programming in schools

“programming, oh no... I know what is going to happen. The teacher writes a program onto the blackboard, we type it into the computer and it never works” – student
today

- quick intro
- goals:
  - explain Scalable Game Design aka iDreams project
  - explain teacher requirements
  - find teachers ready to participate in Summer 2009 program
- what is Scalable Game Design (20min)
project & program

- we got an $1.5 million National Science Foundation grant through the NSF ITEST program

- ITEST
  - $115 million federal investment
  - 130,000 students, grade 6-12
  - 4,300 teachers
  - 1,700 parents and caregivers
our goal: bring computer science into public schools

- most ITEST projects are after school programs
- motivate and education through scalable game design
- support computational thinking
- facilitate computational science
- provide access to ALL students including women and minorities, e.g., BVSD “forced elective”
BVSD’s, YOUR role

- be a pioneer in developing a computer science / computer education strategy that could be scaled up to the state of Colorado and the USA.
process: middle school

**middle school: 6th Grade**

- **motivational focus:** computer science is interesting; I can do this

- **required game design module:** 1 week
  - family show & tell
  - motivational survey

- trained middle school teacher
- trained community/tribal community student
- teach k-12 students how to make a simple frogger-like game, administer motivational questionnaires and organize family participation

**middle school: 7th or 8th Grade**

- **STEM focus:** game design connections to math & science, computational science

- **elective game design module:** 4 weeks
  - family show & tell
  - motivational survey

- self selected 7th grade students
- trained middle school teacher
- trained community/tribal community student
- teach k-12 students how to make sophisticated games and simulations including math and science, administer motivational questionnaires and organize family participation
process: high school

high school

self selected high school students

motivational survey

elective transition 1 week

elective game design using Java, C#, Flash 8 weeks

trained high school teacher
teaches k-12 students how to use programming languages such as Java, and C#; helps students making transition from visual tools

computer science skills
focus: software engineering, programming, object oriented design

on the job training

university

community/tribal college

workforce
BVSD is one of 4 areas

- Tech Hub: Boulder, BVSD
- Inner City: Aurora
- Rural: Pueblo
- Remote/Tribal: Ignacio, CO, and Oglala, SD
more info

sCALABLE GAME DESIGN

wiki

http://scalablegamedesign.cs.colorado.edu
Teachers will learn

- how to teach computer science through scalable game design
- how to guide students in designing and building games
- how to work with game design patterns
- how game design maps to the ISTE NETS standards
- how to use the AgentSheets software
- how to use Wikis and other Web 2.0 technologies
Teachers will receive

- up to 3 University of Colorado (Boulder) continuing education credits
- a stipend of $25/hour
- travel and subsistence expenses
- support from research team, including lesson plans and other teaching material
- support in the classroom from undergraduate students local to each region (from CU, community colleges, tribal colleges)
Teachers will have to

- attend an all-expenses-paid week-long summer workshop at the University of Colorado in Boulder. Summer 2009 workshop is tentatively scheduled for June 7-12, 2009.
- teach a one-week motivational game-design module in a required (or "forced elective") computer education course using teaching material provided by research team
- teach a four-week in-depth game design module in an elective course using teaching material provided by research team
- administer motivational questionnaires to students
Teachers are encouraged to

- contribute to Game Wiki by improving existing teaching material and submitting new ones
- become teacher trainers/supporters in other places (e.g., Pueblo area or Native American reservation)
  - pilot basic and advanced game design and computational science activities in your classroom
  - employ your skills to help other teachers adopt the program
mobile science lab

- part of the project:
- allows us to drive to remote areas and organize outdoor workshops
first US-wide Native American Game Design class