

Perfect Rulers

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Access this presentation at: <http://tinyurl.com/mathfestperfectrulers>

Columbus Math Teachers' Circle

Started in 2013 by Chris Bolognese, Sean Corey, Lauren Litts, and Dr. Bart Snapp (Ohio State)

Meet monthly at various local schools - open to all

Hosting 3rd “Summer Immersion” Workshop

August 9 & 10 at PAST Innovation Lab (1003 Kinnear Road)

Join us!!!

<http://tinyurl.com/cbusmtc2016>

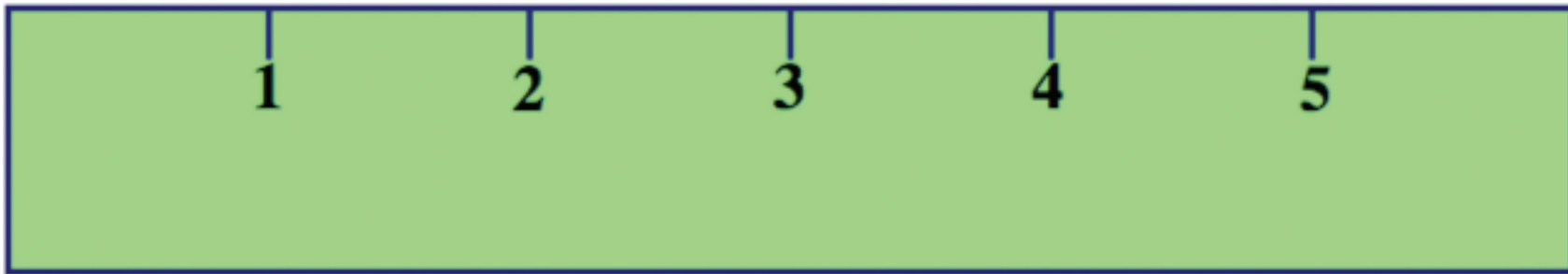
**Columbus Math
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Explore, Collaborate, Learn

Description of setting

Below is a 6" ruler. What is the least number of these marks needed so you can still measure all integer lengths from 1 to 6 inches?



Note: You can only use the ruler once to measure an object. That is, you cannot repeatedly move it along the object.

Problem Posing

Now that we have solved our initial problem, what additional questions can you pose about this setting?

Level 1	A question in which you already know the answer.
Level 2	A question in which you do not know the answer, but have a strategy that you feel will work.
Level 3	A question in which a strategy of solving is not known to you.

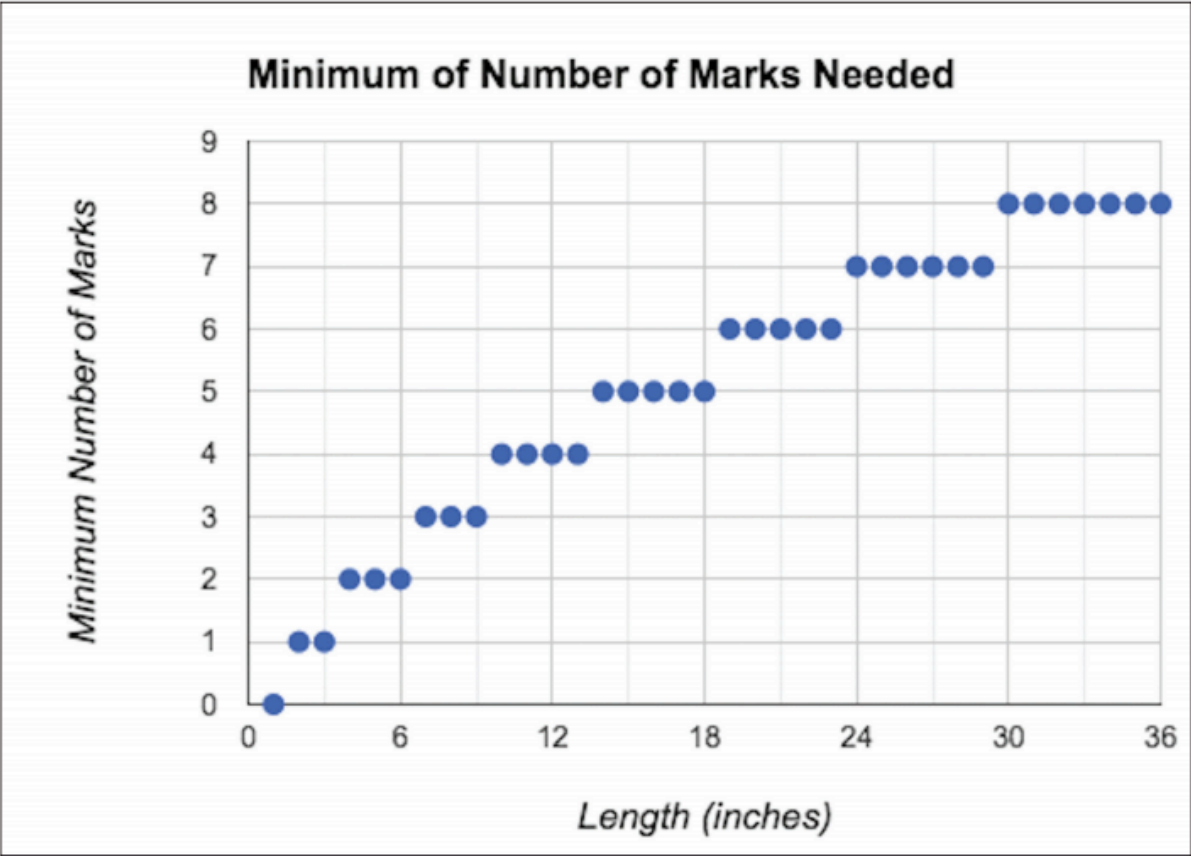
Delving Deeper: JavaScript Code



The image shows a web-based ruler application interface. At the top, there is an empty input field, a blue button labeled "Set Ruler Length", and a green button labeled "Reset Ruler". Below these is a horizontal ruler with 13 segments, numbered 0 to 12. The segments for 0 and 12 are black, while the others are light gray. Below the ruler, there are three status bars: "Marks Used: 0", "Measurable Lengths: 12", and "Missing Lengths: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11".

<http://gadgets.mathplusacademy.com/ruler/ruler.html>

Delving Deeper: A plot from `Ruby` code



Conclusion

This problem embodies what we feel makes a good problem to explore in a circle:

- Easy to understand - low barrier of entry
- Opportunities for initial success to promote engagement
- “Open middle” for creativity for multiple strategies and tools
- Encourages collaboration and discussion
- Easily extendable to “what if” and “what if not” questions

To access more about this problem, please visit:

<http://www.mathteacherscircle.org/assets/legacy/newsletter/MTCircularSA2015.pdf>