Global Challenge

Flashing Wheels

Lesson 3
Your challenge

- Create a flashing wheel light solution for your user
Criteria

● must be:
● flashing light that can be easily attached to a wheel
● appealing to your user
● simple to use
● inexpensive to make
Learning objectives:

- To follow a pseudocode algorithm to program a Flashing Wheels device
- To use iteration, loops, selection and variables in code
- To use paired programming if helpful
- To test and debug code
- To evaluate and present a complete Flashing Wheels solution
Sarah’s Flashing Wheels Algorithm

● When START button pressed
  ○ OUTPUT ‘on’ audio sound
  ○ INPUT Sense IF dark
    ■ IF dark then
      ● OUTPUT light 1 second
        ○ Pause 1 second
        ○ Repeat until STOP button pressed
    ■ ELSE, do nothing

● When STOP button pressed
  ○ OUTPUT ‘off’ sound
  ○ STOP
Paired programming

- 2 programmers working together to code
  - One types the code (driver)
  - One watched the driver, checks the code, makes suggestions (navigator)
  - Work collaboratively, talking through problems

- Why might this be helpful?
  - More accurate code written in shorter time
  - Can collaboratively work through problems
Sample code for Sarah’s Flashing Wheels Algorithm

```
on button A on pressed
    set a to 1
    start melody @ power up repeating once

forever
    show leds
    set a to 0
    start melody @ power down repeating once

forever
    set light to @ light level
    if a
        then
            if
                then
                    while
                        do
                            led enable true
                        pause (ms) 1000
                    led enable false
            pause (ms) 1000
        pause (ms) 1000
    pause (ms) 1000

on start
    led enable false
```
Evaluating your Flashing Wheels device

- How closely does it meet the criteria?
- What are you most pleased with?
- What would you like to improve?
- What problems did you encounter and how did you overcome them?
micro:bit global challenge competition

- Design and create an original innovation using micro:bit to help to improve safety for children.
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- To present a complete Flashing Wheels solution