***Coin Counting***

By Dan Meyer

<http://www.101qs.com/3199-coin-counting>

**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](https://www.youtube.com/watch?v=8OHvrNAfURw) .
* 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](http://blog.mrmeyer.com/2013/teaching-with-three-act-tasks-act-one/).
* You can find an Excel spreadsheet of Three Act Tasks created or inspired by Dan Meyer can be found [here](http://www.livebinders.com/play/play_or_edit?id=330579) . 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: How much money is being deposited into the coin counting machine? The lesson hooks students immediately with the initial video clip of a “bunch” of coins are being dropped into a coin counting machine and beginning to be counted.

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

* Pennies act 1
* Pennies act 3 - Answer
* Student Activity
* Instructor Notes

**Common Core Standard(s) Addressed:**

[CCSS.MATH.CONTENT.8.EE.C.8](http://www.corestandards.org/Math/Content/8/EE/C/8/)

Analyze and solve pairs of simultaneous linear equations.

[CCSS.MATH.CONTENT.8.EE.C.8.A](http://www.corestandards.org/Math/Content/8/EE/C/8/a/)

Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

[CCSS.MATH.CONTENT.8.EE.C.8.B](http://www.corestandards.org/Math/Content/8/EE/C/8/b/)

Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

[CCSS.MATH.CONTENT.8.EE.C.8.C](http://www.corestandards.org/Math/Content/8/EE/C/8/c/)

Solve real-world and mathematical problems leading to two linear equations in two variables.

**Student Activity Guide**

By Trey Cox

\*\*Watch Dan Meyer Video Clip: Pennies – Act 1\*\*

1. How many coins were there?
   1. Write down an estimated amount that you know to be too low (small). How are you confident it’s too small?

*Try to encourage the students to not wildly guess like 10 but a reasonable and yet too low of an estimate.*

* 1. Write down an estimated amount that you know to be too high (large). How are you confident it’s too large?

*Try to encourage the students to not wildly guess like 5,000 but a reasonable and yet too high of an estimate.*

* 1. Write down your best guess to answer the question.

*Ask them to figure out possible solutions. This may involve a lot of guessing and checking. If so, you should feel free to lead them towards how mathematicians solve similar problems quickly using systems of equations, with no guess-and-checking at all.*

Act II –

1. 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:*

* *What type of coins were there?*
* *How many total coins were there?*
* *How much money was it worth?*

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

*TEACHER NOTE - Here's the plan. Release a single piece of information, and then ask them to figure out possible solutions. Then release the next piece of information. They are provided on the AMP Network for you to give students.*

Fact #1: There were only pennies and quarters.

Fact #2: There are 1,400 coins.

Fact #3: The cash is worth $62.00.

Act III - Play VIDEO - Answer - pennies-act3-1080p.mov found at <http://www.101qs.com/3199-coin-counting>