Computational Thinking Enters the Mainstream

Tom McMail
Sr. Research Program Manager
Microsoft External Research
Some Ideas about Computational Thinking for solving very hard, important problems...

- Hypothesis + Experimentation + Computation = Scientific 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.
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
Exploratory first rounds of collaboration, many areas:
- Bioinformatics
- Education
- Music
- Privacy
- Auction Theory
- Pharmaceutical Development
- Art
- Kidney Exchange

Third year
- Focusing on high-impact work
- Basing approach on successful investigations
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