



Let's see if Thymio can find its own speed!

Step 1: Watch the video below and get the supplies for the mission.

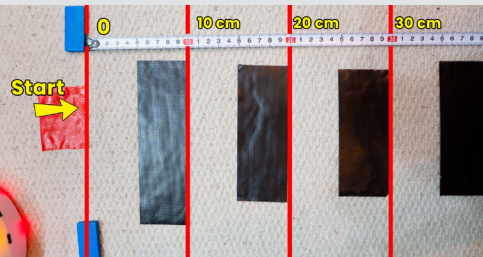


Tape measure



Black tape  
(5 cm wide)

Step 2: Set up your track with black tape (5 cm wide) on a white or light-colored floor. Then make the VPL3 program below.

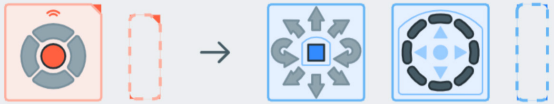


1. Make a starting line (not black).
2. Put many black strips of tape every 10 cm.
3. Don't go longer than 250 cm.

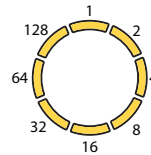
**MAX!**  
**250 cm**



### VPL3 (Visual Programming)



Step 3: For each of the three speeds you set, find the Thymio distance and the actual distance, and write them below.



Thymio's  
distance



Actual  
distance



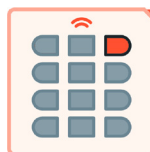
30 centimeters  
6 seconds

31.5 centimeters  
6 seconds



     centimeters  
6 seconds

     centimeters  
6 seconds



     centimeters  
6 seconds

     centimeters  
6 seconds

Step 4: Share your work!



Speedometer Thymio

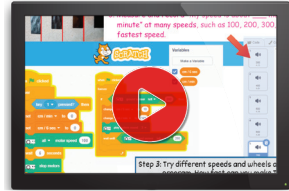
Share your work!





Let's see if Thymio can find and say its own speed using Scratch!

Step 1: Watch the video below and get the supplies for the mission.

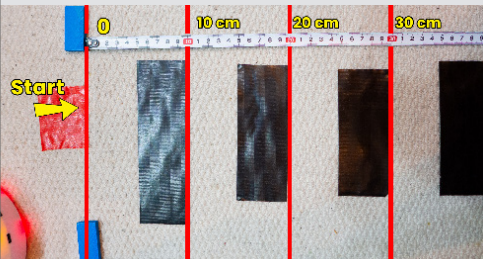


Tape measure



Black tape  
(5 cm wide)

Step 2: Set up your track with black tape (5 cm wide) on a white or light-colored floor. Then record the audio for many speeds. Finally, make the same program from the last mission using Scratch instead of VPL3.



1. Make a starting line (avoid using black).
2. Place black strips of tape every 10 cm.
3. Measure and record "My speed is about \_\_\_ meters per minute" at many speeds, such as 100, 200, 300, up to your fastest speed.



Variables

Make a Variable

cm / 6 sec

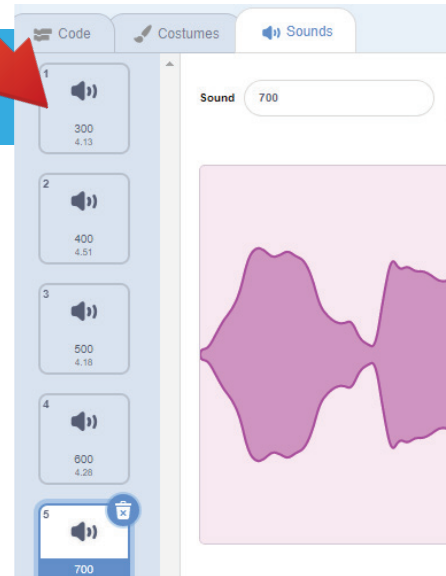
cm / min

```

when clicked
  forever
    if key 1 pressed? then
      set cm / min to 0
      set cm / 6 sec to 0
      all motor speed 100
      wait 6 seconds
      stop motors
      wait 1 seconds
      if cm / min = 300 then
        play sound 300 until done
      if cm / min = 400 then
        play sound 400 until done
      if cm / min = 500 then
        play sound 500 until done
      if cm / min = 600 then
        play sound 600 until done
  
```

```

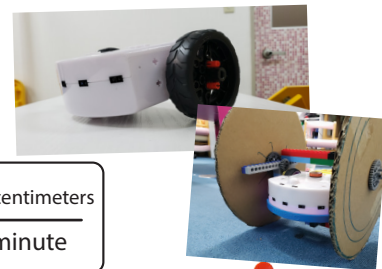
when clicked
  forever
    if ground sensor left < 200 then
      change cm / 6 sec by 10
      change cm / min by 100
      play system sound 3
      wait until ground sensor left > 200
  
```



Step 3: Try different speeds or wheels and test the program. How fast can you make Thymio go?

My fastest speed is about

$$\frac{\boxed{\phantom{00}} \text{ centimeters}}{6 \text{ seconds}} \times 10 \times 10 \rightarrow \frac{\boxed{\phantom{00}} \text{ centimeters}}{1 \text{ minute}}$$



Step 4: Share your work!

Share your work!



Speedometer Thymio