

General Information	
Name: Mike Nutter	District/School or Organization: CCSD#5 / Cherry Creek High School
Subject Area/Topic: Math / Algebra 1	Grade Level(s): 9-12

Part 1 – List the appropriate standards (State or National Standards for Content, Technology or 21st Century Skills) and one or more related Thinkfinity learning object(s) aligned to the standards.

State or National Standards; 21 st Century Skills	Title and URL for Thinkfinity Learning Object
<p>CSAP 2.1.a Model real world phenomena involving linear and non-linear relationships using multiple representations of rules that can take the form of recursive processes, functions, equations, or inequalities.</p>	<p>Line best fit activity – embedded in http://illuminations.nctm.org/ActivityDetail.aspx?ID=146</p>

Part 2 – Determine instructional elements - Integration

A. Which type of Thinkfinity learning object is this?	B. Where will I use this learning object in the instructional cycle?	C. Which instructional strategies will I employ?
<p>Learning Object for Teacher Use</p> <p><input checked="" type="checkbox"/> Online (requires a computer)</p> <p><input type="checkbox"/> Offline (no computer required)</p> <p>Learning Object for Student Use</p> <p><input type="checkbox"/> Online (requires a computer)</p> <p><input type="checkbox"/> Offline (no computer required)</p>	<p><input type="checkbox"/> Opening Motivational Activity</p> <p><input type="checkbox"/> Central Focus of Lesson Plan</p> <p><input checked="" type="checkbox"/> Research Tool for Students</p> <p><input type="checkbox"/> Closure Activity</p> <p><input type="checkbox"/> Assessment Tool</p> <p><input type="checkbox"/> Remediation Tool</p> <p><input type="checkbox"/> Enrichment Tool</p>	<p><input checked="" type="checkbox"/> Direct instruction</p> <p><input type="checkbox"/> Indirect instruction</p> <p><input type="checkbox"/> Experiential learning</p> <p><input type="checkbox"/> Independent study</p> <p><input checked="" type="checkbox"/> Interactive instruction</p> <p><input type="checkbox"/> Other</p> <p>Notes: Visit http://olc.spsd.sk.ca/DE/PD/instr/index.html for more information on the instructional strategies listed.</p>
<p>Notes: Students will be using the online tool to determine a line of best fit. They will compare this result to their analytic result.</p>		

Part 3 – Plan for student success - Implementation

A. How will I configure my classroom for the learning activity?	
<p>Classroom Configuration:</p> <p><input type="checkbox"/> Computers not needed - printable resource</p> <p><input checked="" type="checkbox"/> Whole group instruction, using a projector and / or interactive white board</p> <p><input type="checkbox"/> Whole group activity, with small groups using mobile laptops simultaneously</p> <p><input type="checkbox"/> Small group, using classroom computers or mobile laptops as rotating stations</p> <p><input type="checkbox"/> One to one, using classroom computers or mobile laptops as rotating stations</p>	<p>Notes: Students will become acquainted with the use of the online tool via whole group instruction. They will then use the tool as part of an individual project. I will model the use of the online tool for the class.</p>

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<input checked="" type="checkbox"/> One to one, in a computer lab setting <input type="checkbox"/> One to one, with individual student laptops <input type="checkbox"/> Other	
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B. How will I manage implementation?	
Classroom Management: <input checked="" type="checkbox"/> General computer rules / procedures <input checked="" type="checkbox"/> Specific directions for activity <input type="checkbox"/> Helping Hands <input type="checkbox"/> Other	Notes: Students are expected to work independently outside of class on school or home computers. Students have free periods to access school computers. Be sure to set a due date that allows them enough time to do this. I will show sample projects from prior years as models for students. I anticipate one class period will be needed for the online tool demonstration.

C. What additional considerations will support successful implementation?	
<input type="checkbox"/> Software <input checked="" type="checkbox"/> Hardware <input type="checkbox"/> Supplemental Materials <input checked="" type="checkbox"/> Other	Notes: Allow students enough time to access school computers outside of class. Also, be sure to make intermediate checks of progress. Other – model input of bivariate data for the class using the online tool.

Part 4 – Develop the student learning activity

A. Describe the learning activity. What will students be asked to do with the Thinkfinity learning object(s)?	
Students will be required to collect data and determine a line of best fit by analytic means. Additionally, they will use the online tool to generate an alternate line of best fit.	
Will the learning activity support students' development of 21 st Century Learning and Innovation Skills (creativity and innovation, critical thinking and problem solving, communication and collaboration)? If so, describe how.	
Students will be asked to <u>problem-solve</u> by modeling with real data. Additionally, they will be involved with <u>critical-thinking</u> by comparing their analytic result to that generated by the online tool.	
Will the learning activity support students' acquisition of current, accurate, and up-to-date information in core subject areas? If so, describe how.	
The activity supports the learning objective by giving a visual display of authentic data. This appeals to the students need for meaning and to various learning styles.	

B. Describe how you will differentiate the activity to meet the diverse needs of your students.	
This activity will be differentiated in that students select and collect their own data of interest. This makes it authentic and meaningful for them. In addition, I will make intermediate checks of student progress to give them individual guidance as needed.	

C. Effectiveness – What indicators will I expect to see / hear from students, which will inform me about the effectiveness of the learning activity?	
Students will produce a hard copy of a graph of their data. In addition, they will analytically determine an equation for the line of best fit and will have an opportunity for higher-level thinking by comparing their analytic result to that from the online tool.	

Part 5 – Do a complete trial run of the learning activity you described in step 4A.

Reflect on the learning activity.

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Considerations:

Students will need access to a computer, as well as the internet and a printer. I will promote student success by having intermediate checkpoints of progress including problem statement, graph and calculations. My trial run with the online tool also helped me realize that 20 data points would be appropriate and that I should make a manual and intermediate check of the data before students submit their data to the interactive.

Part 6 – Consider the bigger picture

Describe how this learning activity fits within a lesson or unit plan to meet objectives that will be assessed.

NOTE: Information about additional learning activities or materials that will be used to complement this learning activity may be included.

Students will be fitting a line to data, which is an expected performance item on grade 9 and 10 csap. Following a unit on linear functions, students will be assigned a project to collect their own data that could be approximated by a linear function and use the online tool to obtain that linear fit. They will also perform calculations themselves to get a similar equation. An extension may involve the regression capabilities of a graphing calculator. The integration of this technology supports the completion of a project that acts as a summative assessment to a three-week unit on linear functions.