Computational Thinking in Elementary?

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Can we teach computational thinking skills and programming in elementary math? Absolutely. We'll look at some easy to use tools for pre-readers up to advanced Grade 6 students, and how they can be integrated into topics you are already teaching.
New Curriculum

“supports computational thinking”

Projects

Assessing process, strategies, and thinking

Competencies

- Critical Thinking
- Problem Solving
- Managing Information
- Creativity and Innovation
- Communication
- Collaboration
- Cultural and Global Citizenship
- Personal Growth and Well-Being
What is Computational Thinking?

not just “coding” conceptualization problem solving "ideas, not artefacts"
-Wing 2006
Hour of Code

A good way to get started

Easy for students and teachers

e.g. code.org/learn
Scratch

scratch.mit.edu
Math Challenges and Projects

Bridge riddle
Finding factors
Geometry
Statistics
Graphing
Other Challenges and Projects

Open Data

codeclub.ca

barefootcomputing.org
Robots and Circuits

EV3
Sphero
Rolling Spider
Micro:bit
```python
from random import randint
howMany = 20
sides = 6

results = []
for x in range(0,howMany):
    result = randint(1,sides)
    results += [result]

from collections import Counter
counts = Counter(results)
import matplotlib.pyplot as plot
plot.bar(counts.keys(),counts.values())
plot.show()
```
Other ideas?

tinyurl.com/studentscoding