Activity 2 Part 1

Simulate MiRo to output a sequence of sounds when the input 'clap' is heard.

Step	Block	From	Connect
1 Add **1** x **program start** block	Program Start	Setup	Program Start
2 Add **1** x **Look left/right** block	Wait for clap	Sensors	Program Start Wait for clap
3 Add **1** x **play tone** block	Play tone of 500 Hz for 0.5 seconds at volume 100	Sound & Light	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100
4 Add **1** x **wait** block	Wait for 1 Seconds	Control	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds
5 Add **1** x **play tone** block	Play tone of 500 Hz for 0.5 seconds at volume 100	Sound & Light	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds Play tone of 500 Hz for 0.5 seconds at volume 100
6 Change to the tone from '500' to '1000'			Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100
7 Add **1** x **wait** block	Wait for 1 Seconds	Control	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds

8 Click **Robot Play** OR **Simulator Play**	
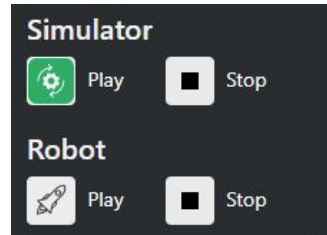
Extension: What effect on the output does adjusting the tone and the number of seconds and volume?
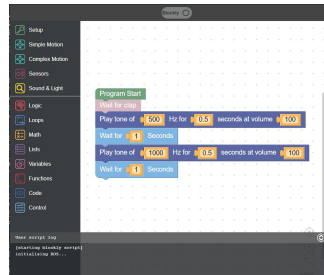
Follow a program	 **Script at bottom of screen shows code is ready and waiting for the 'clap'**	 **Simulate the clap by clicking this icon OR With physical MiRo - clap your hands**	 **Script at bottom shows program ran correctly.**
Hear the output			

Activity 2 Part 2

Simulate MiRo to output a sequence of sounds and light when the input 'clap' is heard.

This program builds on the previous activities program so you need to keep your program on your screen to build on.

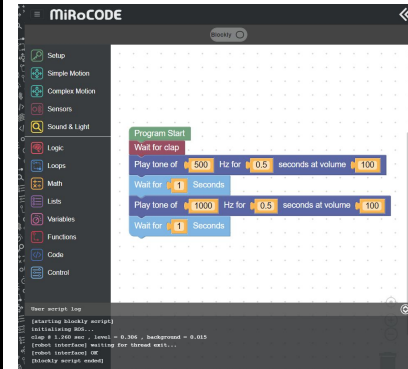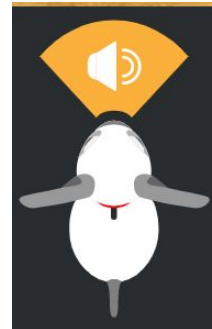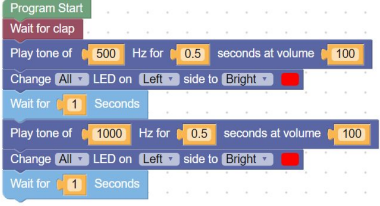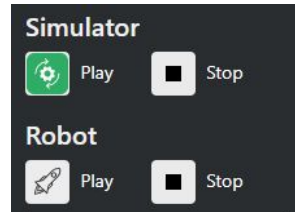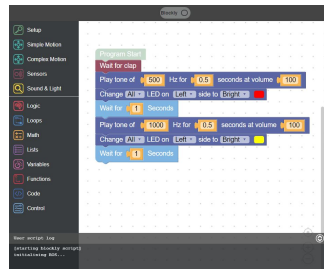| Step	Block	From	Connect
**hover a block over where you want to put it, a yellow connection will show and drop it into place			
1 Add **1** x **change front led** block	Change Front LED on Left side to Bright ◼	🔍 Sound & Light	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Change Front LED on Left side to Bright ◼ Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds
2 Set from 'change front' to 'change all' on the drop-down menu			Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◼ Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Wait for 1 Seconds
3 Add **1** x **change front led** block	Change Front LED on Left side to Bright ◼	🔍 Sound & Light	Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◼ Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Change Front LED on Left side to Bright ◼ Wait for 1 Seconds
4 Set from 'change front' to 'change all' on the drop-down menu			Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◼ Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◼ Wait for 1 Seconds
5 Set the colour of the second block to yellow			Program Start Wait for clap Play tone of 500 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◼ Wait for 1 Seconds Play tone of 1000 Hz for 0.5 seconds at volume 100 Change All LED on Left side to Bright ◻ Wait for 1 Seconds

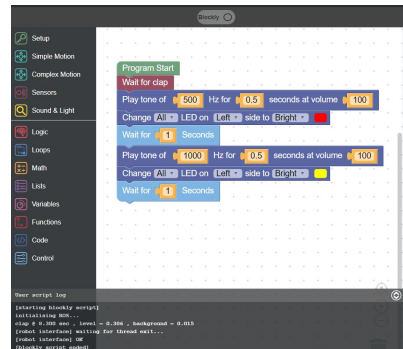|	
7 Click **Robot Play** OR **Simulator Play**	

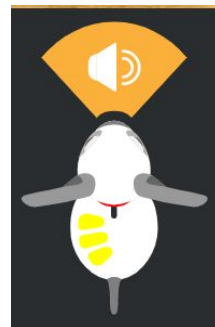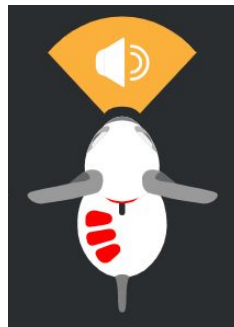| **Follow a program**	 **Script at bottom of screen shows code is ready and waiting for the 'clap'**	 **Simulate the clap by clicking this icon** **OR** **With physical MiRo - clap your hands**	 **Script at bottom shows program ran correctly.**

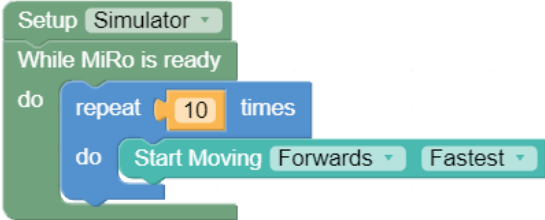| **See and Hear the output**		

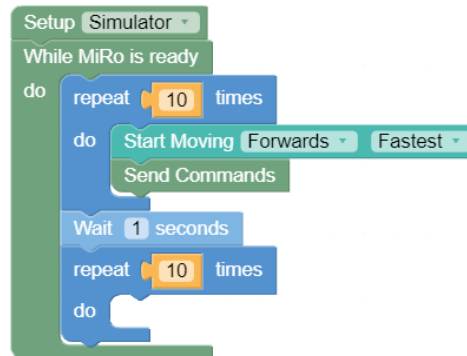| **Extension** Click the button above the block code with the word 'Blockly' on it and switch the screen to 'python'. Can you narrate anything that happens in the code?	

Step-by-Step

Simulate MiRo to move forward, turn and move towards and knock down the cans.

Step	Image
1 – Set Up ● Blocks from 'Setup' icon and is the start of all programs.	Setup [Simulator ▾] / While MiRo is ready / do
2 – Add Repeat Loop ● Block from 'Loops' icon.	repeat [10] times / do
3 – Add Movement ● Block from 'Simple Motion' icon and set to 'fastest' from the dropdown menu available.	Setup [Simulator ▾] / While MiRo is ready / do repeat [10] times / do Start Moving [Forwards ▾] [Fastest ▾]
4 – Add Send Commands ● Block from 'Setup' icon.	Setup [Simulator ▾] / While MiRo is ready / do repeat [10] times / do Start Moving [Forwards ▾] [Fastest ▾] / Send Commands
5 – Add Wait block ● Block from 'Control' icon.	Setup [Simulator ▾] / While MiRo is ready / do repeat [10] times / do Start Moving [Forwards ▾] [Fastest ▾] / Send Commands / Wait [1] seconds

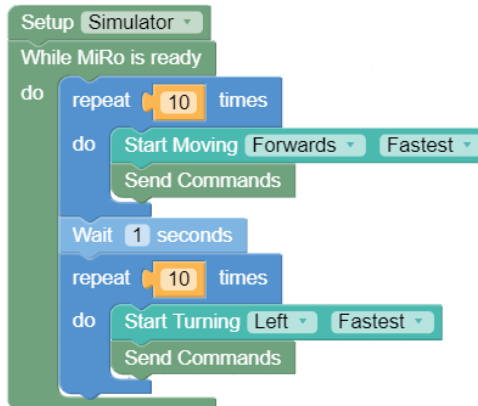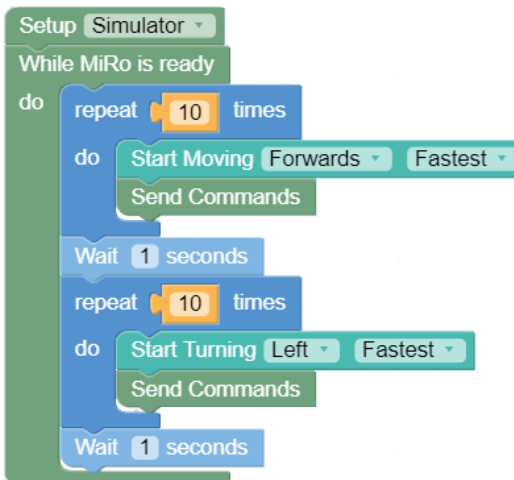|	

6 – Add Repeat Loop
 	
 ● Block from 'Loops' icon.
    OR
 ● Right click and duplicate the other 'repeat 10 times' block.
	Setup Simulator
	 While MiRo is ready
	 do repeat 10 times
	      do Start Moving Forwards Fastest
	        Send Commands
	     Wait 1 seconds
	     repeat 10 times
	      do

7 – Add Turning Movement and Send Commands blocks
 	
 ● Block from 'Simple Motion' icon, add set to 'left' and 'fastest' from the dropdown menus available.
 	
 ● Block from 'Setup' icon.
	Setup Simulator
	 While MiRo is ready
	 do repeat 10 times
	      do Start Moving Forwards Fastest
	        Send Commands
	     Wait 1 seconds
	     repeat 10 times
	      do Start Turning Left Fastest
	        Send Commands

8 – Add Wait block
 	
 ● Block from 'Control' icon.
	Setup Simulator
	 While MiRo is ready
	 do repeat 10 times
	      do Start Moving Forwards Fastest
	        Send Commands
	     Wait 1 seconds
	     repeat 10 times
	      do Start Turning Left Fastest
	        Send Commands
	     Wait 1 seconds

| **10 – Add a third Repeat block with Forward movement**	

● Block from 'Simple Motion' icon and set to 'fastest' from the dropdown menu available.
 	
● Block from 'Setup' icon.
	Setup Simulator ▼
	While MiRo is ready
	do repeat 10 times
	    do Start Moving Forwards ▼ Fastest ▼
	       Send Commands
	   Wait 1 seconds
	   repeat 10 times
	    do Start Turning Left ▼ Fastest ▼
	       Send Commands
	   Wait 1 seconds
	   repeat 10 times
	    do Start Moving Forwards ▼ Fastest ▼
	       Send Commands

10 – Simulate Click 'Simulate and you will see MiRo start to move forward for 10 steps, turn for 10 steps and move forward for 10 steps. Click Cancel to stop the simulation. If MiRo gets stuck or you wish to start the simulation again you can reset the world.	
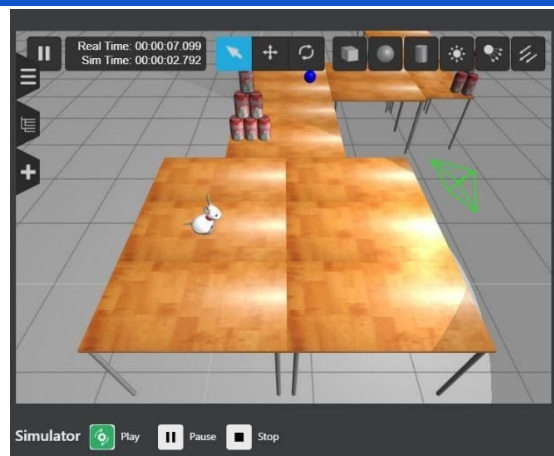
11 – Experiment with the number of times the repeat loops run for

The learners are encouraged to change the numbers on the repeat loops and simulate and test the outputs to find the correct settings to get MiRo to hit the stacked cans.