Coding and Computational Thinking
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Coding/Programming	Computational Thinking
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.	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://railsforzombies.org/
- http://hourofcode.org
- http://guides.libraries.psu.edu/compsciandengin
- https://www.khanacademy.org/computing/computer-programming
- http://scratch.mit.edu

Computational Thinking

- https://computationalthinkingcourse.withgoogle.com/unit
- https://www.cs.cmu.edu/~CompThink/news.html
- https://www.google.com/edu/resources/programs/exploring-computational-thinking/
- https://www.edsurge.com/news/2016-08-06-what-s-the-difference-between-coding-and-computational-thinking
- http://www.cs.cmu.edu/afs/cs/usr/wing/www/publications/Wing06.pdf

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