

WELCOME TO

TECHNOVATI  N



MICHIGAN STATE UNIVERSITY

Welcome!

Team Introductions

Agenda

- What is Technovation?
- Club Contract
- Pre-course survey
- Set up CodeHS account
- Introduction to Python and Tracy the Turtle
- Coding challenges

What is Technovation?

- A. A 9-week coding course introducing the basics of Python
- B. An opportunity to improve as a problem solver and thinker
- C. A chance to make new friends
- D. A chance to have fun
- E. All of the above!



What is Technovation?

Week 1 (09/24)	Introduction to Python and Turtle Graphics
Week 2 (10/2)	Variables
Week 3 (10/9)	Loops
Week 4 (10/16)	Review
Week 5 (10/23)	Functions
Week 6 (10/30)	Functions W/ Loops
Week 7 (11/6)	Review + Begin Final Project
Week 8 (11/13)	Continue Final Project
Week 9 (11/20)	Present Final Project + Final Celebration

[Syllabus](#)

Club Contract

We want all of you to help us make a club contract to follow for the next 8 weeks.

What rules should we have to make our club better and have a more fun learning environment?

Pre-Course Survey

<https://forms.gle/n8ocPLUxAcBuXQ9e7>



CodeHS Setup

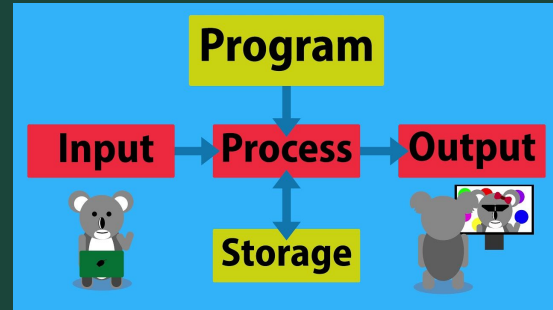
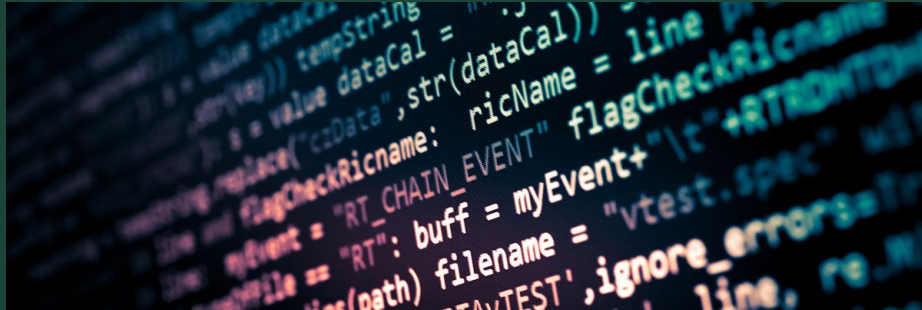
<https://codehs.com/go/70D8E>

1. Go to the link above
2. Create an account with:
 - a. Your school email address
 - b. A password you won't forget!
3. Explore!

What is Programming?

“A **computer program** is a collection of instructions that performs a specific task when executed by a computer.”

-Wikipedia



What is Python?

“Python is a general purpose and high level **programming language**. You can use Python for developing desktop applications, websites and web applications.”

-Medium



Who is Tracy?

Here's Tracy!

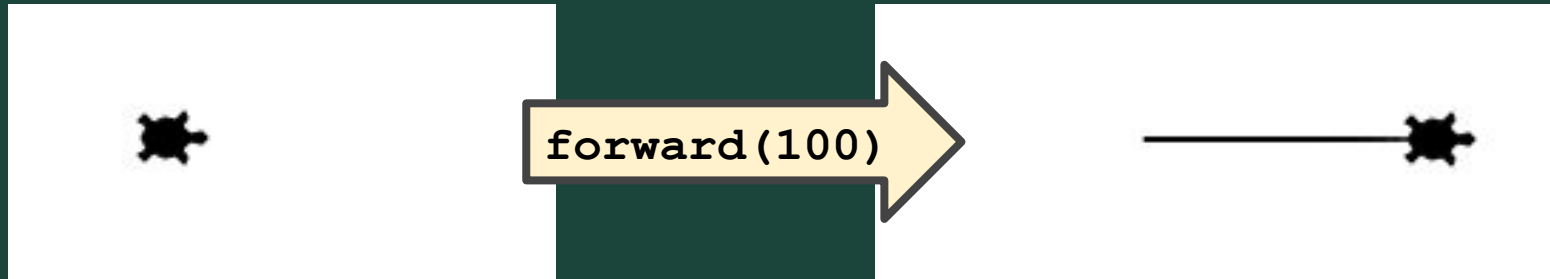


Tracy is a turtle that will follow commands that we give her written in python

Tracy Command: forward

forward (*distance*)

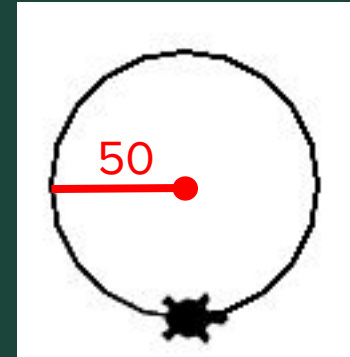
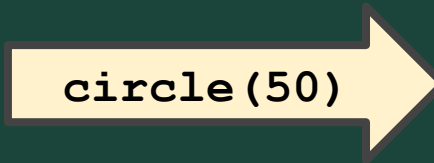
Moves Tracy forward a specified distance



Tracy Command: circle

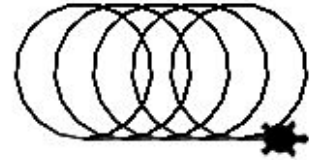
circle (*radius*)

Tells Tracy to draw a circle with a specified
radius



Example #1: Slinky

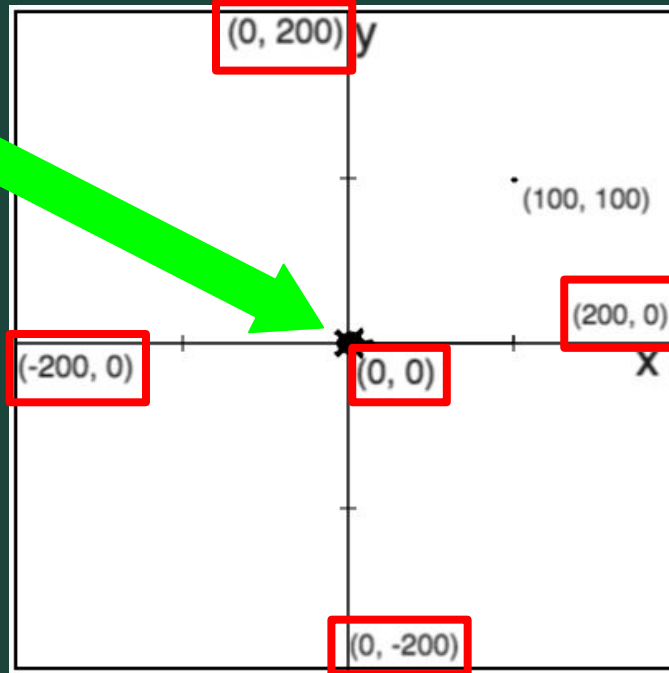
Write a program that has
Tracy draw a slinky with 5
loops.



Where Does Tracy Live?

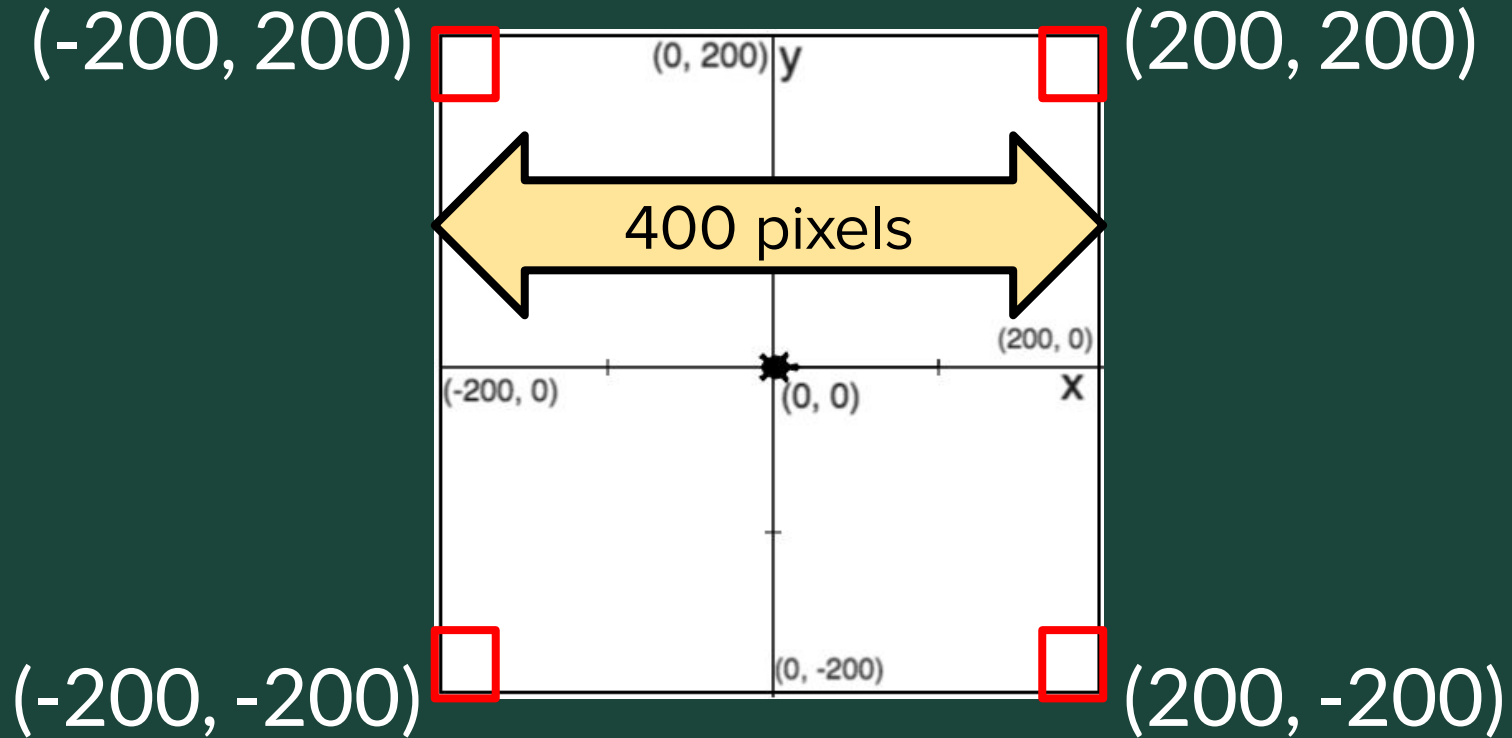
Tracy lives in a grid world.

Tracy's home!

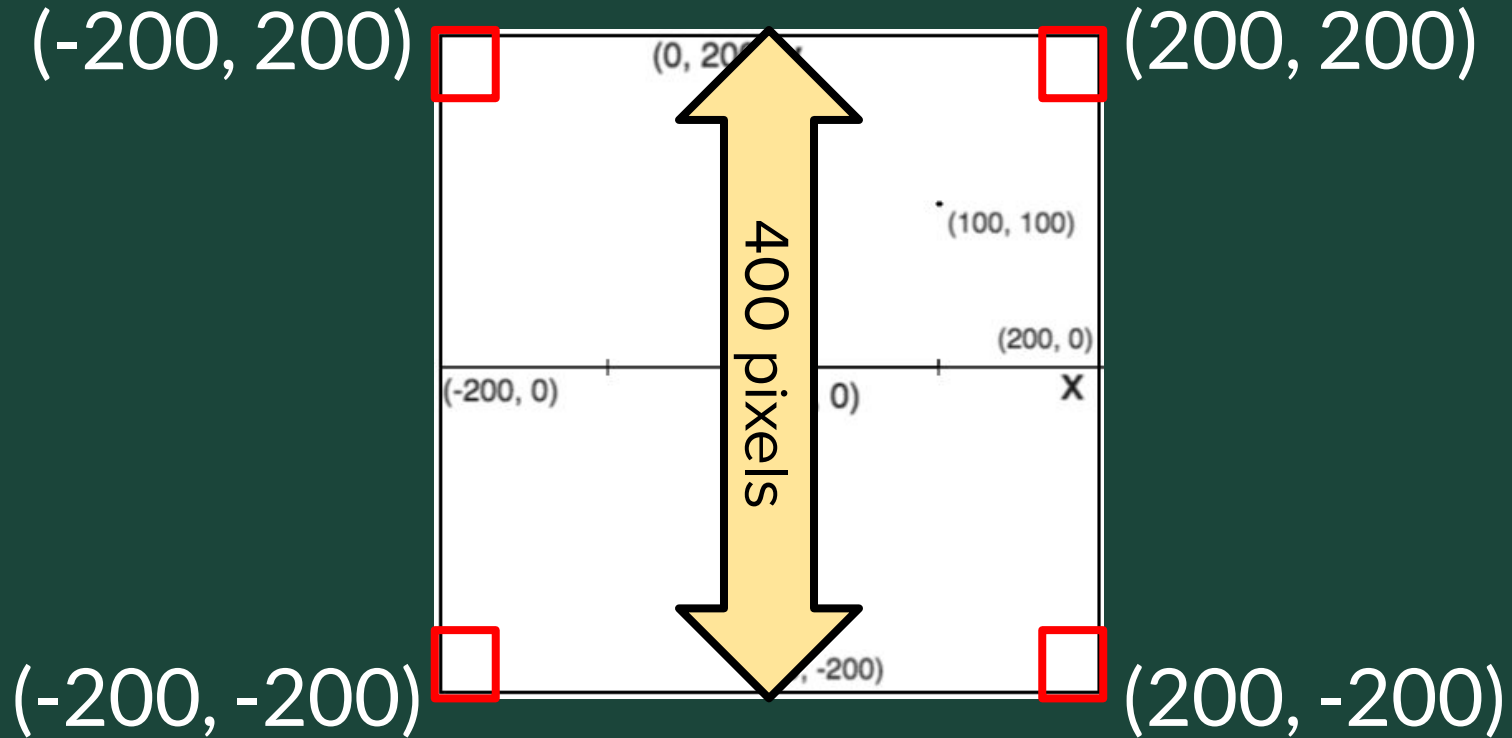


Tracy always starts at (0, 0).

Tracy's Grid World



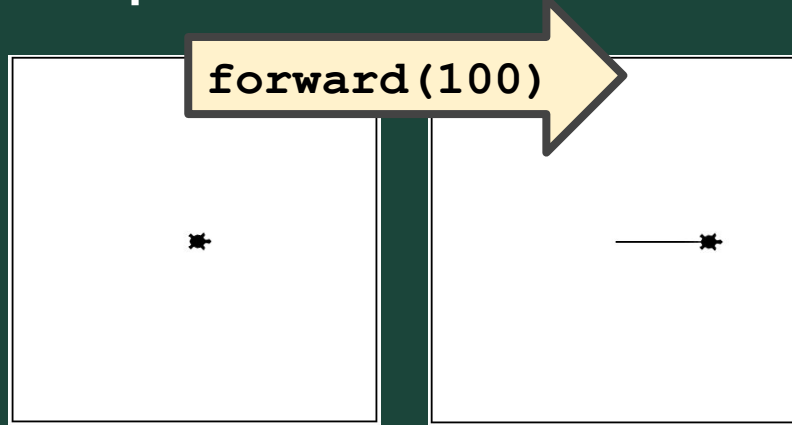
Tracy's Grid World



Tracy Command: backward

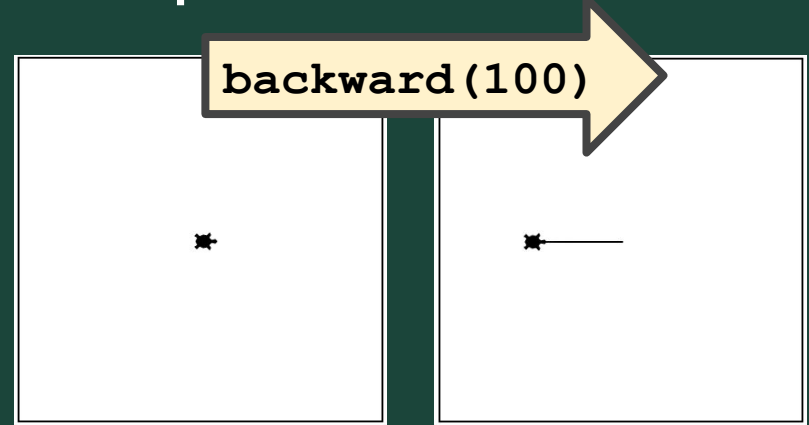
forward(*distance*)

Moves Tracy forward
a specified distance



backward(*distance*)

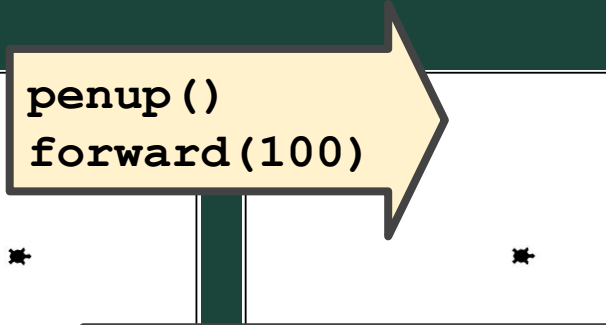
Moves Tracy backward
a specified distance



Tracy Command: penup and pendown

penup()

Stops Tracy from
leaving a trail

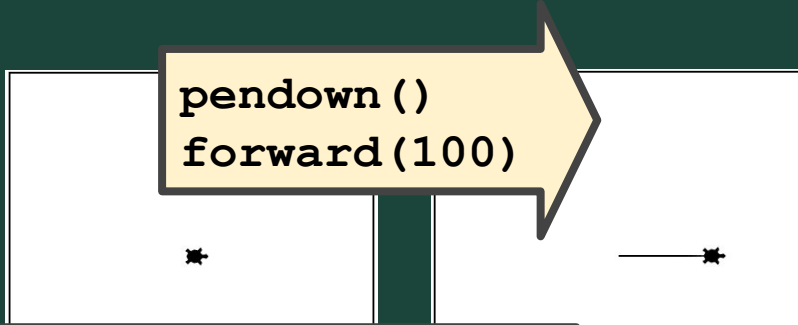


A diagram illustrating the `penup()` command. It shows a yellow arrow pointing right, containing the code `penup()` and `forward(100)`. Below the arrow, a vertical line represents Tracy's path. The path starts with a small asterisk on the left, goes up, then right, then down, and finally right again. The rightmost segment of the path is a dashed line, indicating that no trail is drawn during this segment.

```
penup ()  
forward (100)
```

pendown()

Has Tracy start
drawing a trail



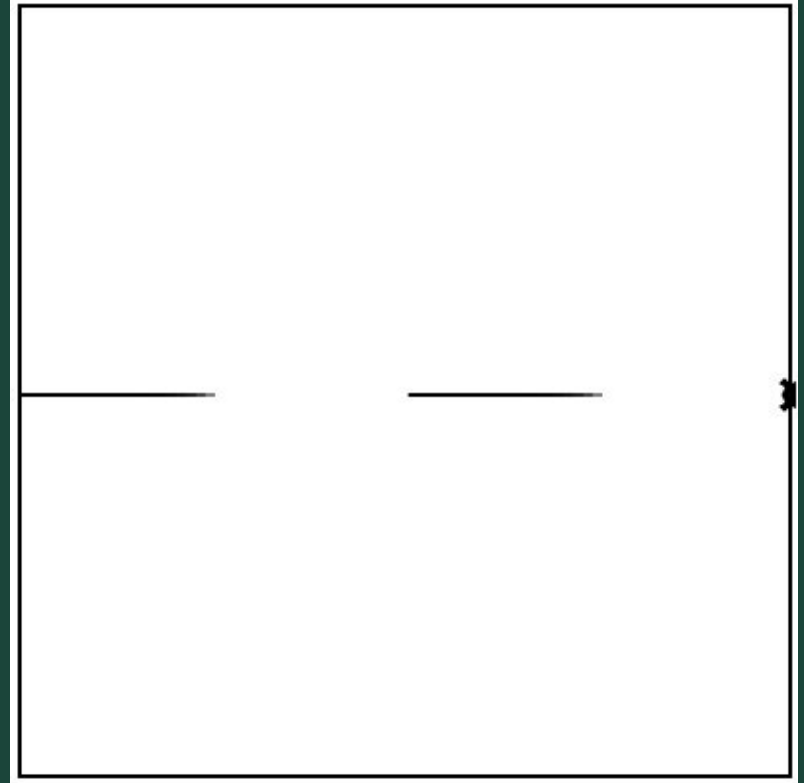
A diagram illustrating the `pendown()` command. It shows a yellow arrow pointing right, containing the code `pendown()` and `forward(100)`. Below the arrow, a vertical line represents Tracy's path. The path starts with a small asterisk on the left, goes up, then right, then down, and finally right again. The rightmost segment of the path is a solid line, indicating that a trail is drawn during this segment.

```
pendown ()  
forward (100)
```

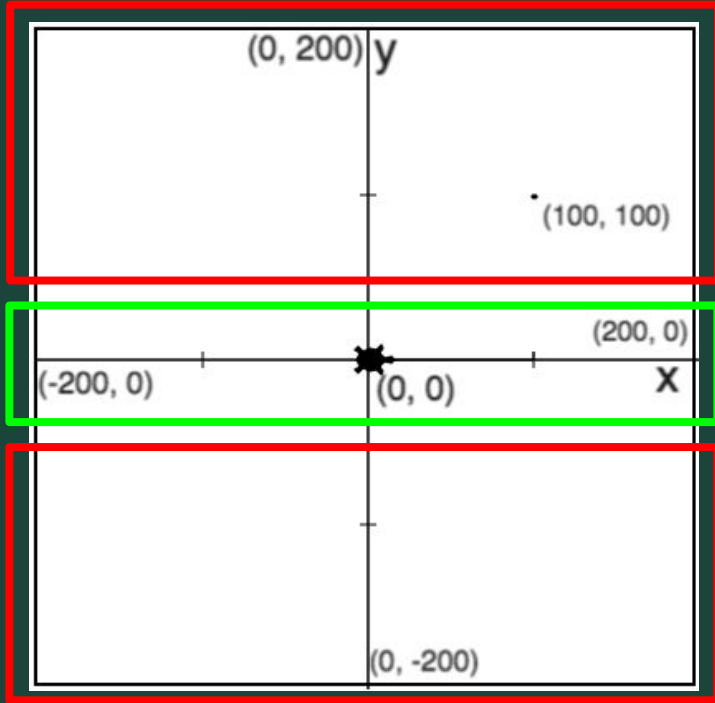
Note: Tracy **always** starts with her pen down!

Example #2: 2 Dashes

Write a program that has Tracy draw 2 dashes across the x - axis of the canvas.



Turning Tracy

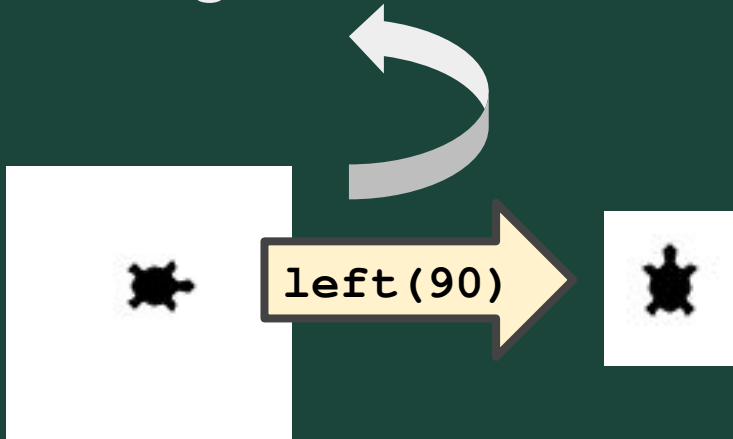


Tracy **always** starts facing right.

Tracy Command: left and right

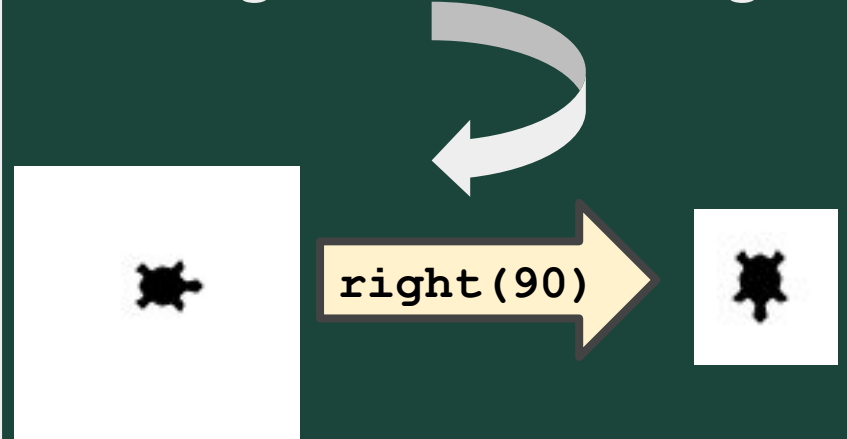
`left (90)`

Turns Tracy 90
degrees to the left



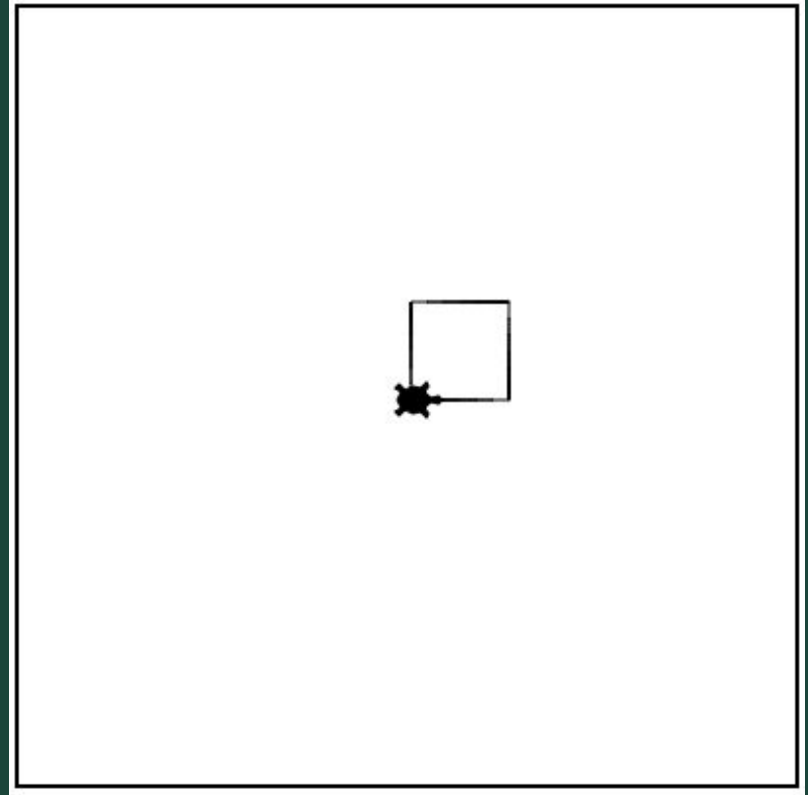
`right (90)`

Turns Tracy 90
degrees to the right



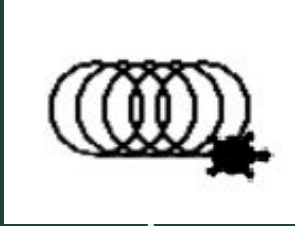
Example #1: Square

Write a program that
has Tracy draw a
square with sides of
50 pixels.

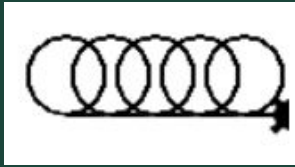


Coding Challenges

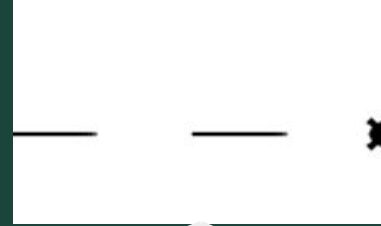
Example: Slinky



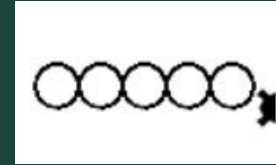
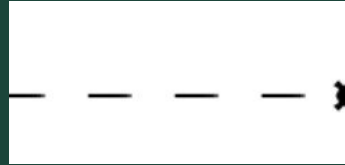
Challenge: Stretched Slinky



Example: Dashed Line



Challenge: Short Dashes Challenge: Caterpillar



Ready, Set, CODE!

Command	What does it do?
<code>forward(<i>distance</i>)</code>	Moves Tracy forward a specified distance
<code>circle(<i>radius</i>)</code>	Tells Tracy to draw a circle with a specified radius
<code>backward(<i>distance</i>)</code>	Moves Tracy backward a specified distance
<code>penup()</code>	Stops Tracy from leaving a trail
<code>pendown()</code>	Has Tracy start drawing a trail
<code>left(90)</code>	Turn Tracy 90 degrees to the left
<code>right(90)</code>	Turn Tracy 90 degrees to the right

Standup

- What is a challenge you faced today?
- What is something you were successful with?
- What do you want to improve on for next week?
- What are you most excited to learn?

Surveys!



- Temperature Check
 - <https://forms.gle/2RFvixVSe7C5vzzz5>

Reminders!

- Sign up for Remind
 - Text “f22tech” to 81010
- Bonus Hours!
 - Thursdays 7-8pm
 - Starts next week! (09/29)

Tell people to text @f21tech to the number 81010

They'll receive a welcome text from Remind.

If anyone has trouble with 81010, they can try texting @f21tech to (216) 404-4592.

