

25 billion apps

By Dan Meyer

<http://threeacts.mrmeyer.com/25billionapps/>

Instructor Notes

By Trey Cox

What is a Three Act Task?

- If you are unfamiliar with Dan Meyer's Three Act Tasks or would like to watch a good overview of how they can be effectively implemented in your classroom, be sure to watch this Youtube video: [Three Act Tasks](#).
- A very good blog produced by Dan Meyer includes valuable information. On the blog he explains his philosophy of the Three Act Task as well as answers questions from classroom teachers can be found at: [dy/dan](#).
- You can find an Excel spreadsheet of Three Act Tasks created or inspired by Dan Meyer can be found [here](#). It includes over 70 lessons you can access from the spreadsheet. Most of the tasks do not include fully fleshed out lessons. That is the goal of the Teacher Notes and Student Handouts that I have created and posted on the AMP Network for your use.

Overview of Lesson:

The question is simple: When should you start bombarding the App Store with purchases if you want to win a \$10,000 App Store Gift card? The lesson hooks students immediately with the initial video clip of a "live" counter of current downloads showing the number approaching 25,000,000,000.

This lesson includes the following documents (find on the AMP Network or on the Dan Meyer website):

- App Store timer
- February 2012
- Timezone
- Answer
- Student Activity
- Instructor Notes

Common Core Standard(s) Addressed:

CCSS.MATH.CONTENT.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.

Student Activity Guide
By Shannon Bishop and Trey Cox

****Watch Dan Meyer Video Clip: [25 Billionth App](#) ****

- 1) When should we start bombing the app store in order to try and win the \$10,000 prize?
 - a. Write down an estimated time in terms of days/hours/minutes/etc. that you know to be too low (soon). How are you confident it's too soon?

Try to encourage the students to not wildly guess like July 4th, 1776 but a reasonable and yet too low of an estimate.

- b. Write down an estimated time in terms of days/hours/minutes/etc. that you know to be too high (late). How are you confident it's too late?

Try to encourage the students to not wildly guess like September 14th, 2075 but a reasonable and yet too high of an estimate.

- 2) What information would be useful to know here in order to help you solve this problem?

Let the students brainstorm and share ideas. The most useful information will be:

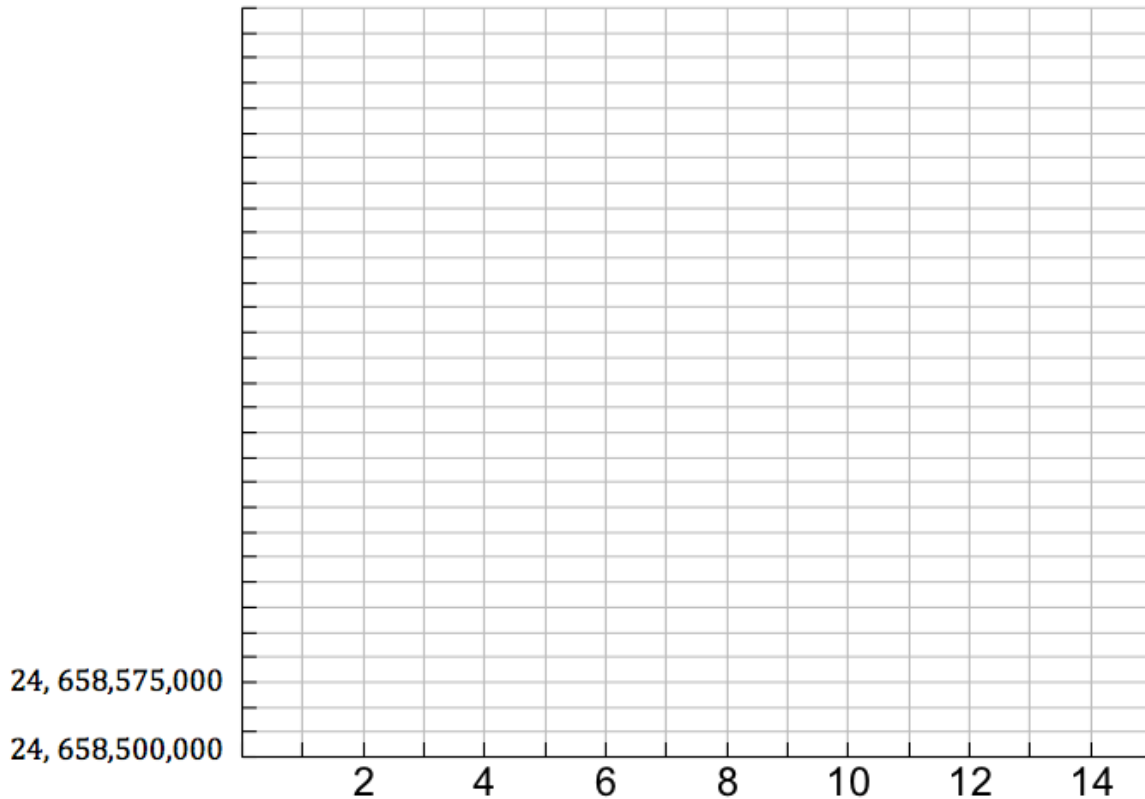
- *video over a longer period of time so they can collect more data,*
- *the ability to slow it down. For example, a minute-by-minute count (see App Store Timer document),*
- *the month and day the video was shot, (see Feb 2012 document)*
- *the time zone (Eastern, Central, Mountain, etc.) the problem is framed in. (see timezone document)*

Ask, and you shall receive! (For the most part ;))

At this time you can provide any or all of the above bulleted items. They are provided on the AMP Network for you to give students.

- 3) Use the data given to create a scatter plot for the situation. Make each unit on the dependent axis units of 25,000.

Answers vary to this graph depending on what data students choose to use.



- 4) Describe your “plan” as to how you are going to answer the question “when should you start bombing the app store in order to be the 25,000,000,000th buyer?”

A possible answer to this would be to collect different times and amounts of data to estimate the rate at which the downloads are changing. This can then be used to build a linear model (because the rate of change is constant) and predict when the downloads hit 25,000,000,000.

5) Execute your plan! Be ready to share with the class!!!!

Answers vary but most likely their approach will be to create a linear model.

At an appropriate time, you can share with them the “answer” which is provided in the AMP materials.

6) What assumptions have you made in your model/plan?

- *There is a constant rate of change*

7) Interpret the units each step along the way in your solving process.

- *The units for the independent variable will be minutes, the dependent variable will be measured in the number of downloads, and the rate of change is downloads/minute.*

8) According to your model/plan, when did the app store sell its first app? Calculate the answer mathematically, then find the actual answer (google). If the answers are different, what could explain the difference?

Using the linear model they create predict when the output is 1 by solving for time.