

K - 5 Ideas

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# Dash and Dot Throughout the Day

— Integrating Coding and Robotics —  
Across the  
Elementary Curriculum

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# Summit Elementary, Oconomowoc Wisconsin



- Pre K-4
- 440 students
- STEM class 60 min./week
- Internally written curriculum
- 3rd/4th grade 1-1 chromebooks
- K-1 iPads
- 2nd grade 1-2 chromebooks
- Designated makerspace

“First it was STEM  
education, then STEAM, then  
STREAM. At what point do  
we just call it *teaching*” -  
Mark Schreiber

# Why Dash and Dot?

- Durable
- Versatile
- Adaptable for different age groups
- Engaging
- Support for use in schools
- Can be run off chromebooks and laptops



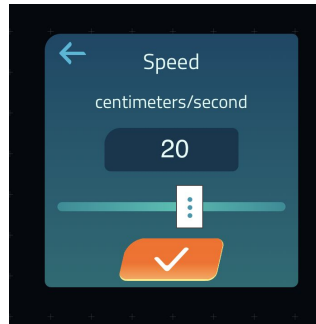
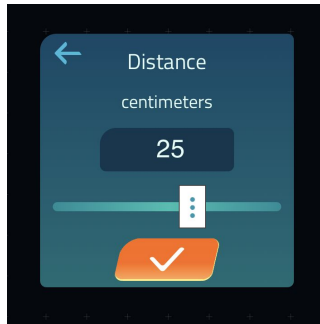
# Math

Movement is measured in centimeters in Dash  
Turning measured in degrees.

- Measurement
  - 2D shapes
  - Measuring angles
  - Greater/less than
  - Estimation
  - Coordinate Graphing
-

# Lesson Ideas

- Use Dash to calculate the length of a tape line on the floor. Or the perimeter around a table
- Attach a drawing device and draw different 2D shapes
- Use Dash to move along a tape number line on the floor
- Put Dot in a square on a grid mat and program Dash drive to him
- Use Dash and Dot to give questions and answers (review facts)
- Estimate distance and angle of turning to hit a paper target



# Science

Test hypotheses

Experiment with variables

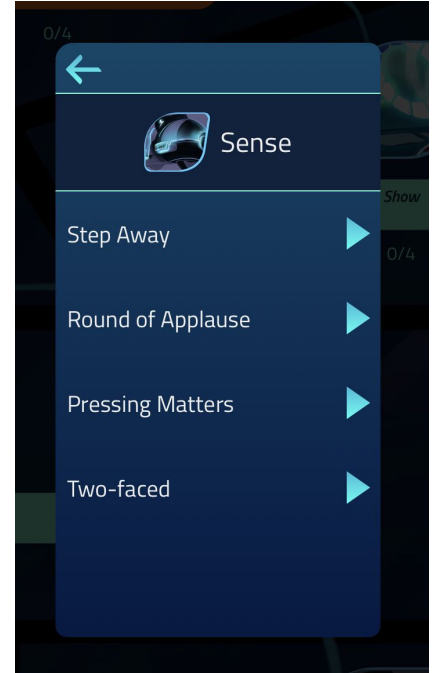
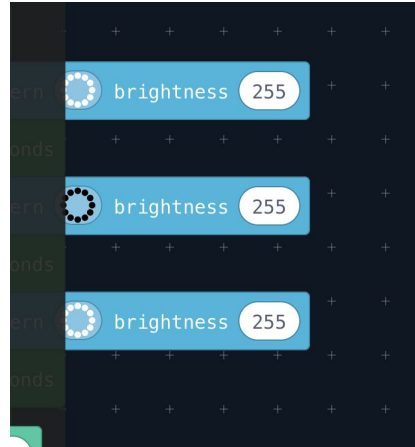
Predicting and estimating

- Forces
  - Friction
  - Speed
  - Simple machines
  - Light and Sound
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# Lesson Ideas

- Transfer of Energy - Have Dash (or Cue) “kick” a ball
- Friction - Does the robot move differently on different surfaces?
- Push/Pull - use the Bulldozer attachment to demonstrate pushing, and have the robot “tow” something to demonstrate pulling
- Sound and Light - Program different arrangements of light on the robots' eyes, program to play different sound
- Hide and Seek - Turn toward Sound
- Xylo attachment - vibrations create sound

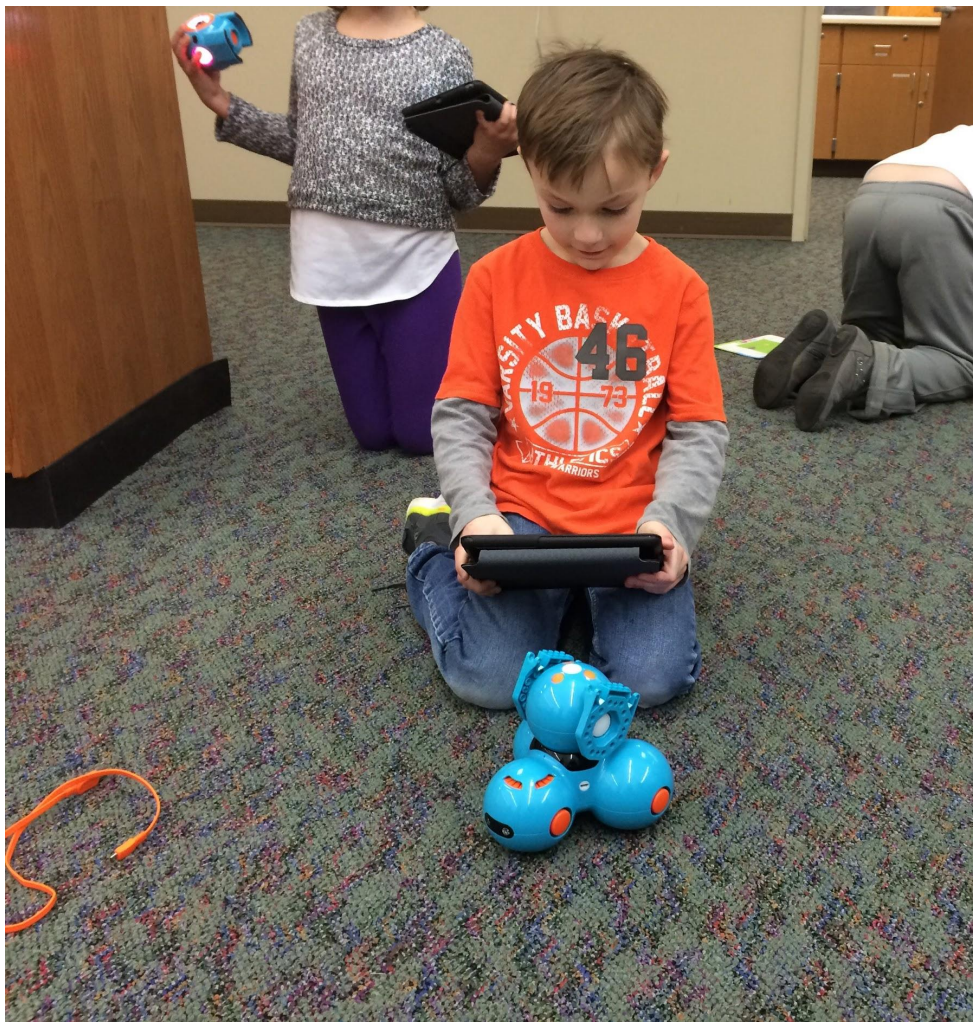


# Social Studies

- Map skills (latitude and longitude, cardinal directions)
  - Communities
  - Historical figures
  - Reenactment of historical events
  - Timelines
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# Lesson Ideas

- High Tech “Wax Museum” - present a historical character
- Use a tape line on the floor as a timeline and place relevant events
- Create a map of the community - Drive Dash and Cue through it
- Use the Sketch Tool to program the robot to draw a compass



# Literacy

Reading, Writing,  
Parts of Speech

- Writing and recognizing letters of the alphabet
  - Characterization
  - Story mapping
  - Storytelling
  - Comparison
  - Prepositions
  - Sequencing
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# Lesson Ideas

- Retell a Story
- Simon Says with Prepositions (make Dash go under the desk)
- Turn the robot into a favorite character - what would they wear, what would they say?
- Program Dash or Cue to drive from story event to event putting them in the right sequence



# Visual and Performing Arts

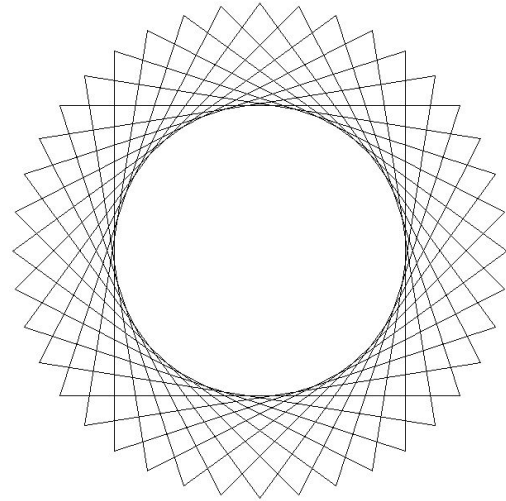
- Sketch Tool
- Xylo
- Patterns
- Rhythm
- Drama

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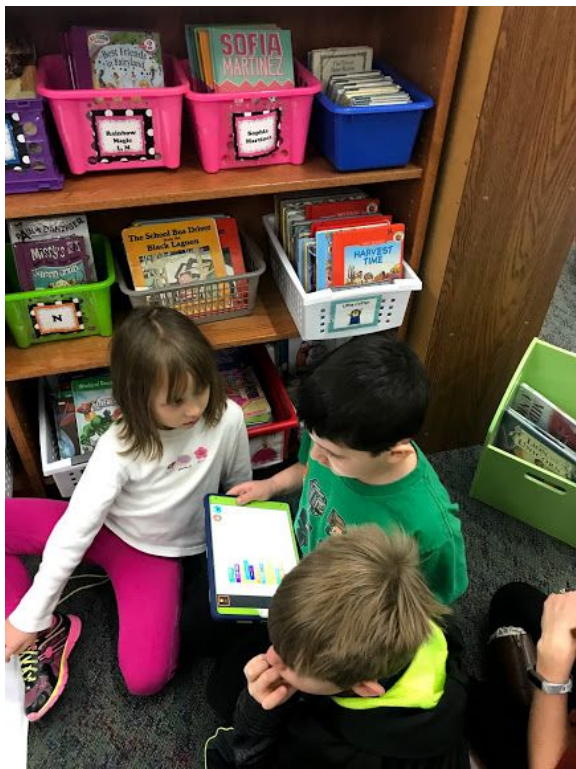
# Lesson Ideas

- Create a repeating angular pattern to draw a mandala
- Robot Dance Party
- Act out a play or scene
- Learn a song using Xylo

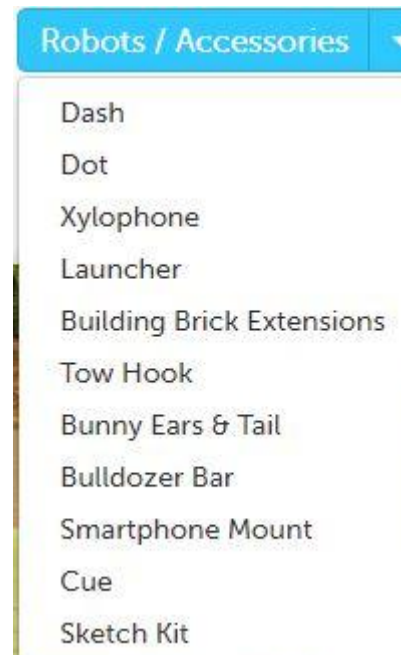
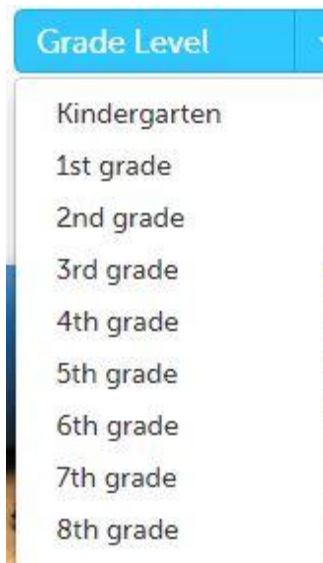


# Social Skills

- Planning
  - Communication
  - Problem solving
  - Sharing
  - Perseverance
  - Resilience
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# Where to find lessons and ideas



Wonder Workshop  
Curriculum Portal

# Let's keep in touch!

[Summit Makerspace blog](#)

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