

MAKE A FITNESS BAND

Create your own fitness band that will count your steps. Use felt to create the band.



Extension: Can you use the sewable LEDs and conductive thread to add a flashing light when you reach your step target?

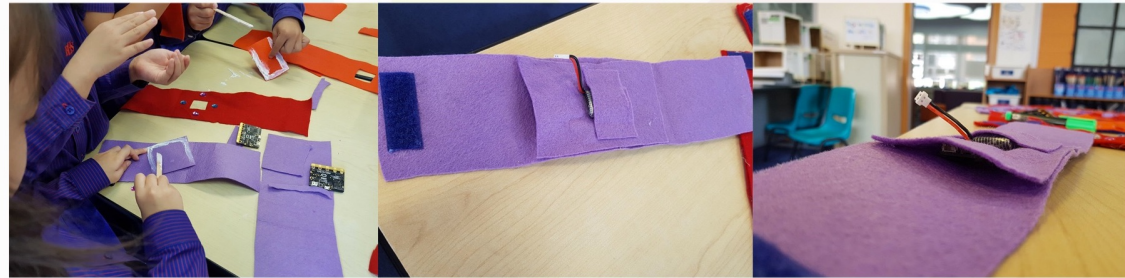
THIS CODE MAY HELP

```
on start
  show icon [grid icon]
  pause (ms) 1000
  clear screen

on shake
  change steps by 1

on button A pressed
  show number [steps]
  pause (ms) 1000
  clear screen

on button A+B pressed
  set steps to 0
```



WHERE DO WE USE THIS?

Fitness bands are created by students in Year 3 for their healthy body systems UOI.

HACK YOUR HAT

Add light detecting LEDs to your hat that switch on when it is dark.



Extension: Can you add an extra rear LED strip?

THIS CODE MAY HELP

```
forever loop
  if (light level < 10)
    then
      digital write pin P0 to 1
      show number (light level)
    else
      digital write pin P0 to 0
      show number (light level)
```



WHERE DO WE USE THIS?

Year 4 students inquire into and create wearable technology as part of their UOI around digital tech

HACK YOUR SHOES #1

Add step counting functionality to your shoes.



Extension: Try to combine project #1 and #2 to create flashing lights and step counting together. Can you make it flash when you reach a step goal?

THIS CODE MAY HELP

```
on shake
  change steps by 1

on button A pressed
  show number steps
  pause (ms) 1000
  clear screen

on button A+B pressed
  set steps to 0
```



WHERE DO WE USE THIS?

Year 4 students inquire into and create wearable technology as part of their UOI around digital tech

SHAKE THE BOTTLE

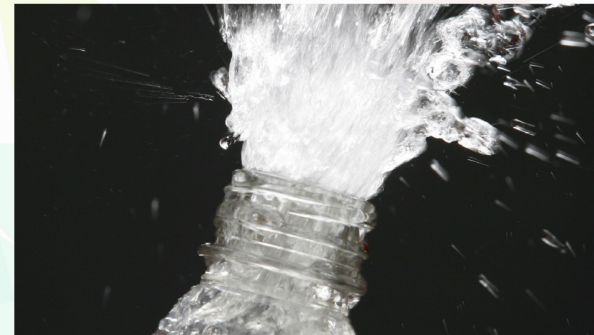


Create a multiplayer game where the person left holding the bottle when it pops is the loser. Build it into a plastic bottle with water in it. This is inspired by the 12 Switch game.

THIS CODE MAY HELP

```
on start
  set pop to 0

on shake
  if pop > 50
    then
      show leds
      [5x5 grid of red and blue dots]
    else
      change pop by pick random 0 to 4
      show leds
      [5x5 grid of red and blue dots]
      clear screen
```



WHERE DO WE USE THIS?
Year 5 students studying game design experiment with motion controls.

WIRELESS SCANNER TREASURE HUNT



Micro:bit includes a wireless radio that can be used to transmit and receive data. This project uses the radio at it's lowest power to make a treasure hunt game where students build their own wireless scanners to find the objects.

WHERE DO WE USE THIS?

Year 6 students were learning to create wireless beacons for use in their PYP Exhibition.

THIS CODE MAY HELP

Treasure / bomb

```
on start
  radio set group 95
  radio set transmit power 0
  show icon [bomb]

forever
  if button A+B is pressed
  then
    show icon [bomb]
    repeat 4 times
    do
      radio send number 2
      pause (ms) 1000
    show icon [bomb]
  else
    radio send number 1
```

Scanner

```
on start
  radio set group 95

on button A+B pressed
  show number score

on radio received receivedNumber
  if receivedNumber == 1
  then
    show icon [bomb]
    show icon [bomb]
  if receivedNumber == 2
  then
    show icon [bomb]
    change score by 1
```


VIRTUAL PET

Make your own virtual pet that needs feeding. Create a food button using an arcade button wired to your micro:bit. Decorate and give your pet a name.

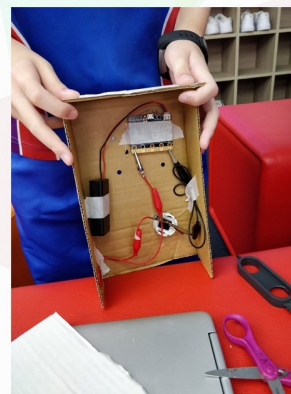
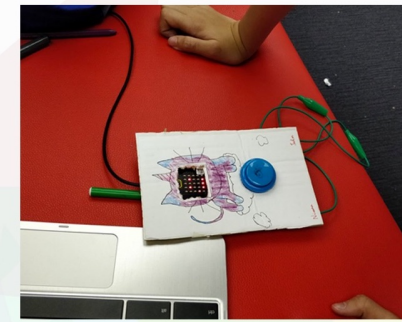
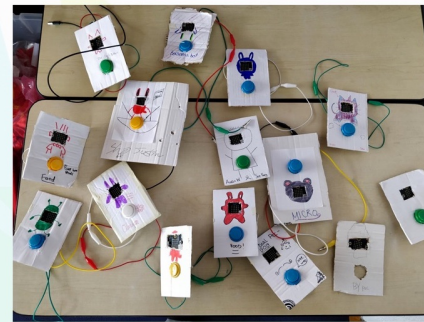
THIS CODE MAY HELP

```
on start
  set health to 10

forever
  change health by -1
  pause (ms) 10000

forever
  if health > 10
    then set health to 10
  if health < 0
    then set health to 0

forever
  if health > 6
    then show icon [cat icon]
  if health < 6 and health > 3
    then show icon [dog icon]
  if health < 3 and health > 1
    then show icon [fish icon]
  if health < 1
    then show icon [egg icon]
```



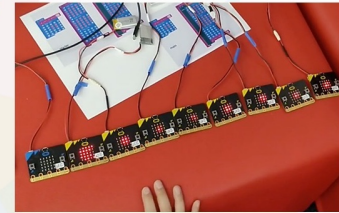
WHERE DO WE USE THIS?
Year 6 students created virtual micro:bit pets when learning about variables as a coding and maths activity.

CREATE A PHYSICAL / DIGITAL ANIMATION

Using the wireless radio feature of the micro:bit it is possible to send a signal between two micro:bits which can be used to trigger an event. In this case one micro:bit will trigger the next to continue an animation.



WHERE DO WE USE THIS?
Year 6 students were learning to create wireless beacons for use in their PYP Exhibition.



THIS CODE MAY HELP

starter

```
on start
  radio set group 1
  show leds

on button A pressed
  show leds
  show leds
  show leds
  show leds
  radio send number 1

on radio received receivedNumber
  if receivedNumber = 0
  then
    show leds
    show leds
    show leds
    show leds
    radio send number 1
```

all the others

```
on start
  radio set group 1
  show leds

on radio received receivedNumber
  if receivedNumber = 1
  then
    show leds
    show leds
    show leds
    show leds
    radio send number 2
```

ZEN



Create a Yoga game where you have to hold a pose for as long as possible without wobbling. The person who stays still the longest wins. This is inspired by the 12 Switch game.

THIS CODE MAY HELP



```
on start
  set wobble to 0

forever
  plot bar graph of wobble up to 10
  if wobble > 10
    then show icon [wobble icon]

forever
  if acceleration (mg) > 1000 or acceleration (mg) < -1000
    then change wobble by 1
    pause (ms) 100
```

WHERE DO WE USE THIS?

Year 5 students studying game design experiment with motion controls.

Video and Photo links for projects

Project	Video / Photo link
Fitness bands	https://goo.gl/ZKnnCG
Hack your hat	https://goo.gl/34tKUN
Hack your Shoes #1	https://goo.gl/5FJkc1
Hack your Shoes #2	https://goo.gl/KvvhZK
Shake the bottle	None yet
Zen	None yet
Virtual Pets	https://goo.gl/Lxa7sP
Treasure Hunt	https://goo.gl/C2Wv3T
Digital / Physical animation	https://goo.gl/zWE2Rx