## Coding/Programming

Writing or creating a set of machine readable instructions for a computing device to follow

- Performs a particular task or solves a particular problem (algorithm)
- Syntax/language dependant
- Process and procedure driven

Computational Thinking can be used as a model to create code/programs. However, coding/programming is not computational thinking.

## Computational Thinking

Process for solving problems using a logic model to guide through an iterative process:

1. Decomposition: breaking down large problems or processes into smaller problems
2. Pattern Recognition: Observing patterns and regularities
3. Abstraction: Identifying principles or rules that generate patterns
4. Algorithm Design: Designing instructions to provide solution to problem

## Why?

- Understanding how our software/technology works and what it does
- Be able to better communicate our technical needs to vendors (or solve our own problems)
- Take control of our computing environment (personally, for our libraries)
- Become better members of design and problem-solving teams
- Create workflow efficiencies
- Utilizing a problem-solving methodology correlated to a machine-based solution method

## Getting Started?

### Coding/Programming

- [http://codeacademy.com](http://codeacademy.com)
- [http://railsforzombies.org/](http://railsforzombies.org/)
- [http://hourofcode.org](http://hourofcode.org)
- [http://guides.libraries.psu.edu/compsciandengineering](http://guides.libraries.psu.edu/compsciandengineering)
- [https://www.khanacademy.org/computing/computer-programming](https://www.khanacademy.org/computing/computer-programming)
- [http://scratch.mit.edu](http://scratch.mit.edu)

### Computational Thinking

- [https://computationalthinkingcourse.withgoogle.com/unit](https://computationalthinkingcourse.withgoogle.com/unit)
- [https://www.cs.cmu.edu/~CompThink/news.html](https://www.cs.cmu.edu/~CompThink/news.html)
- [https://www.google.com/edu/resources/programs/exploring-computational-thinking/](https://www.google.com/edu/resources/programs/exploring-computational-thinking/)