Highlighting Mathematical Practices

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What is the same? What is different?
Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for regularity in repeated reasoning.
Figure 1.1 Diagram that shows the relationship of the practices to each other.
Teach content through the practices:

- What content standards need to be addressed?
- What do students already know?
- Introduce a situation...
- Have students develop a problem to solve based on the situation.
- Be intentional about which standards for math practice you want students to use.
A 3-Act Task
25 Billion Apps

3-Acts Math Task
Act One: What questions do you have about the video?
Define boundaries

How long is too long to wait?

How short is too short?
Act Two: What information do we need to know in order to answer our question?

2012 Calendar

Time Zone

Timer
Work with a partner or group to solve the problem.
Act Three: The ANSWER

Re: 25 Billion Apps
1 message

Tue, Mar 6, 2012 at 10:00 AM

Thanks for reaching out. That sounds like a fun idea for the class!

We officially reached the milestone around 10:50pm PST Friday night 3/2/12.  (About 7 days later…)

Best,
Ted

Ted Miller
Apple PR

Sent from my iPad
Debrief

How does this connect to standard 8.F.B.4?

- Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two \((x, y)\) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

What math practices did we incorporate?

How could students extend this problem?
Numberless Problems
What are some questions you can ask about this graph?
Debrief

How does this connect to standards N-Q.A.1 and A-CED.A.2?

- N-Q.A.1 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; and choose and interpret the scale and the origin in graphs and data displays.
- A-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

What math practices did we incorporate?

How could students extend this problem?
Highlighting the practices in problems...

- Use problems you already have!
- Replace tasks with other more meaningful tasks!
  - SameButDifferentMath.com
  - WhenMathHappens.com
  - Dan Meyer’s 3-Acts Math Tasks
  - 101 Questions
- Intentionally incorporate standards for mathematical practice!
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