

CODING CARDS



For courses, curriculum-aligned lessons, and other fun resources:

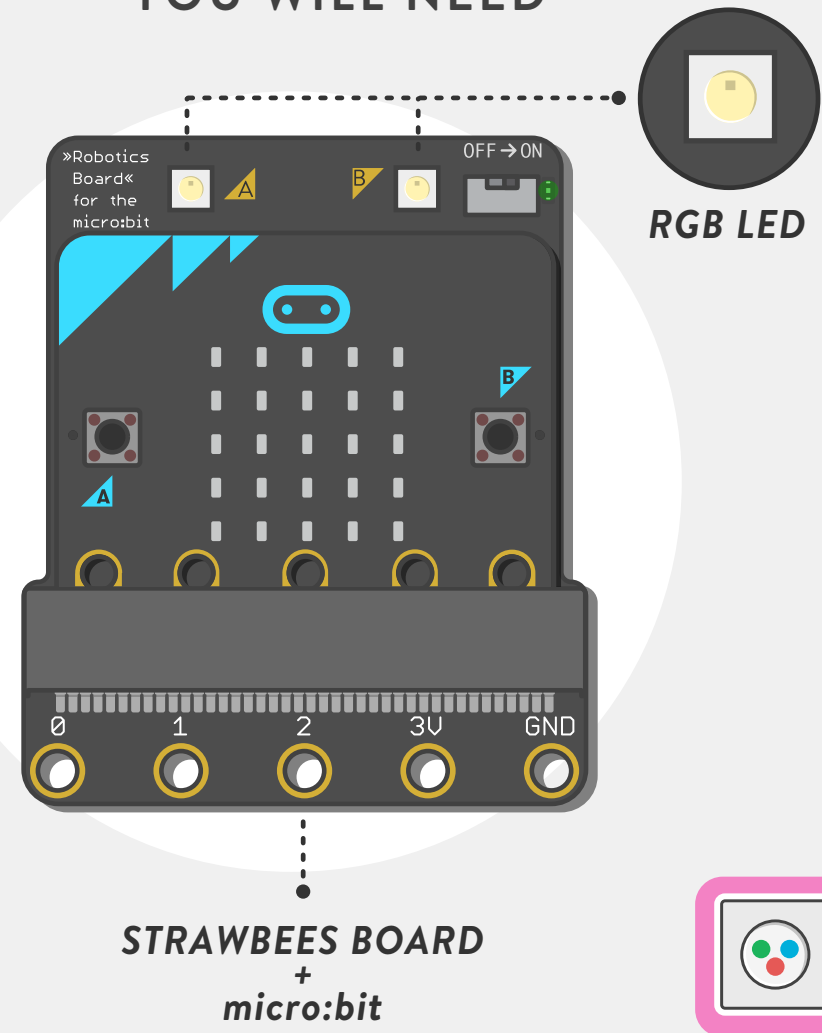
classroom.strawbees.com



BLINK

```
forever
  set RGB LED A to white
  pause (ms) 1000
  set RGB LED A to black
  pause (ms) 1000
```

YOU WILL NEED



makecode.microbit.org



BACK AND FORTH

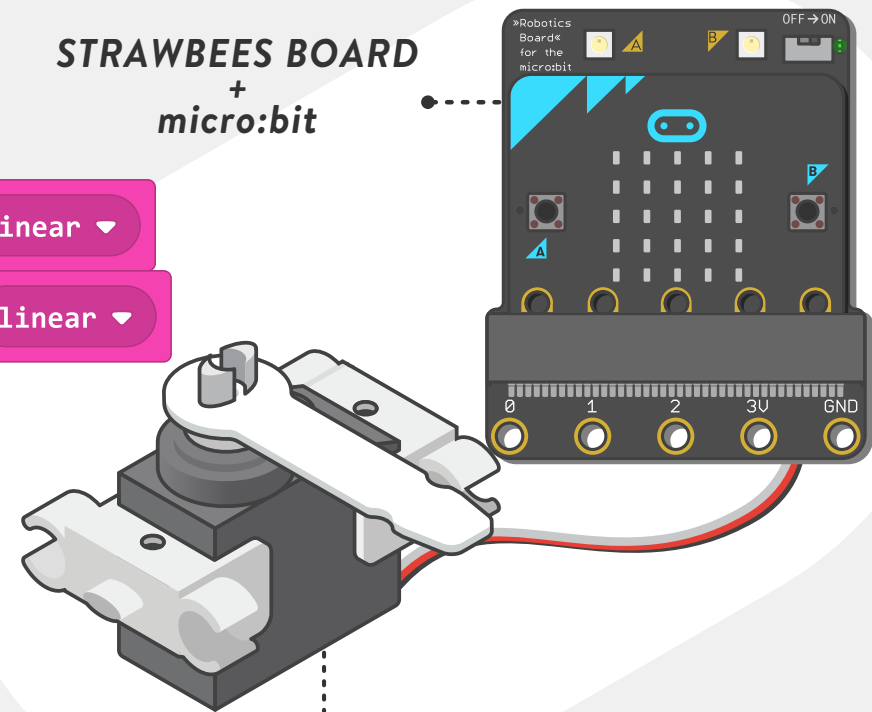
YOU WILL NEED

forever

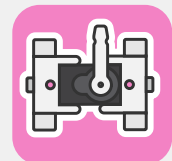
transition servo A position to 0 % over 3 seconds linear

transition servo A position to 100 % over 3 seconds linear

STRAWBEES BOARD
+
micro:bit



SERVO MOTOR
+
ARM & MOUNTS



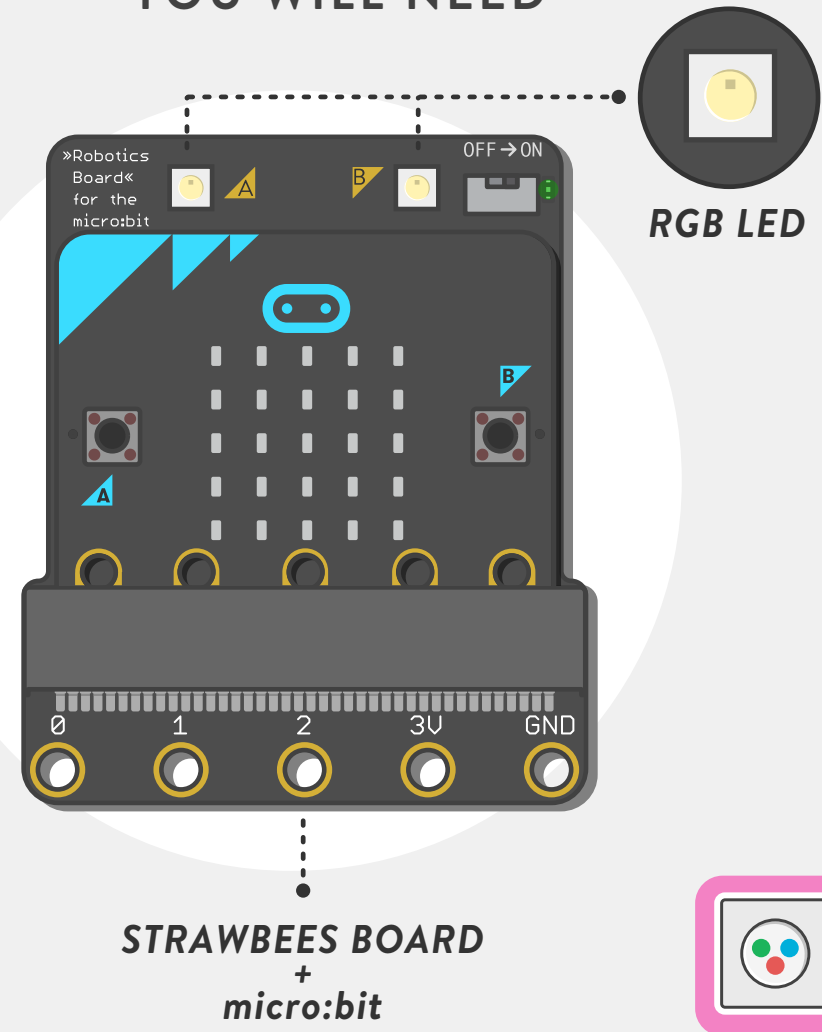
makecode.microbit.org



CHANGE COLOR 10 TIMES

```
on start
  repeat 10 times
    do
      set RGB LED A to red 100 % green 0 % blue 0 %
      pause (ms) 500
      set RGB LED A to red 0 % green 0 % blue 100 %
      pause (ms) 500
  set RGB LED A to red 0 % green 0 % blue 0 %
```

YOU WILL NEED



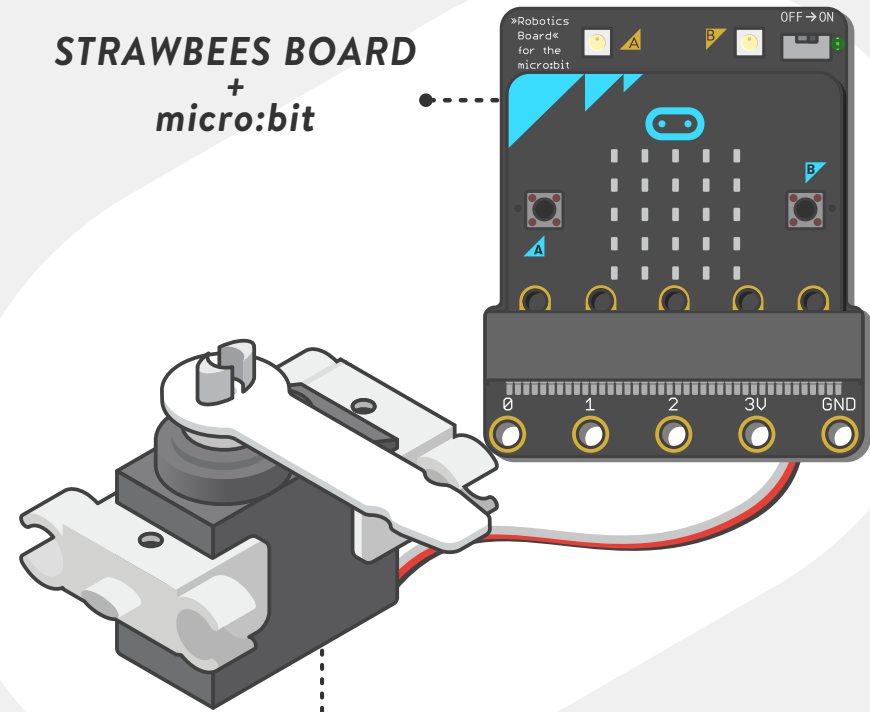


WAVE 10 TIMES

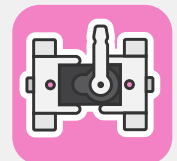
```
on start
  repeat 10 times
    do
      set servo A position to 20 %
      pause (ms) 1000
      set servo A position to 80 %
      pause (ms) 1000
```

YOU WILL NEED

STRAWBEES BOARD
+
micro:bit



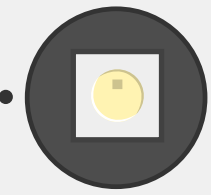
SERVO MOTOR
+
ARM & MOUNTS



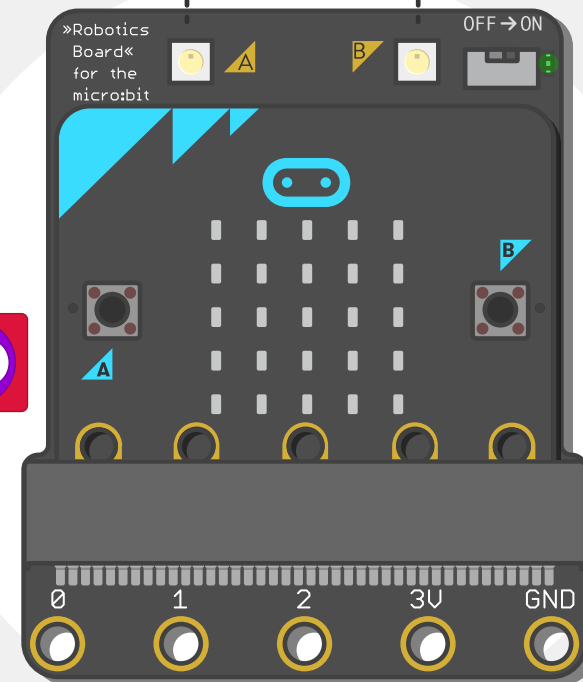


GRADUALLY CHANGE BRIGHTNESS

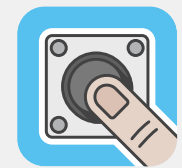
YOU WILL NEED



RGB LED



STRAWBEES BOARD
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```
on start
  set brightness to 0

on button A pressed
  set brightness to constrain brightness + 4 between 0 and 100

forever
  set RGB LED A to hue 0 % saturation 100 % brightness brightness %
```



GRADUALLY CHANGE POSITION

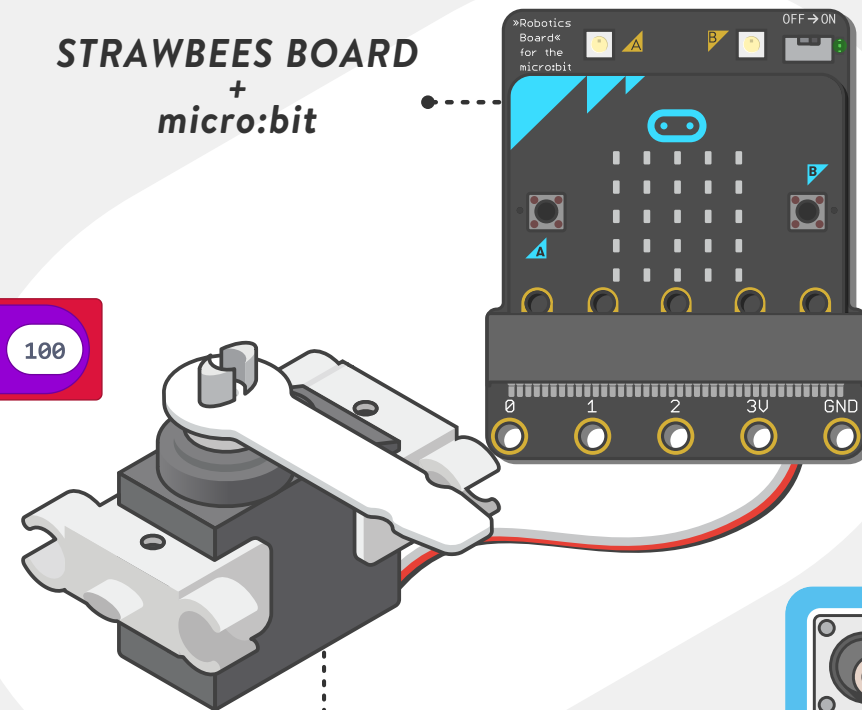
YOU WILL NEED

```
on start
  set position to 0

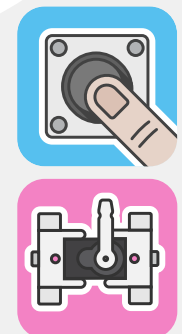
on button A pressed
  set position to constrain position + 4 between 0 and 100

forever
  set servo A position to position %
```

STRAWBEES BOARD
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SERVO MOTOR
+
ARM & MOUNTS

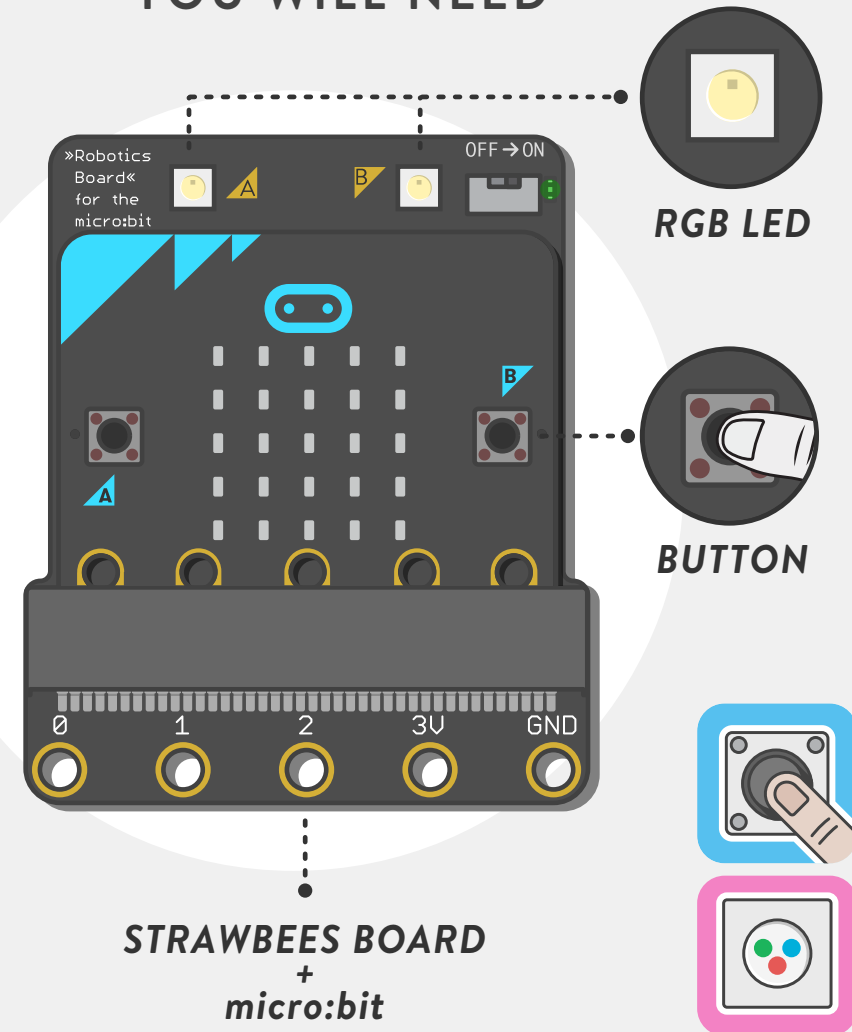




CHANGE COLOR WHILE PRESSING BUTTON

```
forever
  if button A is pressed then
    set RGB LED A to red 100 % green 0 % blue 0 %
  else
    set RGB LED A to red 0 % green 0 % blue 100 %
```

YOU WILL NEED





CHANGE POSITION WHILE PRESSING BUTTON

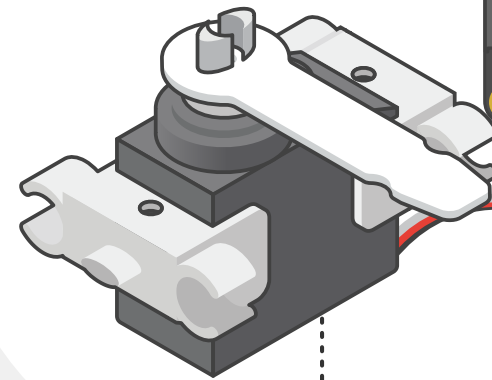
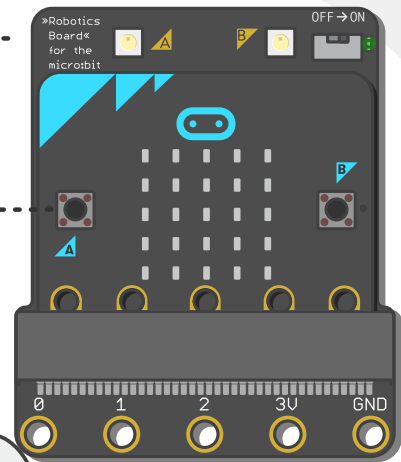
```
forever
  if button A is pressed then
    set servo A position to 0 %
  else
    set servo A position to 100 %
```

YOU WILL NEED

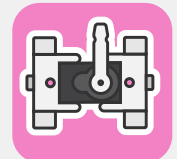
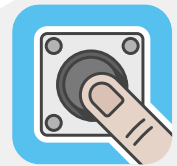
STRAWBEES BOARD
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BUTTON



SERVO MOTOR
+
ARM & MOUNTS

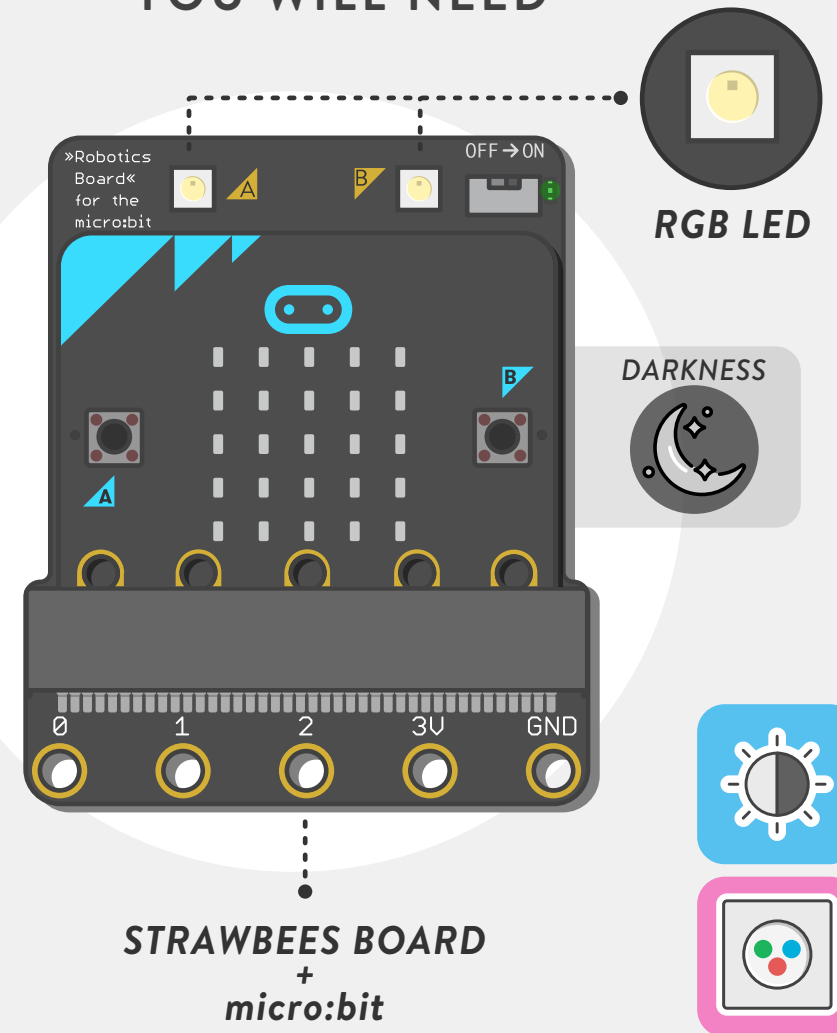




SHINE IN THE DARK

```
forever
  if light level < 50 then
    set RGB LED A to red 100 % green 0 % blue 0 %
  else
    set RGB LED A to red 0 % green 0 % blue 0 %
```

YOU WILL NEED



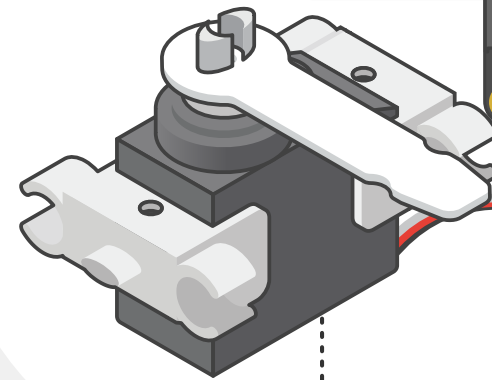
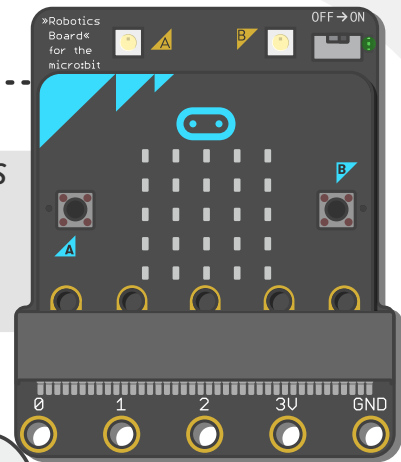


MOVE IN THE DARK

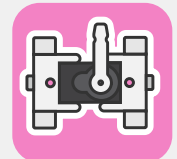
YOU WILL NEED

```
forever
  set servo A position to constrain light level between 0 and 100 %
```

STRAWBEES BOARD
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micro:bit



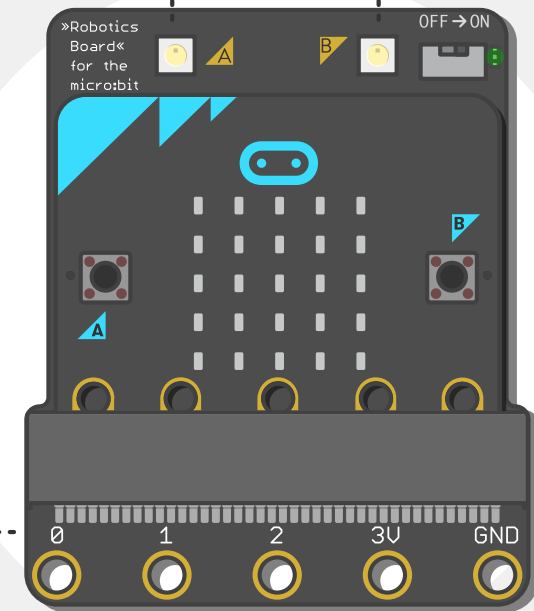
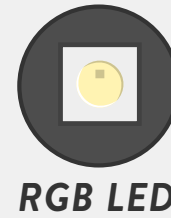
SERVO MOTOR
+
ARM & MOUNTS



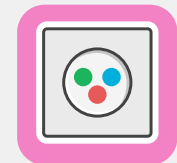


COLOR PARTY

YOU WILL NEED



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```
forever
  set RGB LED A to hue pick random 0 to 100 % saturation 100 % brightness 100 %
  pause (ms) 200
```



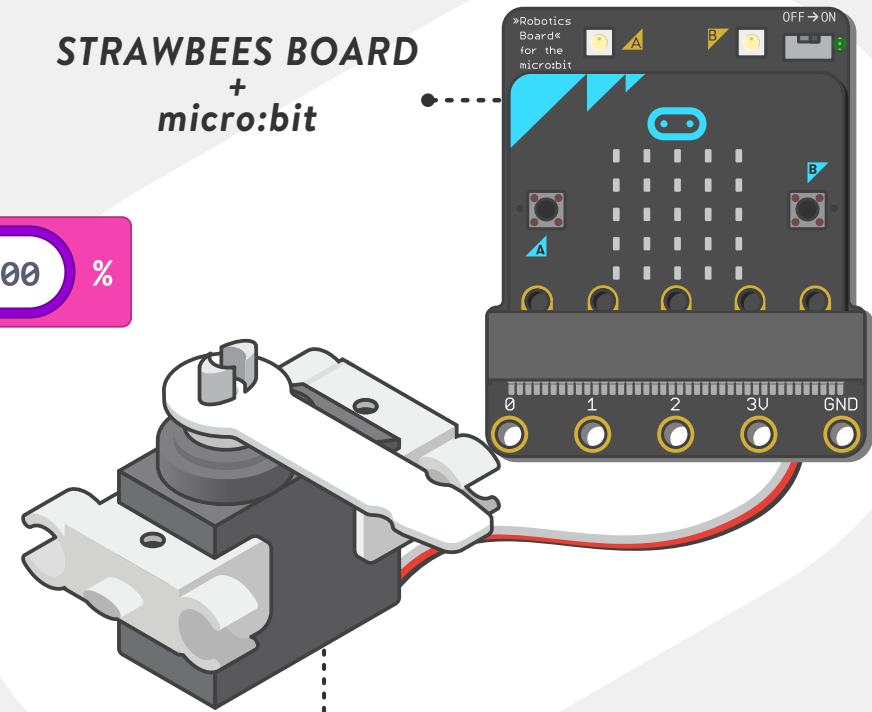
SHAKE

YOU WILL NEED

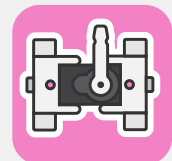
forever

set servo **A** position to pick random **0** to **100** %

STRAWBEES BOARD
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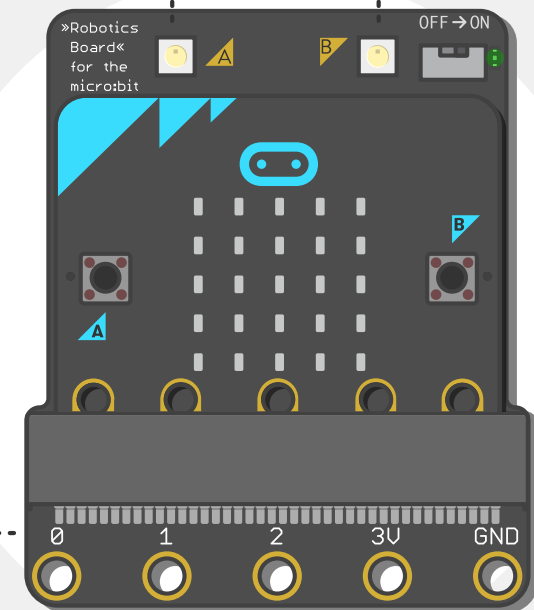
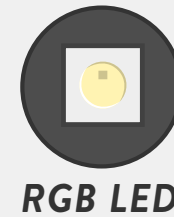
SERVO MOTOR
+
ARM & MOUNTS





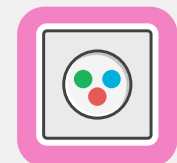
RAINBOW

YOU WILL NEED



STRAWBEES BOARD
+
micro:bit

```
forever
  for index from 0 to 100
  do
    set RGB LED A to hue index % saturation 100 % brightness 100 %
    pause (ms) 100
```



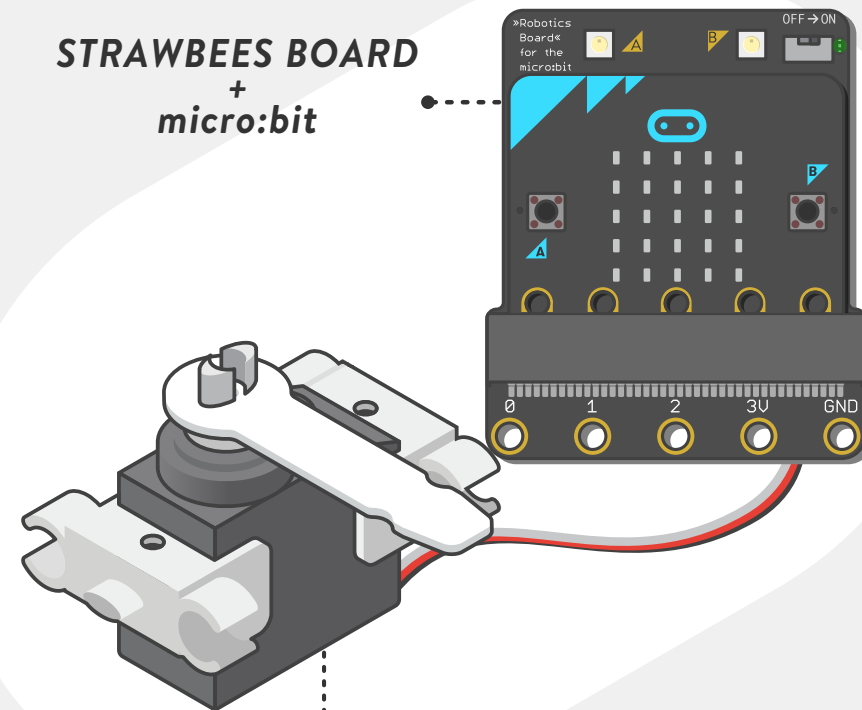


SWEEP MOTOR

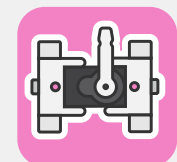
```
forever
  for index from 0 to 100
  do
    set servo A position to index %
    pause (ms) 100
```

YOU WILL NEED

STRAWBEES BOARD
+
micro:bit



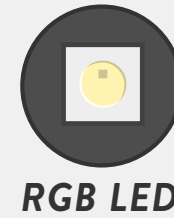
SERVO MOTOR
+
ARM & MOUNTS



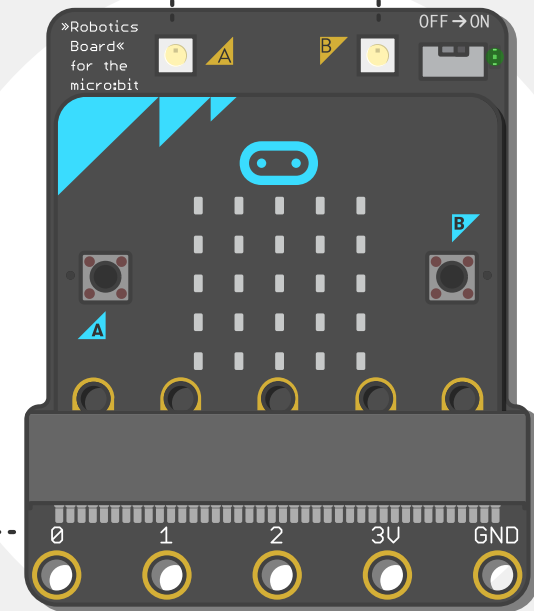


LOOP OVER A LIST OF COLORS

YOU WILL NEED

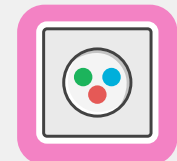


RGB LED



STRAWBEES BOARD
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```
on start
  set list to array of color red color green color blue
  forever
    for element value of list
      do
        set RGB LED A to value
        pause (ms) 1000
```



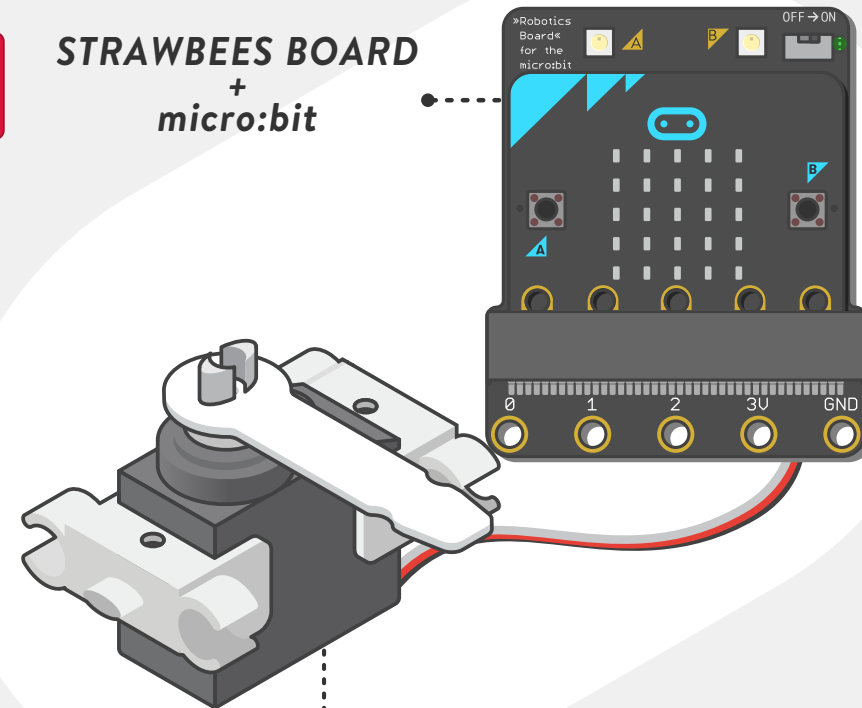


LOOP OVER A LIST OF POSITIONS

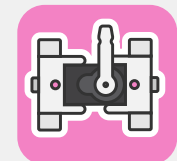
```
on start
  set list to array of 0 50 100
  forever
    for element value of list
      do
        set servo A position to value %
        pause (ms) 1000
```

YOU WILL NEED

STRAWBEES BOARD
+
micro:bit



SERVO MOTOR
+
ARM & MOUNTS

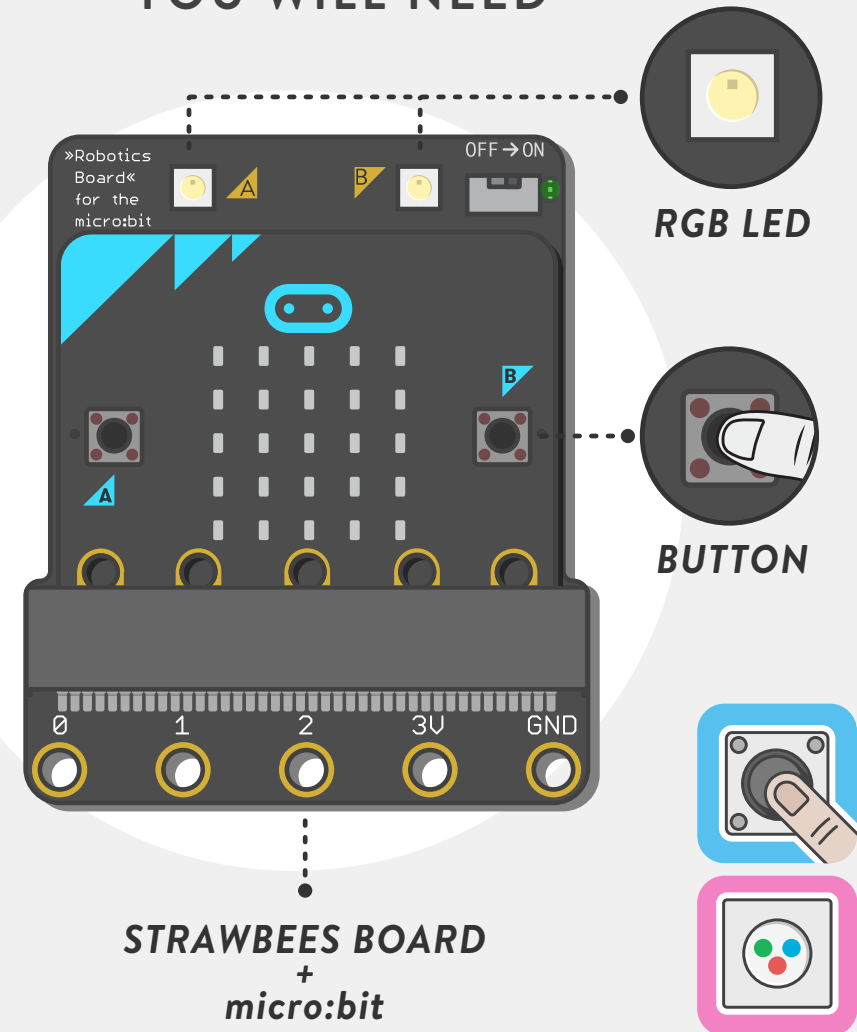




LIGHT SWITCH

```
on button A pressed
  if toggle = 0 then
    set RGB LED A to red 100 % green 0 % blue 0 %
    set toggle to 1
  else
    set RGB LED A to red 0 % green 0 % blue 0 %
    set toggle to 0
```

YOU WILL NEED



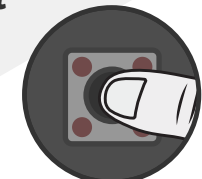


PRESS BUTTON TO TOGGLE POSITION

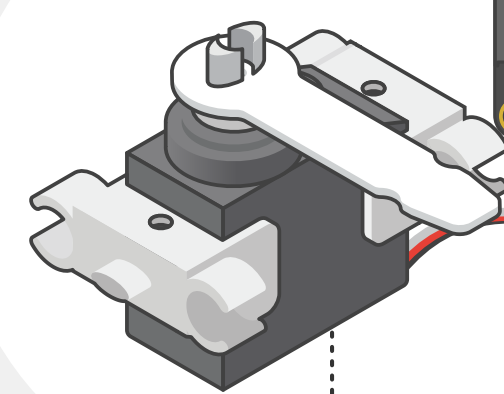
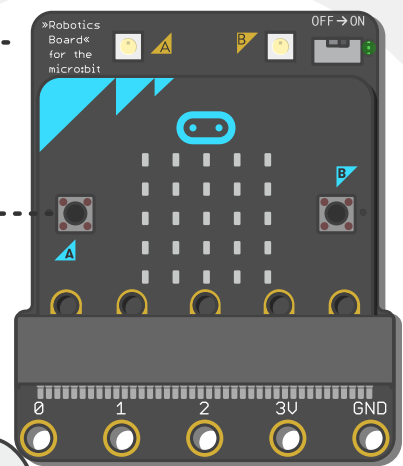
```
on button A pressed
  if toggle = 0 then
    set servo A position to 20 %
    set toggle to 1
  else
    set servo A position to 80 %
    set toggle to 0
```

YOU WILL NEED

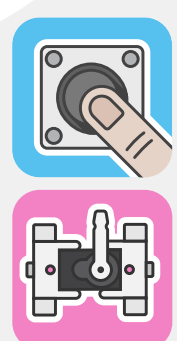
STRAWBEES BOARD
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BUTTON



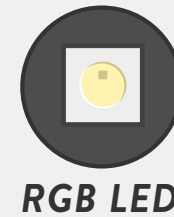
SERVO MOTOR
+
ARM & MOUNTS



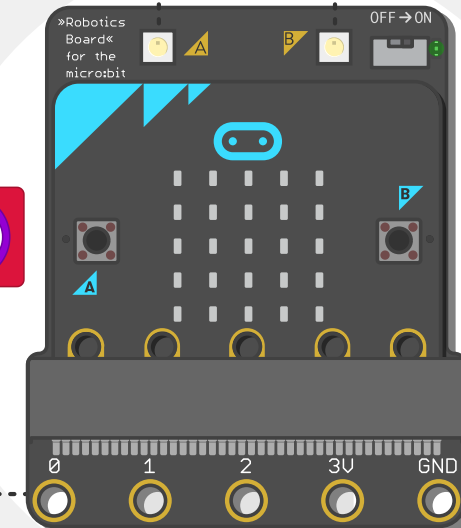


TILT TO CHANGE COLOR

YOU WILL NEED

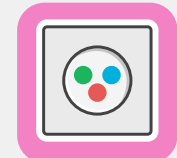
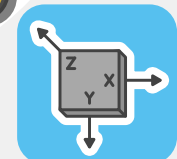
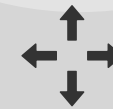


RGB LED



STRAWBEES BOARD
+
micro:bit

MOVEMENT



```
forever
  set movement to acceleration (mg) x
  set hue to map movement from low -1023 high 1023 to low 0 high 100
  set RGB LED A to hue hue % saturation 100 % brightness 100 %
```

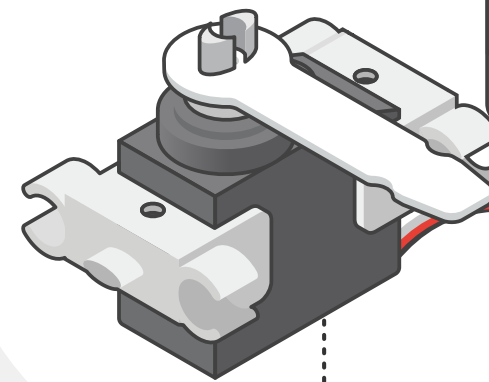
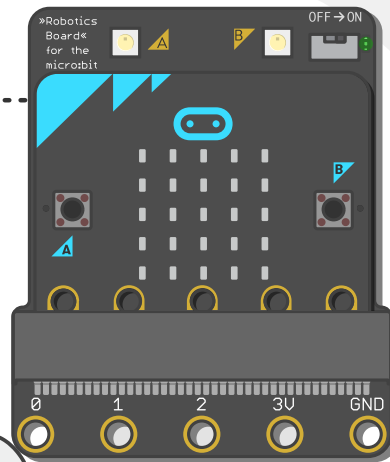


TILT TO MOVE

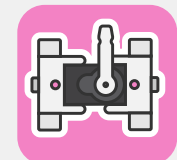
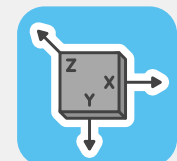
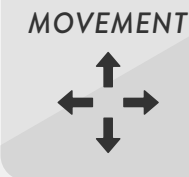
YOU WILL NEED

```
forever
  set movement to acceleration (mg) x
  set position to map movement from low -1023 high 1023 to low 0 high 100
  set servo A position to position %
```

STRAWBEES BOARD
+
micro:bit



SERVO MOTOR
+
ARM & MOUNTS

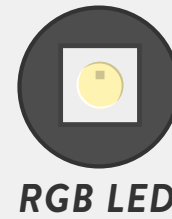




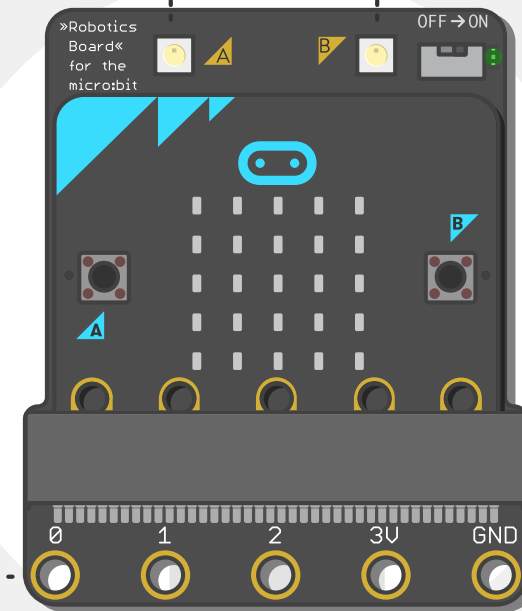
LIGHT ALARM

```
forever
  set RGB LED A to red 0 % green 0 % blue 0 %
  if acceleration (mg) strength > 1100 then
    set RGB LED A to red 100 % green 0 % blue 0 %
    pause (ms) 4000
```

YOU WILL NEED

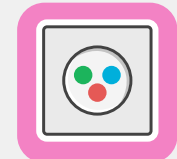
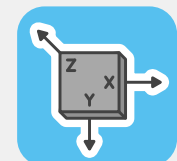
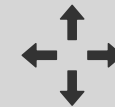


RGB LED



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MOVEMENT



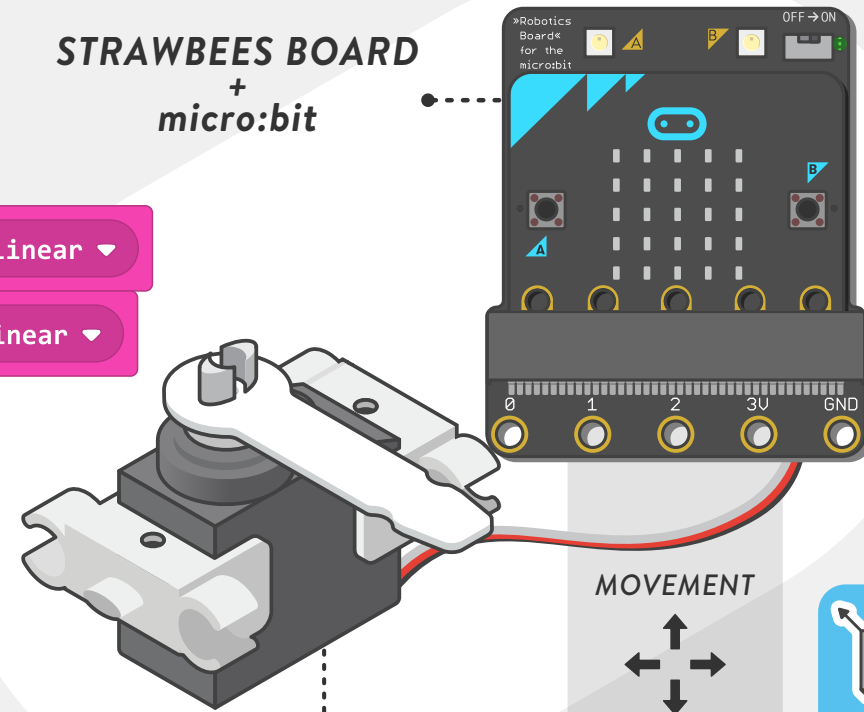


MOVE WHEN MOVED

YOU WILL NEED

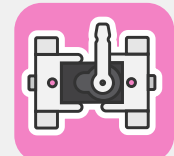
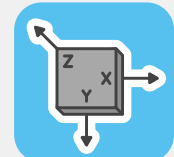
```
forever
  if acceleration (mg) strength > 1200 then
    transition servo A position to 100 % over 1 seconds linear
    transition servo A position to 0 % over 1 seconds linear
```

STRAWBEES BOARD
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SERVO MOTOR
+
ARM & MOUNTS

MOVEMENT





SEND/RECEIVE COLOR: SENDER

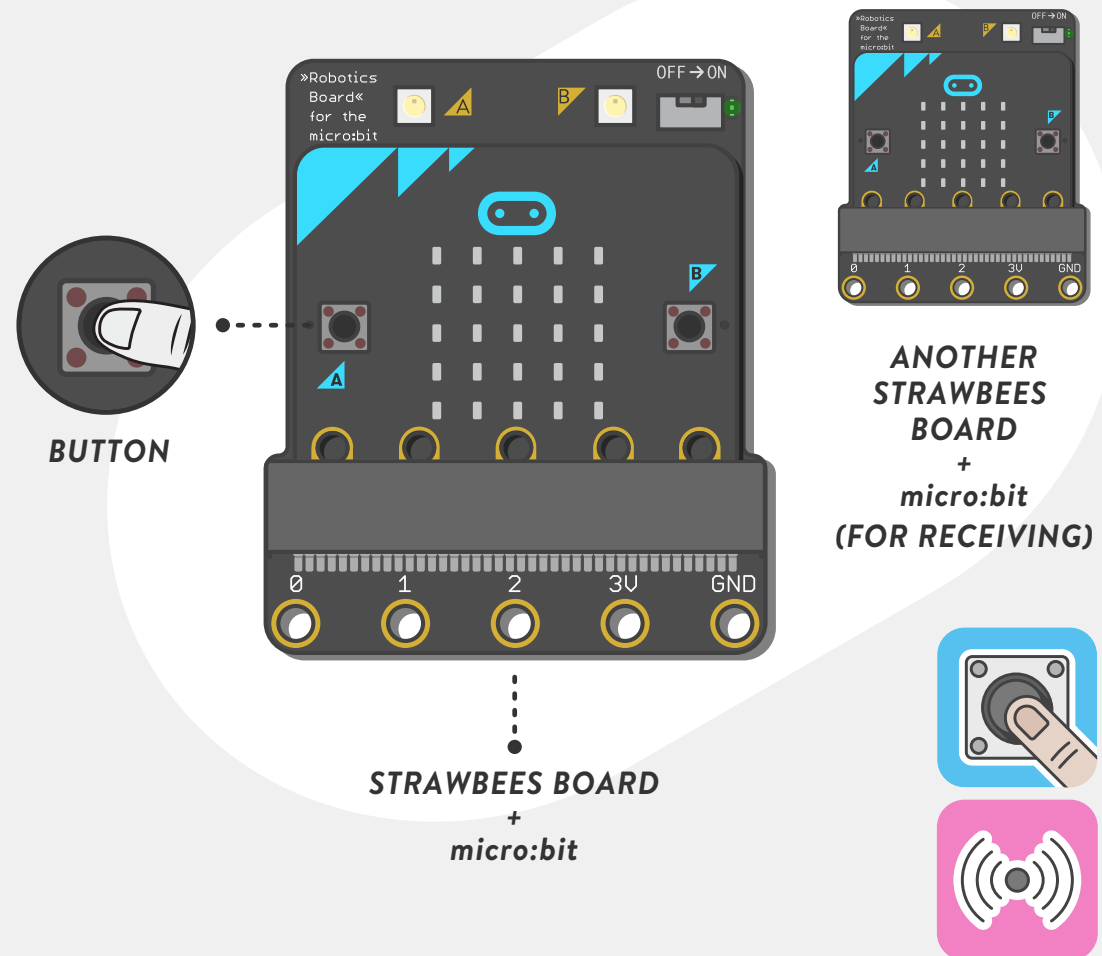
```
on start
  radio set group 1

forever
  if button A is pressed then
    radio send value "light" = 100
  else
    radio send value "light" = 0
```

Check out the RECEIVER version of this card

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YOU WILL NEED



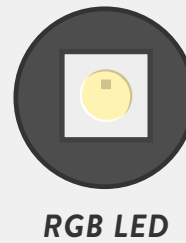


SEND/RECEIVE COLOR: RECEIVER

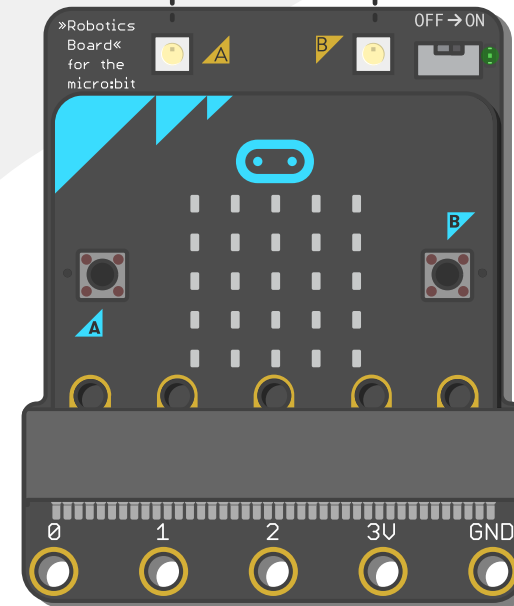
```
on start
  radio set group 1

on radio received name value
  if name = "light" then
    set RGB LED A to red 0 % green value % blue 0 %
```

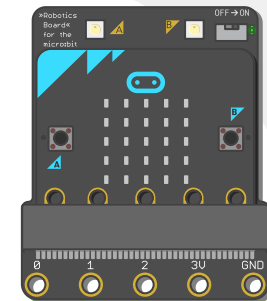
YOU WILL NEED



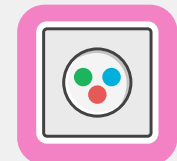
RGB LED



STRAWBEES BOARD
+
micro:bit



ANOTHER
STRAWBEES
BOARD
+
micro:bit
(FOR SENDING)



Check out the SENDER version of this card

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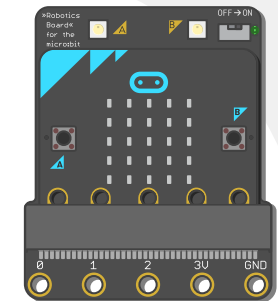
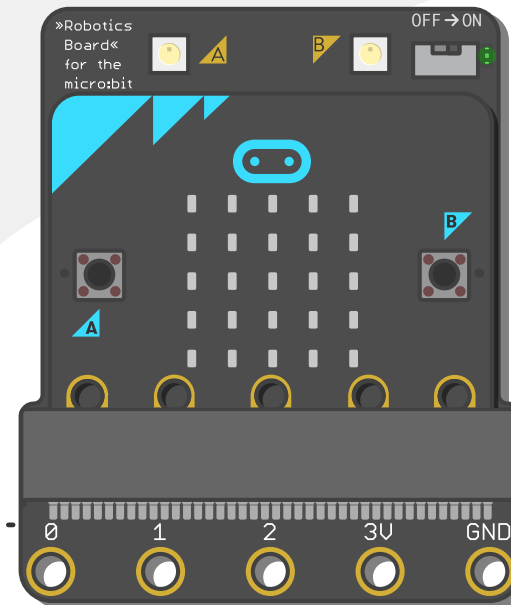
REMOTE CONTROL MOTOR: SENDER

YOU WILL NEED

```
on start
  radio set group 1
```

```
forever
  radio send number map acceleration (mg) y from low -1023 high 1023 to low 0 high 100
```

STRAWBEES BOARD
+
micro:bit



ANOTHER
STRAWBEES
BOARD
+
micro:bit
(FOR RECEIVING)



Check out the RECEIVER version of this card

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REMOTE CONTROL MOTOR: RECEIVER

on start

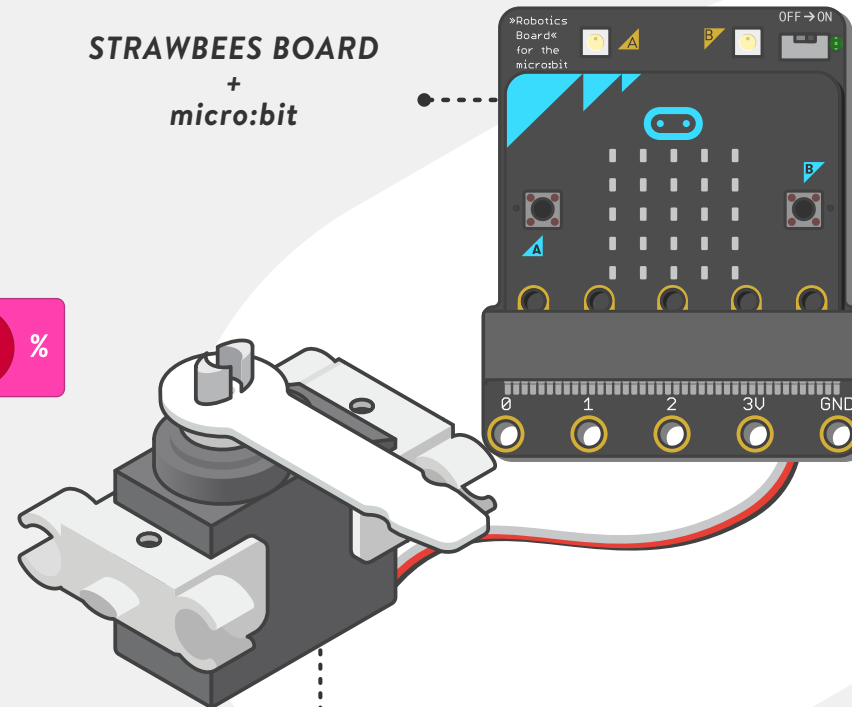
radio set group 1

on radio received receivedNumber

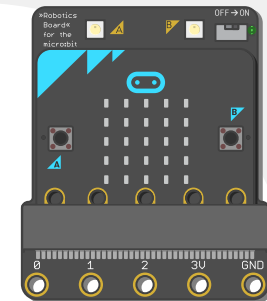
set servo A position to receivedNumber %

YOU WILL NEED

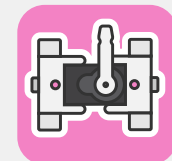
STRAWBEES BOARD
+
micro:bit



SERVO MOTOR
+
ARM & MOUNTS



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