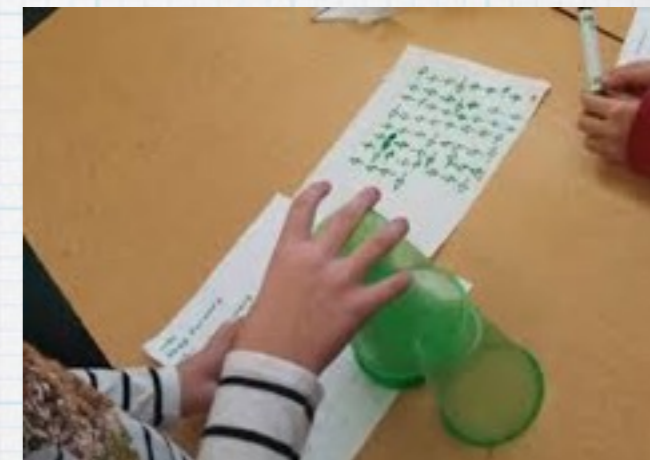




Robotics A-Z

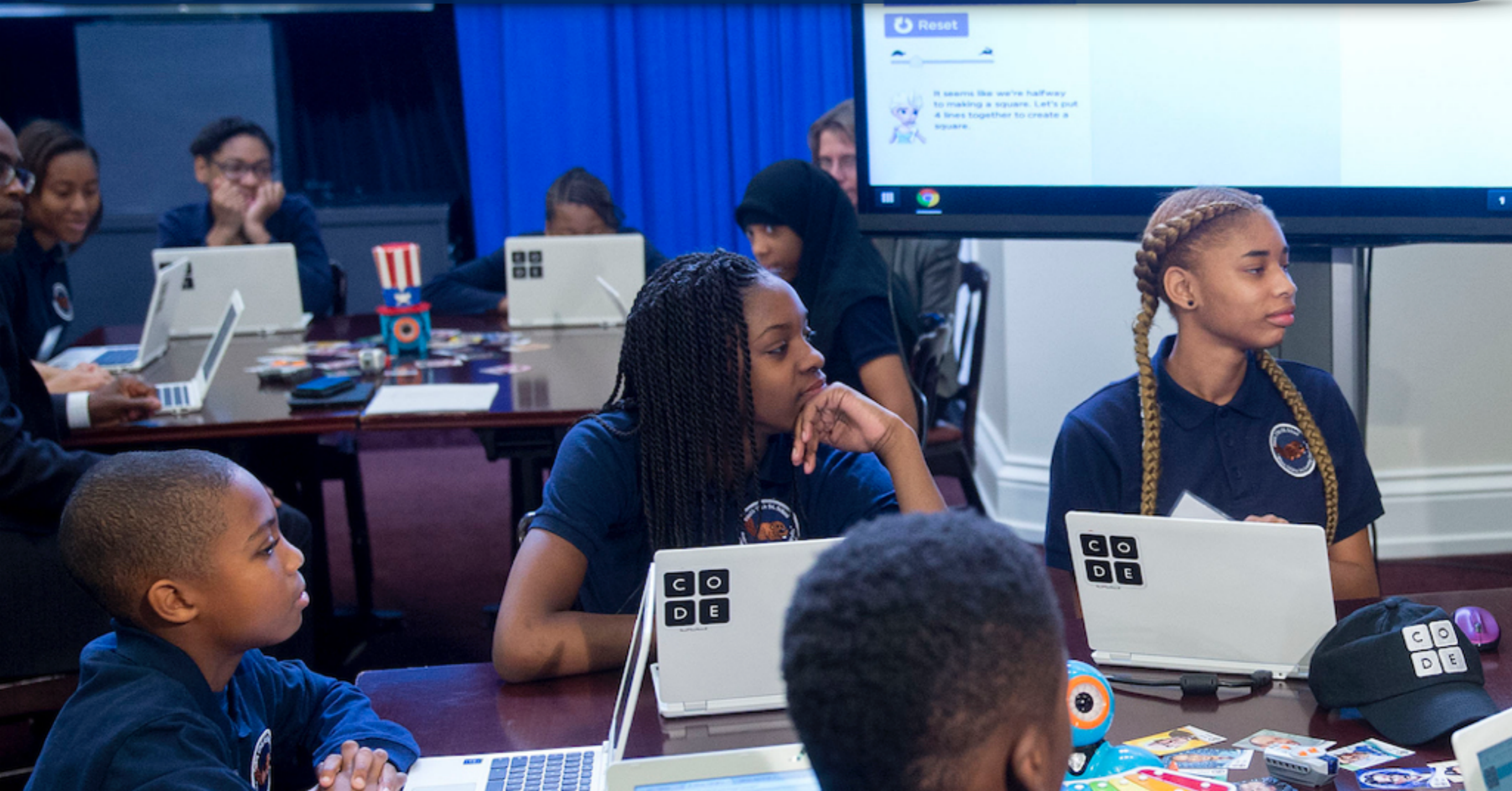
How to get started with an
Elementary Robotics Program



Stephanie White
Quinnipiac Real World Math STEM School
New Haven, CT
stephanie.white@nhps.net

“In the coming years, we should build on that progress, by ... offering every student the hands-on computer science and math classes that make them job-ready on day one.”

- President Obama in 2016 State of the Union Address



9 out of 10 parents want computer science taught in schools but very few schools offer it.

Starting early cultivates an interest and passion for building with technology that will stay with students for years to come. Hands-on robotics is the most fun and rewarding way for young children to learn to code.

- Teamwork
- Problem solving
- Perseverance
- Creativity
- Fun





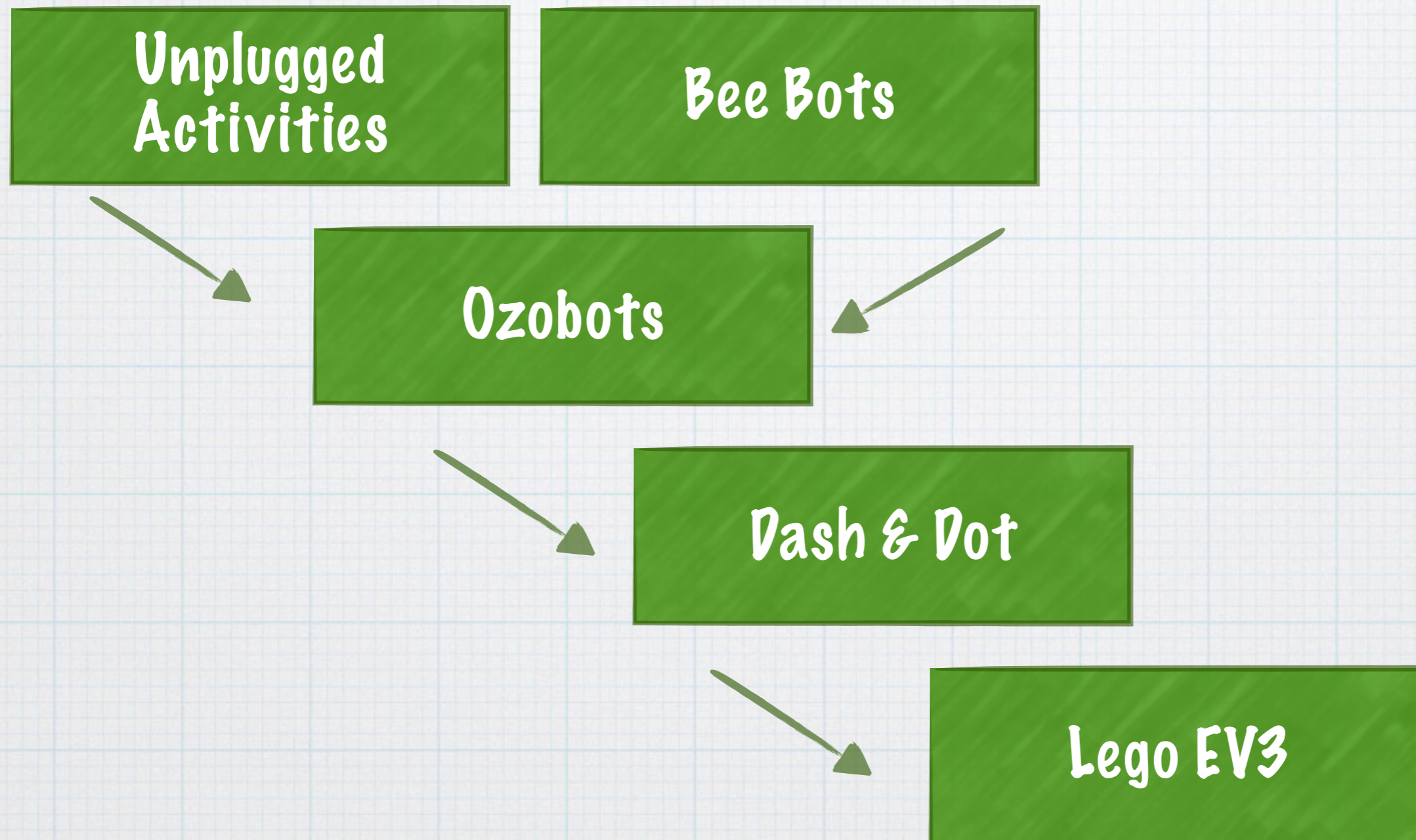
What is Programming or Coding?*

- * Algorithm - Sequence of instructions or a set of rules to get something done.
- * Programming - Process of designing and writing a set of instructions (Algorithm) for a computer in a language it can understand.
- * Why Programming Is Important Video - <https://www.youtube.com/watch?v=Dv7gLpW91DM>

*For today we are using programming and coding as synonyms at the elementary level, but when it comes to professions there are differences between coders and programmers.



Robotics in the Elementary Classroom





Bee Bots



- * Two versions - Bee Bot & Blue Bot (see through)
 - * \$59.99 Lakeshore
 - * \$89.95 Bee & \$119.95 - Terrapin - but they do have group sets too
- * Directional Programming
- * Arrow Keys
- * moves 15 cm at a time
- * Great to combine programming into any subject area
- * Designed for younger students, but can work for all grades





Ozobots



- * Two Versions - 1.0 (starter) \$50 and 2.0 \$59.99 - if possible purchase 2.0*
- * Follows lines, roams around freely, detects colors, and can be programmed
- * Visual coding through the use of markers (thicker lines!) or colored stickers on paper, or through the app on all platforms - Don't HAVE to USE Tech
- * Used with grades 2 & up in multiple subject areas

* Purchase the 2.0 because otherwise you will need to pay a yearly fee to update your 1.0 version - free is only \$10, but can add up if you have multiple robots



Dash & Dot



- * Can be purchased separately Dash \$150, Dot \$50
- * Have pieces that can connect with Lego's for additional building abilities
- * Need iPad or Android to program on
 - * 5 apps - Wonder, Blockly, Path, Xylo, and Go
- * Used with grades 2 & up in multiple subject areas*

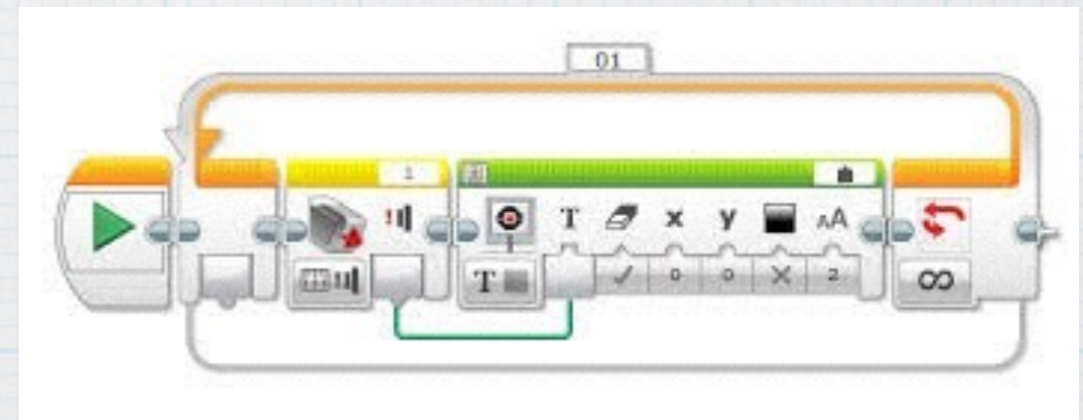
* The Path, and Go apps are easy for students of all ages to use. The other apps require a lot of reading to be able to use them.



Lego EV3



- * Can be purchased through Lego Education \$379.95
- * Students love to build with Legos, so the building part goes quickly, but need to review directionality with directions
- * Need a computer or iPad to program - more options for computer programming
- * Used with advanced Grade 3 students & up



Things to think about

- * Practice, practice, practice
- * Student groups - no more than 3 in a group - try to keep it 2
- * Anticipate what is going to go wrong
- * Storage, set up, clean up
- * Area to plug things in



