Integrating Computing into All STEM Disciplines

Susan H. Rodger
Duke University

Bridging The Gap 2014
Oct. 29, 2014

www.cs.duke.edu/csed/alice/aliceInSchools

Supported by the National Science Foundation Collaborative Grant NSF 1031351, CRA distributed mentor awards, and Faculty Awards from International Business Machines.
Where does Computer Science fit in middle and high schools?

• Technology
• Science
• Mathematics
• Language Arts

• History
• Foreign Language
• Music
• Art
Alice Code is Easy to Learn

Select Code, Drag-and-Drop code in program
Science Example
How a volcano is formed
Focus on math
Math Example – Plotting Numbers
Adventures in Alice Programming

• 2-week Teacher workshops
  – Over 200 teachers, middle school, high school, some elementary
  – First week Teach Alice, Practice
  – Second week - Develop Lesson Plans
  – One-week follow-up workshop the following summer
  – Summers 2008-2015, funding for lodging

• Main Sites:
  – Duke University, Durham, NC
  – Charleston/Columbia, SC
  – San Jose, CA (starting 2014)
Getting Started Tutorials

• One-hour tutorial
  – Covers placing objects, setting camera views, basic commands, writing methods and events

• 3 versions of it – pick story your students will like
Conclusions and Future Work

• Teachers using Alice in lots of disciplines
  – 1-2 classes in Alice to get students started
  – Students can explore further on their own
  – Teachers excited - see different ways to use it

• Projects best for integrating into a course

• More extensive use of Alice
  – Media/Business Technology - pairing up with teachers in other disciplines
  – Introductory computing class

• Workshops through 2015
  – Alice Symposium 2013

• Other formats for tutorials?