CREATE YOUR WORLD

SCRATCH AT MIT 2012

Keynote at 9:30

Overflow seating
Available across the hall in 633

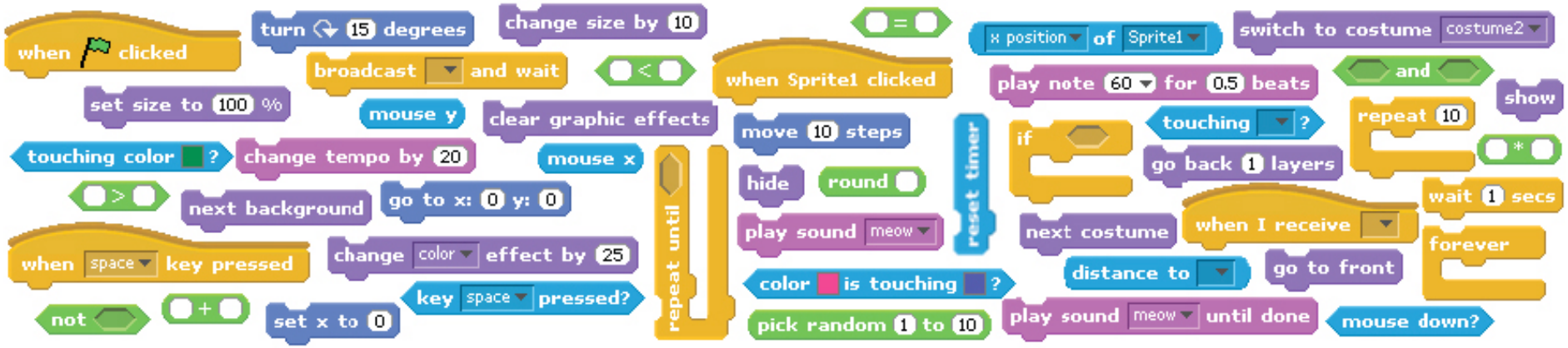
Wireless access
MIT or MIT N

CREATE YOUR WORLD

Scratch Goes to School

Judy Barbera
Sandra Reyes
David Grammerstorf
Nicole Hovsepian
Andrea Edwards

Genna Colonnato
Jacob Goodman
Jason Kardon
Sarah Katz
Joe Ligresti



CREATIVE COMPUTING

a design-based introduction to computational thinking

Ramapo Central School District
3rd Grade Curriculum

Ramapo Central
SCHOOL DISTRICT

"Educate for Personal Excellence"

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Ramapo Central School District

45 Mountain Avenue Hillburn, New York 10931 845-357-7783

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- PTA
- Map-Directions

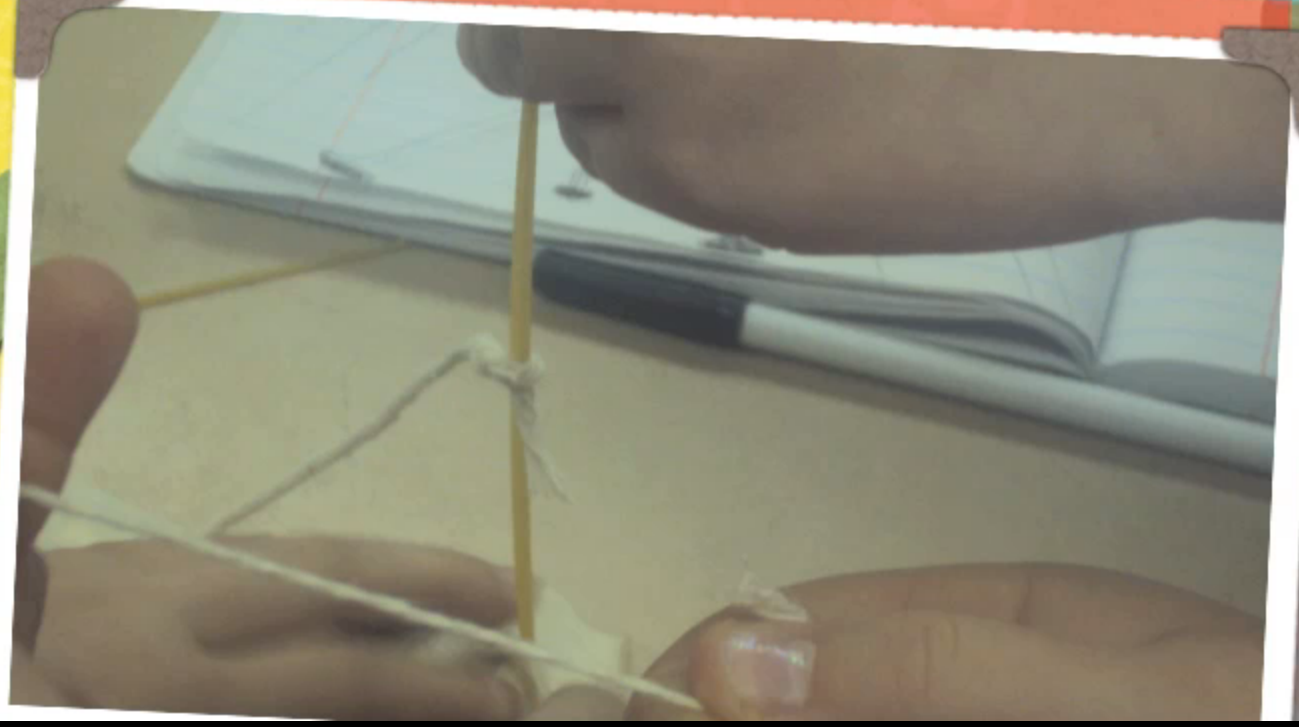
In the News

Ramapo Central celebrates commencements, promotions [June 23, 2012] Hundreds of Ramapo Central students have moved up and out this week over a series of promotion, advancement and commencement

Educating for Personal Excellence

Meeting the diverse needs of learners

Ramapo Central Elementary STEM



	1st Trimester	2nd Trimester	3rd Trimester
2nd Grade	**Air & Weather (FOSS)** **Catching the Wind: Designing Windmills (EiE)** *Mechanical Engineering* Leif Catches the Wind (Denmark)	**Balance & Motion (FOSS)** **To Get to the Other Side: Designing Bridges (EiE)** *Civil Engineering* Javier Builds a Bridge (USA)	**Insects (FOSS)** FOSS FULL OPTION SCIENCE SYSTEM
3rd Grade	**Structures of Life (FOSS)**	**Water (FOSS)** **Water, Water, Everywhere: Designing Water Filters (EiE)** *Environmental Engineering* Saving Salila's Turtle (India)	Computational Thinking **Creative Computing Curriculum using SCRATCH (MIT)** *Software Engineering* Lifelong Kindergarten
4th Grade	**Plant Growth & Development (STC)** Smithsonian Institution *National Science Resources Center*	**Simple Machines** **Marvelous Machines: Making Work Easier (EiE)** *Industrial Engineering* Aisha Makes Work Easier (USA) 	**Magnetism & Electricity (FOSS)** **The Attraction is Obvious: Designing a Maglev System (EiE)** *Transportation Engineering* Hikaru's Toy Troubles (Japan) **An Alarming Idea: Designing Alarm Circuits (EiE)** *Electrical Engineering* A Reminder for Emily (Australia)

Creative Computing Curriculum Guide

Concepts	*Sequence and Loops* *Parallelism and Events* *Conditionals and Operators* *Data*
Practices	*Being iterative and incremental* *Reusing and remixing* *Abstracting and modularizing* *Testing and debugging*
Perspectives	*Expressing* *Connecting* *Questioning*

The Engineering Design Process

ASK:

What is the problem?

What have others done?

What are my constraints?

IMAGINE:

What are some solutions?

Brainstorm ideas.
Choose the best idea.

PLAN:

Draw a diagram.

Make a list of materials I will need.

CREATE:

Follow my plan.

Build my design.

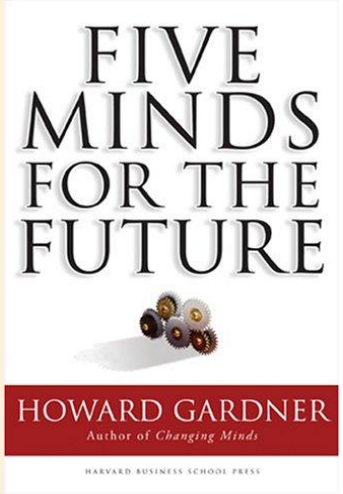
Test it out.

IMPROVE:

How can I make my design better?

Try again.

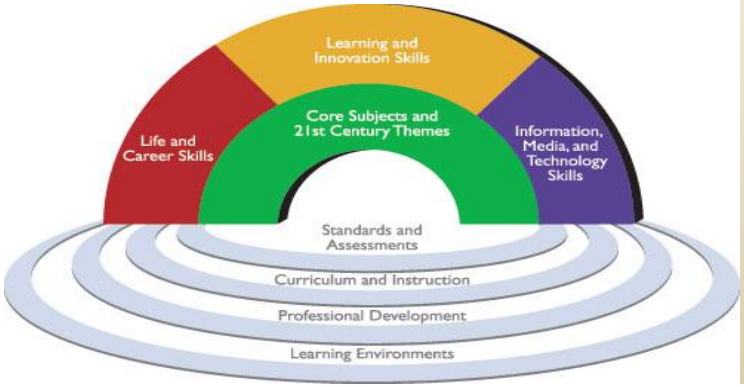
Adapted from
EiE
MOS, Boston



"We live in a time of changes that include accelerating globalization, mounting quantities of information, the growing hegemony
of science and technology, and the clash of civilizations.

Those changes call for new ways of learning and thinking in school …"

Partnership for 21st Century Skills



Computational Thinking SCRATCH Project Rubric

Category	*Exceptional*	*Proficient*	*Developing*	*Beginning*
Project Design	This category defines evidence that can be assessed from viewing or interacting with the project from the program screen			
Programming	This category defines evidence that can be assessed by viewing the program screen AND the programming blocks			
Process	This category defines evidence that can be assessed through self-reflection or observing the student at work			

SCRATCH PROJECT RUBRIC

Name: _____

Category	*Exceptional*	*Proficient*	*Developing*	*Beginning*
Project design *(Items that can be assessed from watching or interacting with the program screen)*	___ I carefully chose and created some of my own artwork for backgrounds and sprites to express exactly the thought or feeling of the action.	___ I used new images for both backgrounds and sprites in a creative way.	___ I used a sprite other than the cat or used a background other than plain white.	___ I used the cat as my only sprite and kept the background plain white.
Programming *(Items that can be assessed by watching or interacting with the progra viewir progra*	___ I have included advanced aspects of the Scratch environment to optimize by using the fewest resources.	___ I have included a variety of blocks in my project and have optimized so that I have used fewer resources.	___ I have included more blocks in my project than I needed	___ I have blocks in my project

Category	*Exceptional*	*Proficient*	*Developing*	*Beginning*
Process *(Items that can be assessed by self-reflection or observation of the student at work)*	___ I chose smart places to stop and test my program.	___ I stopped and tested my program in random places.	___ I waited until my project was complete to test my program.	___ I did not stop to test my program.
	___ I used project time well, finished early, and asked myself, "**Now what** can I do to make it better?"	___ I used project time well and met all deadlines.	___ Sometimes I was able to complete tasks to meet deadlines.	___ I need to improve the time takes me to complete a task.
	___ I found ways to collaborate with people outside my class by using online communities	___ I collaborated in and out of my group, but I did not reach out to online communities.	___ I collaborated only with members of my own group.	___ I completed the project on my own.
	___ When faced with a challenge, I stuck with it until I found a solution and I used my new learning to solve other challenges for myself and/or others.	___ When faced with a challenge, I stuck with it until I found a solution.	___ When faced with a challenge, I chose to do something easier.	___ When faced with a challenge, I got frustrated and stopped working.
	___ I chose the most appropriate problem solving strategy for each situation.	___ I used different problem solving strategies for different situations.	___ I tried the same problem solving strategy each time I had a challenge.	___ I did not know what to do when I had to solve a problem.
	___ I can explain my thinking about how and why I made certain programming decisions and I can make suggestions for improvement.	___ I can explain my thinking about how and why I made certain programming decisions.	___ I can show you how aspects of my program work, but I can't explain why they work.	___ I am not sure how or why I made programming decisions.

Internal Reflection

Next Steps

Outward-Facing Reflection

SCRATCHED
learn | share | connect

EDC Learning transforms lives.

Q & A

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10:30 am	Break
11:00 am	Concurrent sessions
12:00 pm	*Pick up lunches*
	Closing keynote
1:30 pm	Event end