RAMPED – Summer 2016

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Back-to-School Night Technology Lesson Plan

P = Pretest (think essential questions)
O = Objectives (measurable - see Bloom's taxonomy)
C = Catch (hook, anticipatory set, etc... use different senses, not a question)
A = Activity (procedure of what the students should do)
R = Review (how will students go over what they've learned?)
A = Assessment (formative and/or summative)
P = Posttest (same as pretest for comparison purposes)
S = Standards (Wyoming, NGSS, etc...) showcasing crosscutting concepts[†]

Pretest Questions	What are sequential operations? What kinds of hardware can execute parallel operations? What is an Arduino? Which of the following can model using programming: ant behavior, teenage behavior, spreading of a meme, flocking birds, and lightning?
Objectives	To provide an introductory overview to computer programming with a focus on science, technology, engineering, art and math (STEAM).
Catch	You have an opportunity to win a pair of Google Cardboard glasses after your participation in Back-to-School Night.
Activity	This activity is going to be used at Back-to-school night. Set up four stations: Arduino, Raspberry Pi, NetLogo and Sloan Digital Sky Survey. Have participants manipulate inputs and outputs at each station.
Review	Discuss how learning to Program at Back-to-school will help connect school to future opportunities.
Assessments	Participants will be able to turn on an LED light with an Arduino, change parameters of ant movement using NetLogo, light up a message on Raspberry Pi, find a quasar using the Sloan Digital Sky Survey.
Posttest Questions (same as pretest questions)	What are sequential operations? What kinds of hardware can execute parallel operations? What is an Arduino? Which of the following can model using programming: ant behavior, teenage behavior, spreading of a meme, flocking birds, and lightning?

[†] http://ngss.nsta.org/CrosscuttingConceptsFull.aspx

Standards	ISTE Standard Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
Crosscutting Concepts from NGSS	1. Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them. 2. Cause and effect: Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.