Unit 2, Day 2

Adapting Tasks to Increase Student Access to the Mathematics and to the Mathematical Practices

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Looking at student work that is both correct and incorrect from an open-ended problem to promote discussion

Systems Version I

- Draw a line through the two points (-4, 3) and (2, 6). Write the equation of the line.

- Draw a line through the points (-3, -6) and (2, 4). Write the equation of the line.

- Using the equations you found above, solve for the point of intersection of the two lines.

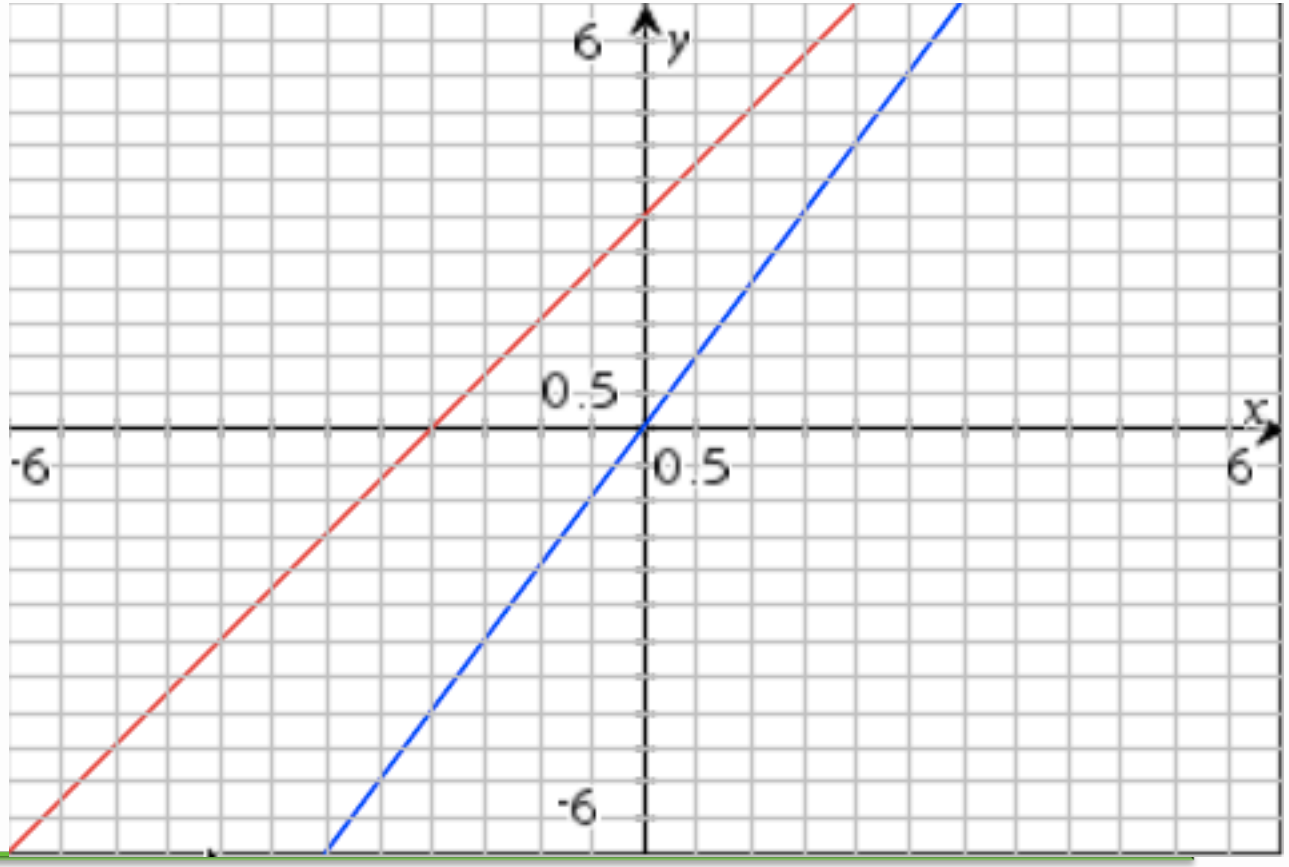
(Herbel-Eisenmann & Crillo, 2013)

CCSS: Grade 8 Expressions and Equations: Analyze and solve linear equations and pairs of simultaneous linear equations.

Grade 8 Functions: Understand the connections between proportional relationships, lines, and linear equations.

Systems Version II

- If the scale for each axis is half a unit, find the intersection of the two lines, if it exists.
- Try to think of more than one way to solve the problem.



Two versions

- Think for a minute about the different ways the two tasks shaped the discussion and your own thinking.
- In particular how did the way the tasks were posed relate to the characteristics of worthwhile tasks that we talked about last week?

Worthwhile Tasks

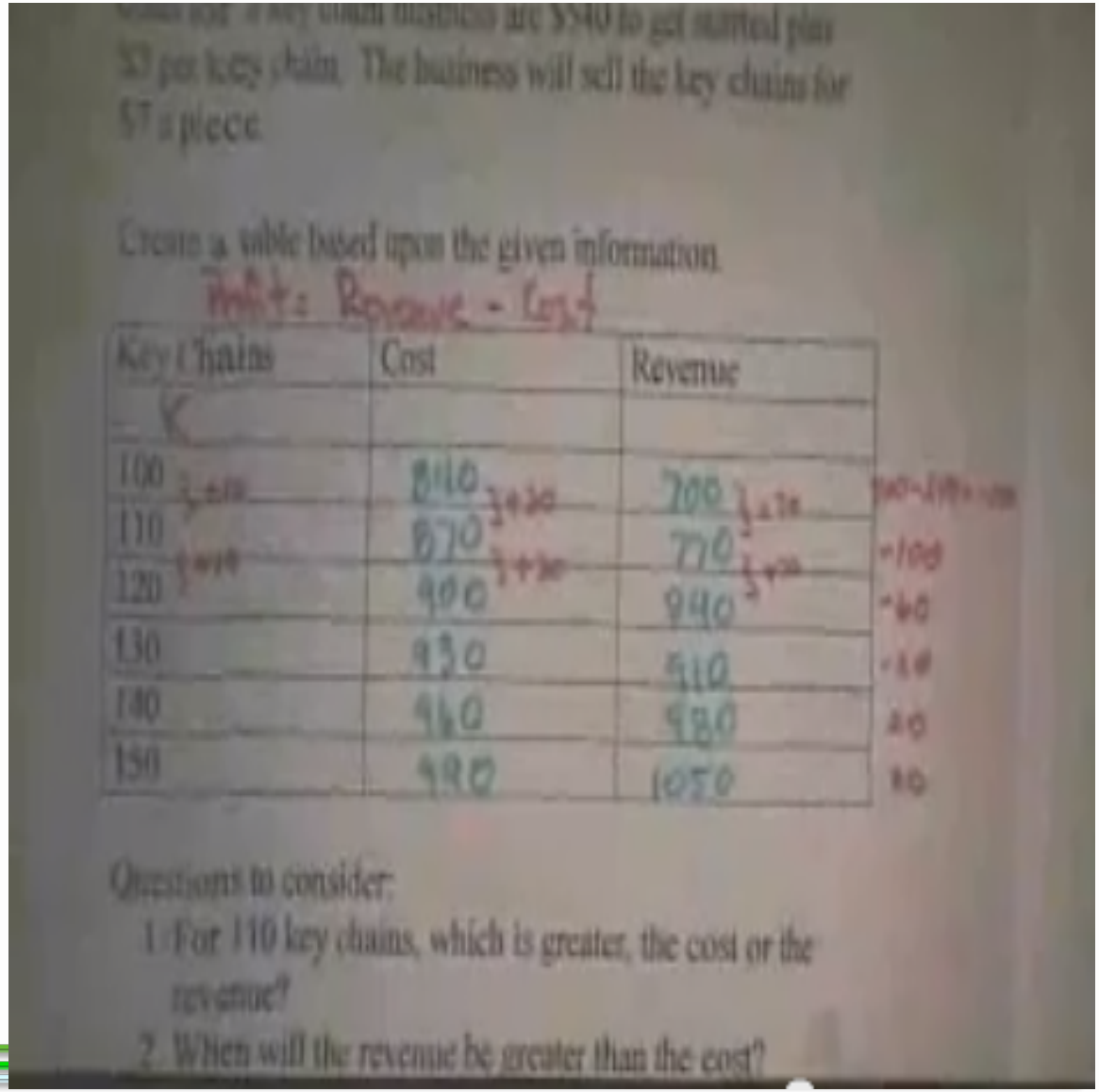
- Critical thinking – cognitive demand
- Mathematical goal
- Opportunity for discussion

More Open – Less Scaffolding

By making a task more open ended and/or taking away some scaffolding, we allow multiple solution approaches & strategies, which leads to a rich discussion.

Keychains

(Solving Equations, 2005)



$7 a piece.

Create a table based upon the given information.

Profit: Revenue - Cost

Key Chains	Cost	Revenue
K		
100	810	700
110	870	770
120	900	840
130	930	910
140	960	980
150	990	1050

Questions to consider:

1. For 110 key chains, which is greater, the cost or the revenue?
2. When will the revenue be greater than the cost?

Keychains

A business has decided to sell key chains for a profit. The cost for a key chain business is $540 to get started plus $3 per key chain. The business will sell the key chains for $7 apiece.

- Create a table based on the given information

Keychain	Cost	Revenue
100		
110		
120		
130		

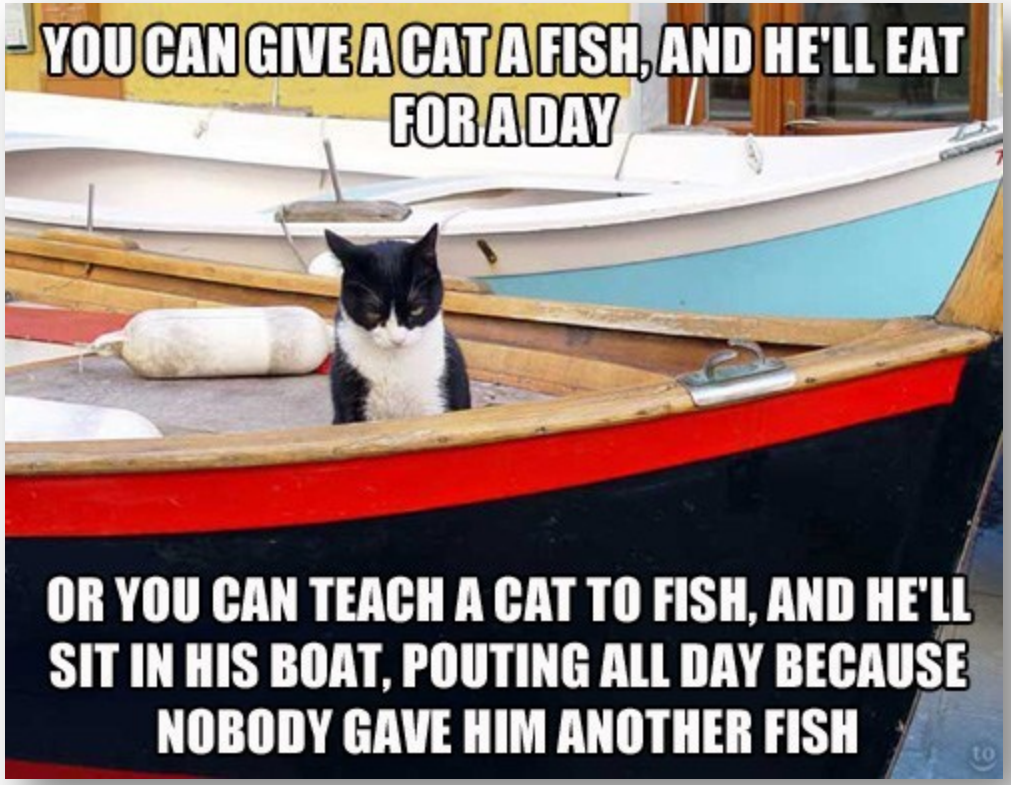
Keychains

- How could the task have been changed so the characteristics of worthwhile tasks and the opportunity to have students engaged in the mathematical practices are more in evidence?
- Think about that question for a minute or so and then share at your table making sure everyone gets a chance to speak.

Keychains – Room 2

- Pitch the company to investors, find the best way to provide the information.
- Use first part of question and just ask at what point would you start making a profit? (Leave it to students as to method)—stop it eariler and ask students for questions
- Change from business to club raising money.
- What would you sell them for? Why?
- Use at end of the unit after methods have been introduced or at beginning to introduce methods—maybe even over multiple units

Bring laptops tomorrow



References

- Herbel-Eisenmann, B. & Crillio, M. (2013). Two versions of same task adapted from Association of Mathematics Teacher Educators presentation, Mathematics discourse in secondary classrooms: A case-based professional development curriculum. Orlando FL
- *Solving Equations*, (2005). Break Through Mathematics. Lesson Lab. Pearson Education Company.