

# Make a Card



1. Fold the card in half

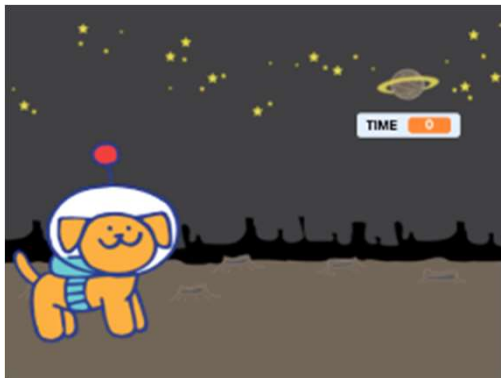
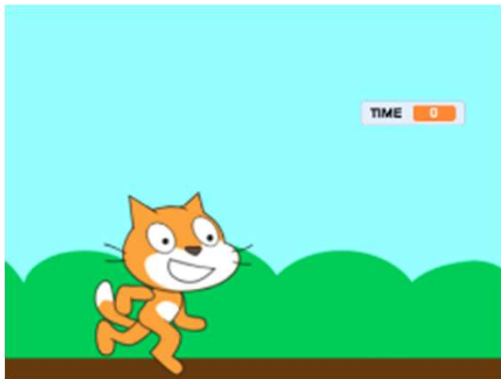


2. Glue the backs together



3. Cut along the dashed line

## Stopwatch Cards



## Stopwatch Cards

Use these cards in this order:

1. **Create a Variable**
2. **Start the Clock**
3. **Stop and Reset**
4. **Get Moving**
5. **Time the Sprite**
6. **Background Effects**

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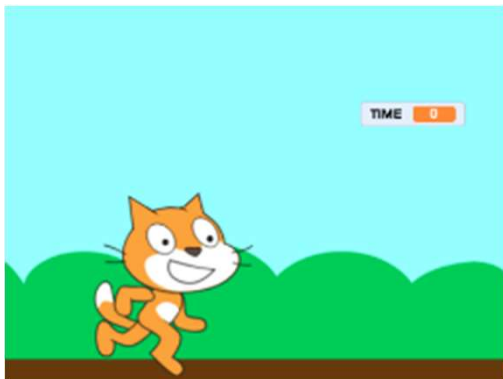
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## Create a Variable

Add a changeable value on the screen.



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## Create a Variable

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### GET READY



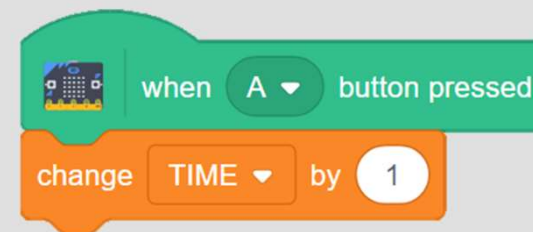
Choose in the Blocks Palette.

Make a Variable



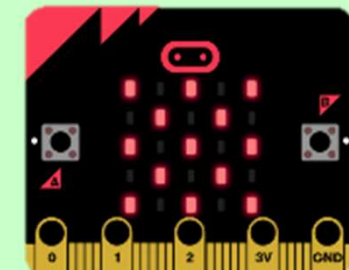
Add a checkmark to your variable to make it appear on the screen.

### ADD THIS CODE



### TRY IT

Click the **A** button to advance the number on the screen.



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## Start the Clock

Add a loop to increase the time on the clock.

TIME

0

TIME

2

TIME

5

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## Start the Clock

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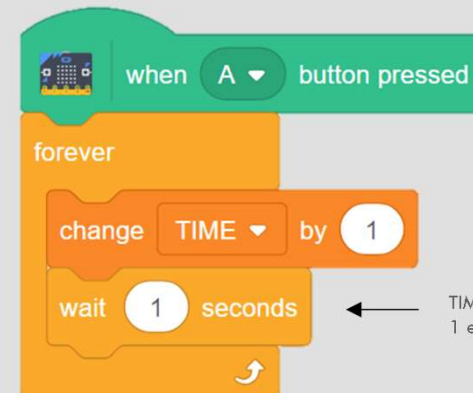
### GET READY



A stopwatch should advance each second.

A forever loop will increase the time as long as the program is running.

### ADD THIS CODE



← TIME will increase by 1 each second.

### TRY IT

Test your timer against a clock.

Does the time change each second?



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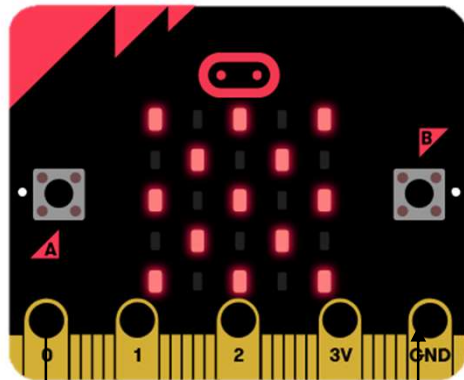
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## Stop and Reset

Control your stopwatch with the A and B buttons.



A

B

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## Stop and Reset

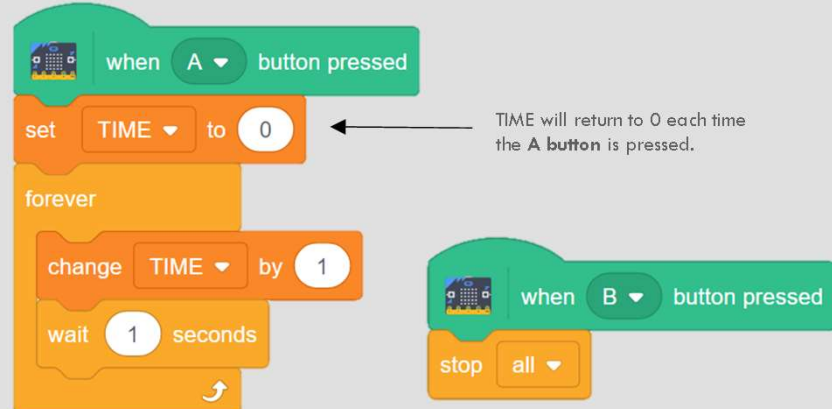
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### GET READY



Add a RESET and a STOP code.

### ADD THIS CODE



### TRY IT

Click each button on the micro:bit and see how they affect the time displayed on screen.



**CHALLENGE:** Can you change your stopwatch into a countdown clock?



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## Get Moving

Make your sprite move as your stopwatch advances!



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## Get Moving

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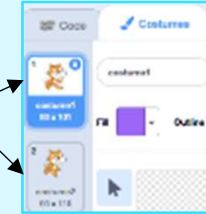
### GET READY



Choose a sprite.

Click the  Costumes tab.

Make sure your sprite has more than one costume.



### ADD THIS CODE



```
when clicked
  forever loop
    move 10 steps
    next costume
    wait .5 seconds
```

### TRY IT

What happens when your sprite reaches the end of the screen?

Add these codes into the loop to fix the problem!

```
if on edge, bounce
set rotation style left-right
```

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## Time the Sprite

Let Scratch decide how many seconds your sprite will move. Use your stopwatch to figure it out.



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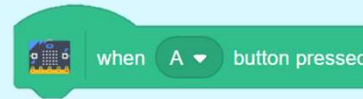
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## Time the Sprite

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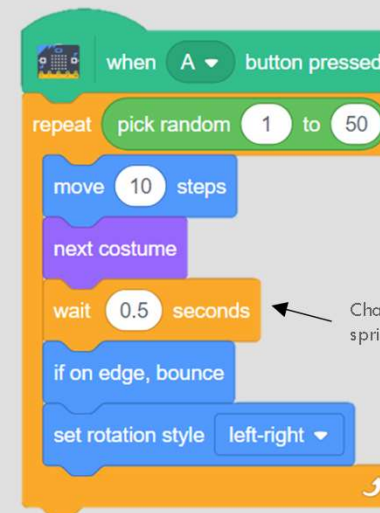
### GET READY

Start your sprite with the A button.



This will make the stopwatch and the sprite move at the same time.

### ADD THIS CODE



Let Scratch decide how long the code will run.

Change the number to affect the sprite's speed.

### TRY IT

How long did the sprite move?

Freeze the clock by pushing the B button on the micro:bit when the sprite stops.



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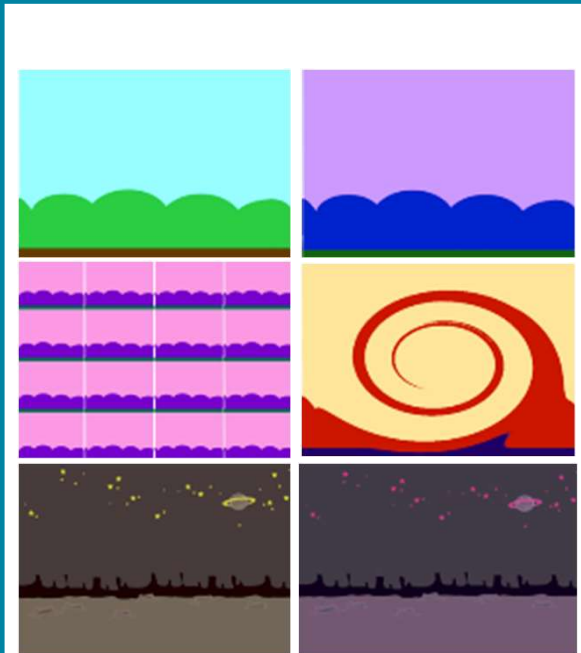
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## Background Effects

Use graphic effects to alter your background as the program runs.



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## Background Effects

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### GET READY



Choose a background.



Click the Backdrops tab.

### ADD THIS CODE

```
when A button pressed
  set TIME to 0
  forever
    change TIME by 1
    wait 1 seconds
```

```
when A button pressed
  repeat pick random 1 to 50
    move 10 steps
    next costume
    wait 0.5 seconds
  if on edge, bounce
  set rotation style left-right
```

```
when A button pressed
  forever
    change color effect by 25
    wait 1 seconds
```

### TRY IT

Experiment with other background effects.

```
change mosaic effect by 25
```

```
change whirl effect by 25
```

**CHALLENGE:** Reset your graphic effect. Where should this block go in your code?

```
clear graphic effects
```