Crack the Code!
Spheros in the Math Classroom
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Janet Meyers, Sara Strelow, Eileen Jones, Jennifer Sidlow
Crack the Code
Using Spheros in the Classroom

Resources

https://goo.gl/VHh1Lr
Who are we?

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Groups were each assigned a regular polygon to code
(Ex. Pentagon, Hexagon, Heptagon, etc.)
Each group wrote code using the Lightning Lab App to make the sphero move around the outline of assigned polygon
Students tested accuracy of codes by recording the sphero in a dark room and using the LongExpo App
Day 1
- Play day - ½ Sphero, ½ Long Expo

Day 2
- Intro to coding - code a square
- Square tutorial video
  https://www.youtube.com/watch?v=HARF3EQF9z
- Coding a polygon (using Lightning Lab)

Day 3
- Recording Long Expo
- Enrichment for students who finished early
Area and Perimeter Project

- Project was used to review basic area and perimeter formulas to be used with Surface Area and Volume
- Create and tape an irregular region consisting of squares and rectangles with square footage between 12 - 24 square feet.
- Code the sphero using Lightning Lab to travel the perimeter of the region
- Assigned job descriptions keep all members on task
- All groups create an iMovie to document experience
Area & Perimeter Project Timeline

➔ Day 1
◆ Review of coding
◆ Determining speed and distance
◆ Taping shape

➔ Day 2
◆ Finish taping shape
◆ Code shape

➔ Day 3
◆ iMovie
Examples of Area & Perimeter Projects

https://www.youtube.com/watch?v=F_l4vqlp0ww

https://www.youtube.com/watch?v=e9HhnnMCxs4
Apps

- Sphero
- Macrolab
- Lightning Lab
- Long Expo (iPhone app)
- iMovie
According to the Global Digital Citizen Foundation, these are critical 21st Century skills every student should know.

- Collaboration (to work with one another or a team)
- Analytic Thinking (a logical process of thinking)
- Creativity (using lots of imagination)
- Critical thinking (disciplined thinking that is clear, rational)
- Problem solving (arriving at a solution)
- Communication (sharing views)
- Ethics, Action & Accountability (having high morals)
Hands On
Wrap Up

Lessons learned

Adjustments for other grade levels
Using Coding in Other Subject Areas

- English II Honors - (Huck Finn) recreated Huck Finn’s path using the Sphero
- Physical Education - (Bowling Unit) bowling with Spheros and learning to keep score manually
- Consumer Education - (Careers Unit) Sphero driving test
- Computer Science - Raspberry Pie and Sphero
- Art (Photography) - Light painting
- Easily adaptable for Special Education
All lesson materials available in our shared folder

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- Workshop attendees should sign in at their session via a sign-in sheet made available by their presenter.
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