

Toothpick Factory Launch

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Many of my students are in families who work in factories or related production facilities. To launch the toothpick factory, I first ask students to write responses on small whiteboards to three formative assessment questions. The questions are:

1. Name two measures of central tendency. What do these measures tell us?
2. Name two measures of consistency or spread of data. What do these measures tell us?
3. How are measures of center different than measures of spread or consistency?

Student responses provide a quick snapshot of where they are at in their thinking about center and variability. And their responses can later be related to the data produced by the Toothpick Factory. Often, I find a minority of students who are not sure about distinctions between measures of center and of variability. They often suggest the mean as adequate for both, because they focus on the center clump as the region of interest in the measurement data. This is a good instinct that I try to build upon with the production process activities in Unit 4 (toothpick factory, rate walk, speed limit).

To launch the toothpick factory, I set the stage by asking them about what they know about factories. I ask questions like:

1. Who has been in a factory? What kind?
2. What type of things do they make in factories?
3. Is it important for the product to be consistently made? Why?
4. What would happen if the company was not precise or consistent when making...

I go on to ask them if they see any problems with factories that do not produce consistent quality goods. Some examples that students can relate to include:

- Tires, axles, candy (I refer to the M&M fair-sharing example from Unit 2, when students discovered variability in the number of candies in each package. See also Candy Factory in the Teacher Corner)

With this background, I go on to show them a short video of toothpick manufacturing suggested by Natosha West (Huntsville Schools) found at http://youtu.be/rP_7FIpPFEQ

Then I assign roles as described for the toothpick factory activity in Unit 4.