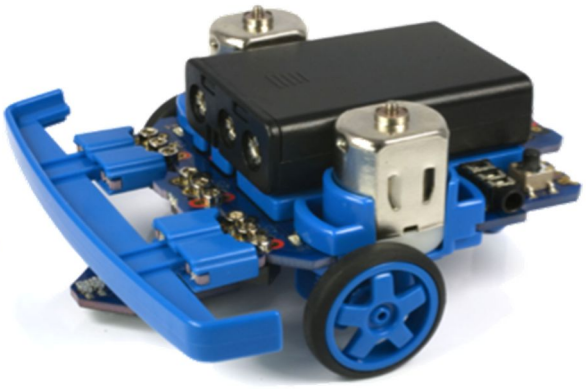
STEM Teacher Education
Innovation for Gender Balance

Microbot Technology

St Mary's University College Belfast
A College of Queen's University

Erasmus+

Microbot Technology



Expected Outcomes

- By the end of this session you should have created a dance and programmed the Microbot to follow the moves you design.

Learning Opportunities

A. Use flowchart programming to create an algorithm as a set of steps to accomplish a task.

B. Plan a series of commands to predict moves for the Microbot.

C. Learn how to use a sequence of commands to implement specific outcomes for the Microbot.

D. Collaborate with a team to discuss ideas in order to reach agreement.

E. Modify a program based on review to improve performance.

F. Showcase you program.

G. Evaluate your own and other people's programs.

H. Learn and use simple programming commands and terms.

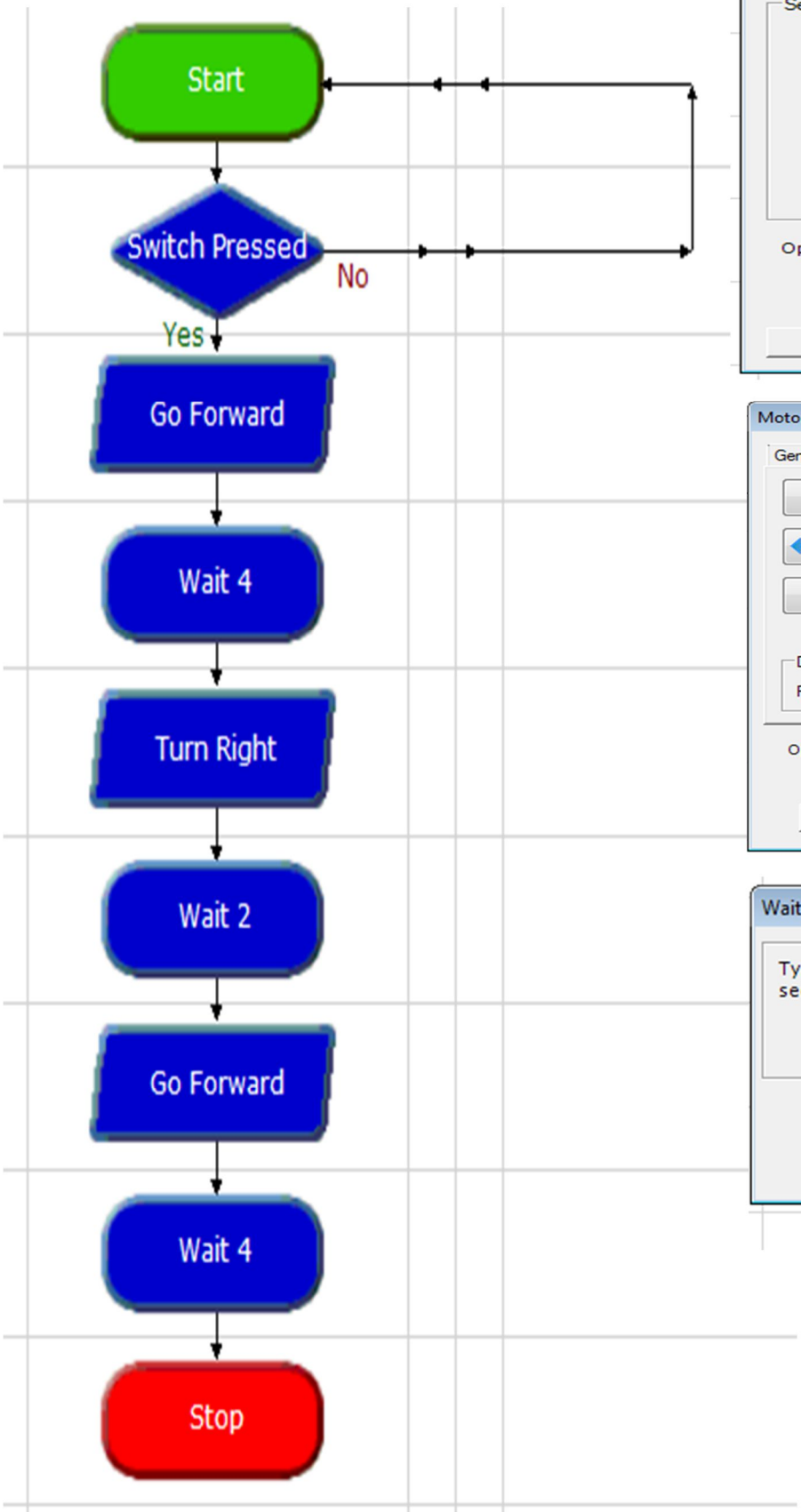
I. Consider how the approach and lesson content addresses gender in STEM education.

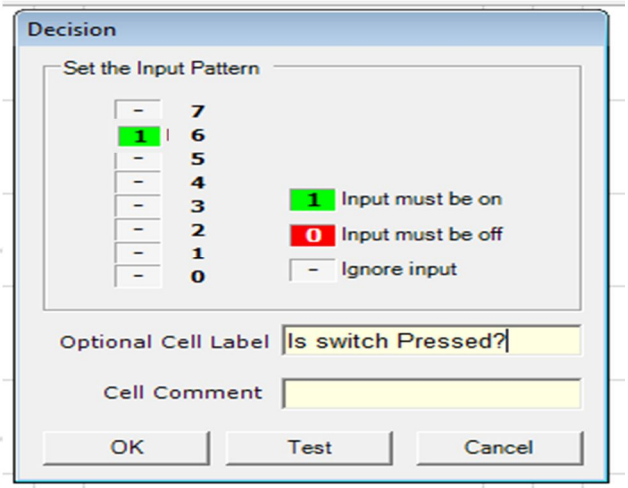
We will consider how the activities address the above learning opportunities.

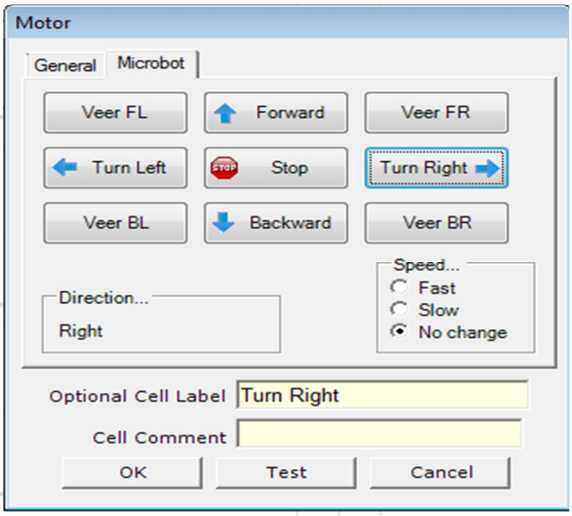
No.	Activity	A	B	C	D	E	F	G	H	I
1	Following a path									
2	Square Path									
3	Microbot Dance									
4	Showcase									

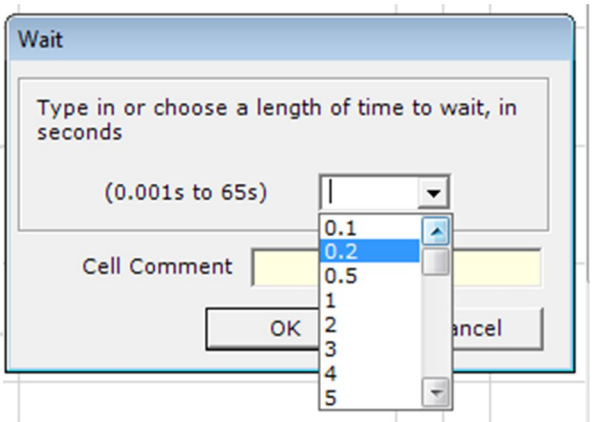
Activity One: Following a Path

Create the program shown below and program the Microbot and Test.

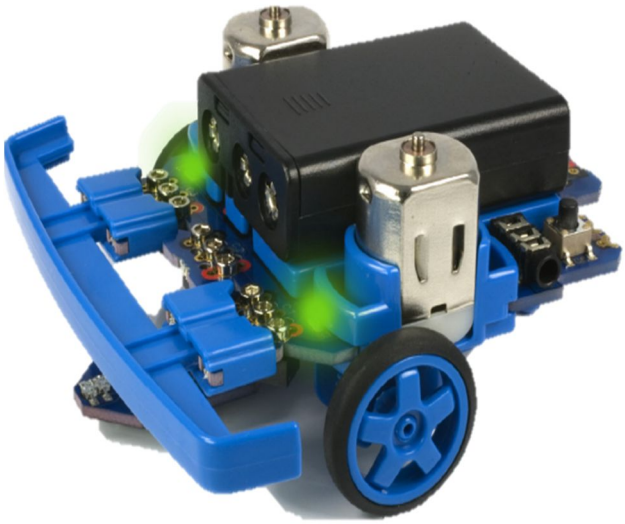








Microbot Technology Feedback Activity One



1. Did you complete Activity One?	
Yes	No

2. How difficult did you find the task?				
1	2	3	4	5
Very difficult	Difficult	Neutral	Easy	Very Easy

3. What was the biggest challenge in attempting this activity?

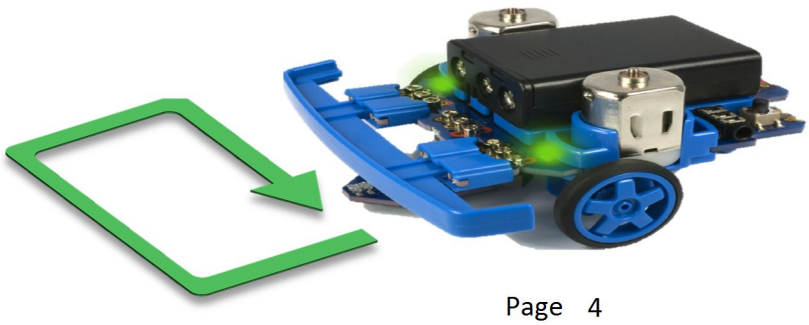
4. Using the learning intentions detailed at the beginning of the session, please indicate (using a tick ✔) which learning intentions each activity addressed.

No.	Activity	A	B	C	D	E	F	G	H	I
1	Following a path									

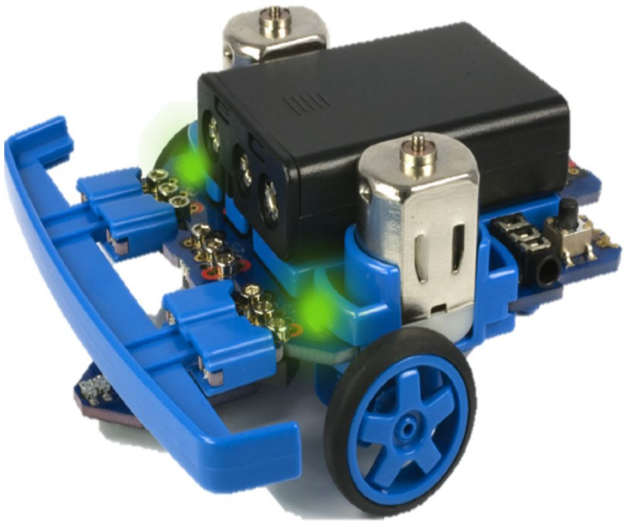
Activity Two: Following a Square Path

Examine the sequence of directions and the distances involved to follow a square path with 30cm sides. Estimate the duration of movement in each direction and plan a program in the space below to control your robot to follow the path.

Test and Edit the first program you created to make changes to improve the accuracy of the movements.



Microbot Technology Feedback Activity Two



5. Did you complete Activity Two?	
Yes	No

6. How difficult did you find the task?				
1	2	3	4	5
Very difficult	Difficult	Neutral	Easy	Very Easy

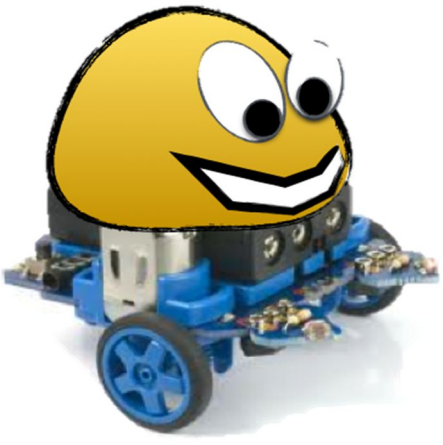
7. What was the biggest challenge in attempting this activity?

8. Using the learning intentions detailed at the beginning of the session, please indicate (using a tick ✔) which learning intentions each activity addressed.

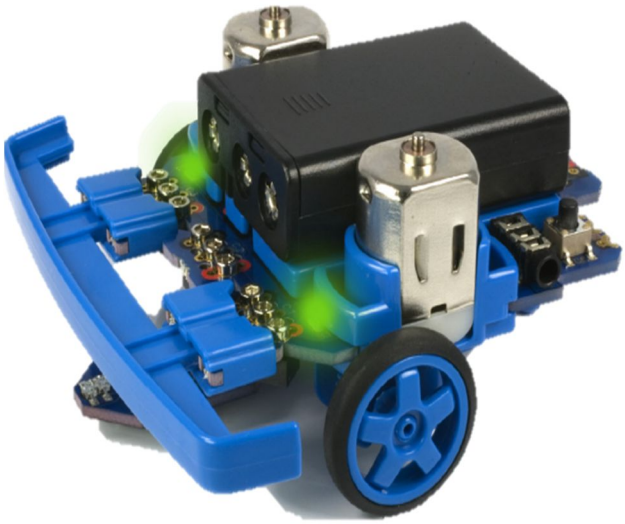
No.	Activity	A	B	C	D	E	F	G	H	I
2	Square path									

Activity Three: Microbot Dance

The aim of this challenge is to design an algorithm and create a unique set of dance moves for your Microbot. Sketch a dancing sequence below to add to your group dance. Complete a program that incorporates the moves of your team.



Microbot Technology Feedback Activity Three



9. Did you complete Activity Three?	
Yes	No

10. How difficult did you find the task				
1	2	3	4	5
Very difficult	Difficult	Neutral	Easy	Very Easy

11. What was the biggest challenge in attempting this activity?

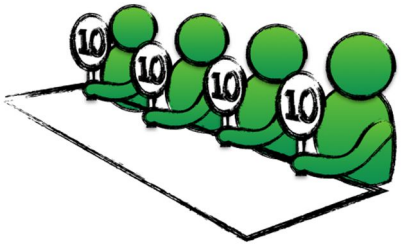
12. Using the learning intentions detailed at the beginning of the session, please indicate (using a tick ✔) which learning intentions each activity addressed.

No.	Activity	A	B	C	D	E	F	G	H	I
3	Microbot Dance									

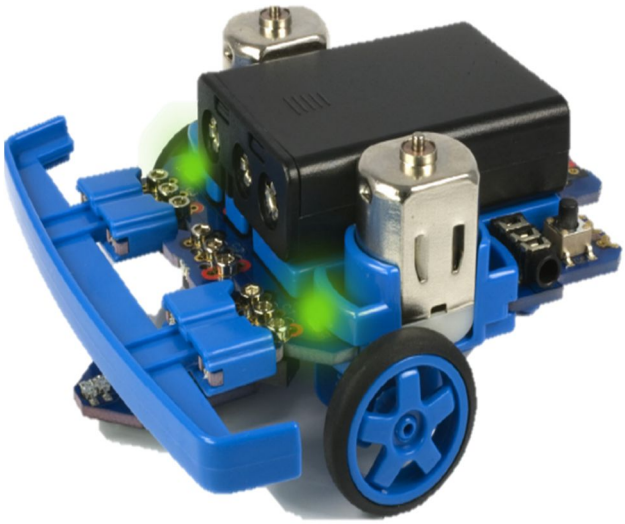
Activity Four: Showcase

Present your Microbot dance to other teams; use the scorecard to record your rating of each dance below.

Microbot Dance Scorecard							
Team	Complexity of Algorithm	Presentation	Creativity	Use of Movement	Use of Area	Use of Teamwork	Total
	/5	/5	/5	/5	/5	/5	/30
1							
2							
3							
4							
5							



Microbot Technology Feedback Activity Four



13. Did you successfully create an algorithm to produce the dance you designed?

14. How successful do you consider the other teams were in creating an algorithm?

15. Using the learning intentions detailed at the beginning of the session, please indicate (using a tick ✔) which learning intentions each activity addressed.

No.	Activity	A	B	C	D	E	F	G	H	I
4	Showcase									