

Computational Thinking Enters the Mainstream



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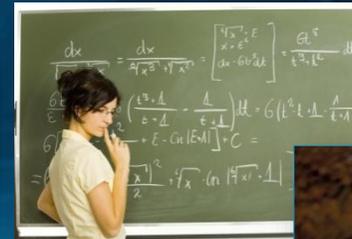


Some Ideas about Computational Thinking

for solving very hard, important problems...



- Hypothesis + Experimentation Scientific Method
- + Computation New Method
- Reduction of Complexity
 - Way too much info to process in old ways
 - Enables playing with “the full deck” to accomplish what was previously impossible
- Multidisciplinary perspective
- True for Biology, Art, Datamining, Economics, etc.



Microsoft Research/Carnegie Mellon Center for Computational Thinking

- Good results as applied to a variety of subjects
- Defining what it means to think computationally
- Strong interest: other institutions, gov't agencies
- Entering third year of this collaboration

Evolution of Computational Thinking

- Exploratory first rounds of collaboration, many areas:
 - Bioinformatics
 - Privacy
 - Art
 - Education
 - Auction Theory
 - Kidney Exchange
 - Music
 - Pharmaceutical Development
- Third year
 - Focusing on high-impact work
 - Basing approach on successful investigations

Computational Thinking As It Matures

What we will see today – applied to a wide range of disciplines...

Peter Lee • The Spread of Computational Thinking

Guy Blelloch • Parallel Thinking

Chris Langmead • Computational Drug Discovery

Roger Dannenberg • Music Performance in the Computational Age

Golan Levin • Art and Code

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