# Stretch and Scuttle

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Duration:

| LEVEL | SUBJECTS | PROVINCES / TERRITORIES | TOOL |
|---|---|---|---|
| For Everyone | Science and Technology | Across Canada | Unplugged |

## Overview

Your students won't confuse X and Y coordinates again, after explaining how they work using this unplugged activity. (This is a great addition to any Scratch lesson that incorporates the Motion scripts!)

Lesson

1. Have everyone stand up and spread out, facing the front of the room
2. Ask if anyone remembers learning about X,Y coordinates or graphing in math class
3. Explain that it can be difficult to remember which is which, so you are going to show everyone a trick for how to remember which way X and Y go
4. Create an "X" with your body (legs open, arms stretched out) and ask which animal an X looks like. Start shuffling side-to-side. An X looks like a crab!

## Key Coding Concepts

✓ Algorithms
✓ Loops

## Terminology

**Algorithms**
A step-by-step set of operations to be performed to help solve a problem

**Loops**
Running the same sequence multiple times i.e. repeat or forever blocks

## References

5. Direct everyone to shuffle to the right together, then shuffle back to the left
6. Make your body look like a Y (stretching up with arms open). Ask which way your body reaches when you make a Y (Up!)
7. Say "Y to the sky!" and reach up together, then squat down together
8. Test out their memory by standing straight and having them move their body based on the letter you call out. If you say "X!" they should shuffle side-to-side like a crab, and if you say "Y!" they should stretch up then down.

Nat Cooper

http://natcooper.com/

## Assessment

**Assessment of learning in Scratch:**
Have learners make their sprite move to the right (change x by a positive number) or move down (change Y by a negative number).
Use Scratch to plot coordinates and graph equations

## Extension

Graphing Equations Using Slope

1. Change the backdrop to the "X,Y Grid"
2. Hide Scratch (click on "i" and uncheck the "show" box)
3. Use the "pen down" script to graph a line, with "go to X,Y" to plot the starting point, and "change X by" and "change Y by" to draw the line.