Coding in Elementary
WEMTA 2016

Presentation can be found at: goo.gl/E25TQs
Presenters

Michelle Fliceck, 1st Grade Teacher, Green Bay
Email: mrfliceck@gbaps.org
Twitter: @mfliceck1

Lisa Olson, Technology Integrator, Green Bay
Email: llolson@gbaps.org
Twitter: @lisahesseolson
Why coding in the elementary school?

- It is estimated that by 2020, computer related employment will increase by 22%; this will mean about 1.4 million jobs in computer science.
- STEM Integration
- Common Core State Standard Aligned
- Language that this generation should be familiar with
- Increases problem solving, perseverance, collaboration
- Research shows that unless students are introduced early to coding, they may never be interested
- Increase in number of girls that code
- FUN!!!!!
Unplugged Activities

Introduce vocabulary, do unplugged activities BEFORE going online (algorithm and program)
New Word!

**Algorithm**
Say it with me: Al-go-ri-thm
A list of steps that you can follow to finish a task.

New Word!

**Program**
Say it with me: Pro-gram
An algorithm that has been coded into something that can be run by a machine.

Which way should the Flurb step to get to the fruit?
Class was participating in a Twitter book club with other first grade classrooms, another teacher (Leka DeGroot) and I decided to add some computer coding to the mix. Students wrote programs to decide where the dragon was on the map.
Unplugged Activity to learn more about loops:

- Came up with individual dance moves
- Took pictures on Popplet
- Created dances with the different moves and added repeat symbols for loops
- Exchanged these with another classroom
- Performed the dances with this class through Google Hangout
Coding Board Games

Robot Turtles
- Great for younger elementary, even as young as 4 years old
- Basic coding language

Code Monkey Island
- Great for older elementary students
- Teaches: If, Then statements (conditions)
Now on to the online practice...

Tips:
- To increase collaboration, partner students up to solve puzzles (navigator/driver)
- Focus on stages that go along with the unplugged activities that you previously taught
Making Code COME ALIVE with robotics!
BeeBot App
4K & Kinder Robotics

- Colors
- Sight Words
- Numbers
- Number Partners
- Shapes
Sample ideas:

● Introduction to programming/robotics: teach directions, sequencing
● Create a program to get to a chosen letter, number, sight word, etc.
● Use map to locate different places
● Story retelling
● Capture the Kingdom
● Turn Bee Bot into different items (Ex: Hermit Crab)
● Pollination: program Bee Bot to get from the flower to make honey
Blue Bot

- Can be used like Bee Bot with a mat
- Use with provided maps or take/use pictures with camera
Wonder Workshop’s Dash and Dot Robot
Apps to use with Dash and Dot

Go
Getting started with Dash & Dot is a breeze with Go. For ages 5 and up.

Path
Draw a path to Dash’s next adventure! For ages 5 and up.

Blockly
Program Dash & Dot by snapping together puzzle pieces of code. For ages 8

Xylo
Compose your own musical masterpiece. Requires Dash’s Xylophone. For ages
Ideas

Robotics Club

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On a Roll with Dot

Directions:
2. Roll your special Dot Die. Check off the blocks you roll on your handout.
3. Add the blocks you roll to the When Top Button block on your blockly screen.
4. Repeat steps 2 and 3 two more times. (You will roll the die three times in total)
5. Create an algorithm for Dot to follow from your rolled blocks.
6. Write down what Dot did when following your algorithm. What would you change and what would you keep?
ScratchJr

ScratchJr available on Apple, Android & Chromebooks

Great beginning programming for all ages. Start with ScratchJr, transition those who are ready to Scratch.
Learn to Code with ScratchJr.
Scratch will challenge learners of all ages as they grow within the program.
MORE with Coding and Scratch

Create and share your own interactive stories, games, music, and art

Check out the 2,012,001 projects from around the world!

To create your own projects:

Download Scratch
Tickle App

Program Sphero, BB-8 and Dash & Dot (among others) using Scratch programming.
Star Wars BB-8

Brought to you from the makers of Sphero
Pro Bot

- Teacher gives clue & students program the Pro Bot to get to the correct term
- Use Marker to trace a path, create shapes
- Review angles
- Review multiplication with loops