Coding for health

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Coding an activity tracker: Student sheet

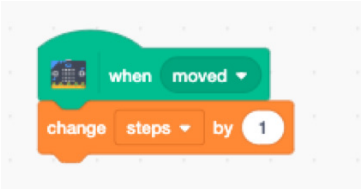
Activity 1
Make a micro:bit wearable

- In this lesson you're going to turn a micro:bit into an activity tracker. Before you program it, let's figure out how you'll wear it
- Using the materials provided by your teacher, decide how you'll attach the micro:bit to yourselves in a secure way
- Test a few different set ups of attachment before deciding on a secure set up. Think about what it would be like to actually wear the tracker. Is it light or heavy? Bulky or small?

Activity 2
Programming a micro:bit

1. Setting up a variable

- You will need to create a variable called 'steps' and set up the program as shown below
- This will make the micro:bit store the number of steps taken when someone wears it



- Next, test the different input options: Moved, Shaken and Jumped
- Take a few steps holding the micro:bit, changing between the input options
- Which one most accurately tracks your steps? Record your answer on the right
- Try attaching the micro:bit to different parts of your body like your ankle, upper arm, wrist or leg. Does it make a difference? Record what you think is the best location on the right

Top tip
Remember to only change one thing at a time to make sure it's a fair test

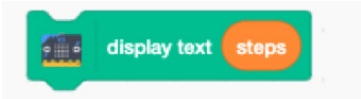
Q. What works best? Fill in your answers here:

Chosen input: _____

Chosen location: _____

2. Programming the display

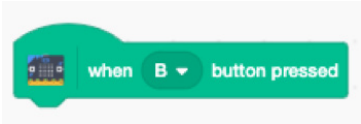
- We need to use the display to show the number of steps, setting it up like this:



- Test your program. Does it work? If not, look at your code and try to spot where you've made a mistake

3. Adding a reset button

- Next, you can use 'When button pressed' to reset the 'steps' variable to 0, like this:



- Test your device. Make sure everyone in your group has tested it too

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Activity 2

Programming a micro:bit Continued…

4. Improving the accuracy

- One member of your group should walk 10 steps with the device, and then compare with the micro:bit display

Q. Did it show the right number of steps? Record both numbers here:

Steps walked: _____

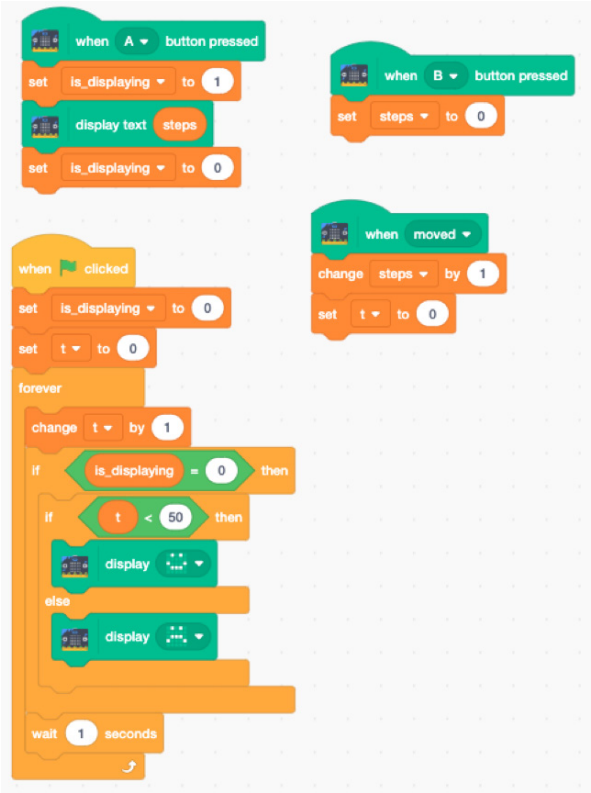
micro:bit reading: _____

Is it correct for each member of your group? What about if your teacher has a go?

- If it's not quite right, can you use the maths 'operators' in Scratch to improve the micro:bit and make it the perfect step tracker for one of your group members? (Ask your teacher for help if you're not sure how to do this)
- Test your program as you go

5. Debugging a program

- This program has already been written for the micro:bit as an activity tracker. You can write and load this program to your micro:bit if you wish to test it out



Q. What are the features of this program?

_____

_____

_____

_____

_____

_____

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Activity 2
Programming a micro:bit Continued…

Q. Identify all the variables in this program (as shown on the previous page) and describe their role

Variable	Role

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Activity 2
Programming a micro:bit Continued…

6. Evaluate results

- Reflect on the activity tracker you've made and fill in the below table
- You'll have to feedback your evaluation to the group at the end of the class, so be ready to explain your thoughts. Spread this out between group members

Things we like What worked well?	**Things we'd change** What could you do with more time or different materials?
1.	1.
2.	2.

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Activity 2
Programming a micro:bit Continued…

7. Improvements

- Select one of the improvements you identified while evaluating your results. Spend some time discussing how you could make the program better and fill in this table to record what you've done

Our improvement:

Why we chose this improvement:

How we'd improve it: