

LEADING MATH II

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My dilemma

- Many of you made suggestions.
- If I took them all, we would be together for a minimum of 3 months, not 1 hour, so....

What came up most

- The three-part lesson
- Consolidation
- Assessment of learning

So I decided

- I could not also get in assessment, but can talk about the three-part lesson and consolidation.

The three-part lesson

- A learning goal focused on an idea or a process and not a skill. E.g.
- I can explain how many measurements you need to figure out the area of a triangle, which ones, and why.
- I can estimate answers to addition problems without actually doing the problem.
- I can continue any pattern in more than one way.

The three-part lesson

- A main activity that will help lead to that idea/process
- by using consolidation questions that focus on that idea or process
- At the beginning, an appropriate lead-in

The main part

- Might be what is called open-ended or open middle
- Open middle assumes we are open to all strategies

What might it look like?

- Grade 4 example

Bc

CURRICULUM

NUMBER SENSE AND NUMERATION

ers

QUANTITY RELATIONSHIPS

4m12 Represent [, compare, and order] whole numbers to 10 000, using a variety of tools.

4m13 Demonstrate an understanding of place value in whole numbers [and decimal numbers from 0.1] to 10 000, using a variety of tools and strategies.

4m14 Read and print in words whole numbers to one thousand, using meaningful contexts.

One way I can represent numbers less than 1000 is to write them in words.

- Look through flyers or catalogues, or go online.

Find five items that cost between \$10 and \$1000.

- Ignore any tax and the cent amount.
Write a cheque that you could use to buy each item.

_____	123
_____	DATE _____

PAY to _____	\$ _____
_____	DOLLARS
MONEY BANK	
2000 Bank St., Somewhere, ON	
Memo _____	_____
123 10200 010 0012345678	

Consolidate

1. Why do you think a cheque includes the amount in both standard form and in words?

Consolidate

2. a) List several amounts that include the word “hundred.”

Write each in standard form.

b) What did you notice about the digits?

Consolidate

- 3. a)** List several amounts that include words like “twenty,” “thirty,” or “forty.” Write each in standard form.
- b)** What do you notice about the digits?

Consolidate

- 4. a)** List several amounts that use two words.
Write each in standard form.
- b)** Explain why the numbers need only two words.

Consolidate

5. Suppose you know that a number has two or three digits.
Can you predict the number of words needed to write it in words? Explain.



When I read a number out loud, I say the words “hundred,” “sixty,” “four,” and another word.

- What could the number be?
- How do you write the number in words?
- How do you write the number in standard form?

Going back to your role as leaders

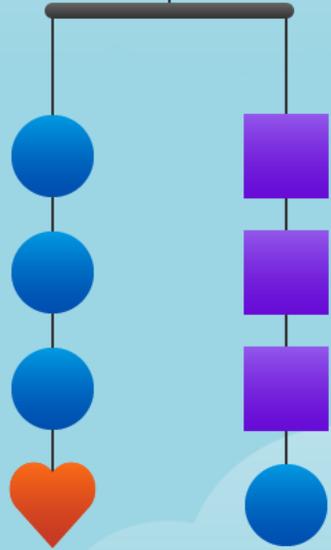
- Can your teachers go from curriculum expectations to learning goals that are really thought through?
- If not, what can you do?

Going back to your role as leaders

- Can your teachers take the work the kids do in a main action piece and focus on the consolidation on an important learning goal/the important math?
- For example, a teacher finds an interesting problem that s/he hears a good one to use and uses it.

It might be

From <https://solveme.edc.org/Mobiles.html>



 = 1

 =

 =

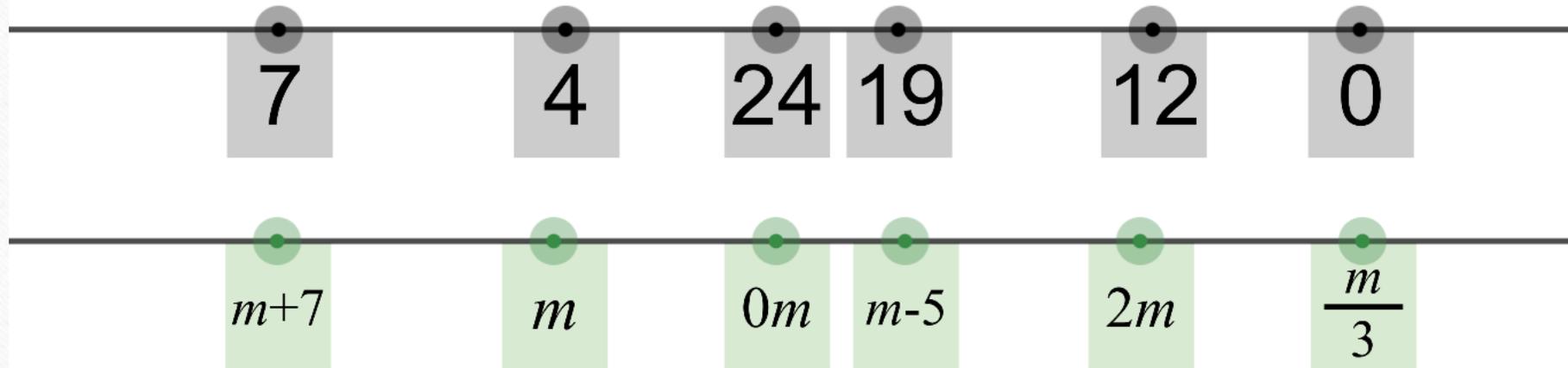
So what do you ask

- Other than what the values could be
- It could be that you ask:
- Could the values be big or do they have to be little?
- Would you predict the purple square or blue circle is worth more? Why?
- Can circle be 1?
- If circle is 2, could the square be worth a whole number?

OR A clothesline activity

- Let's see one in action:
- <http://www.estimated180.com/clothesline.html>

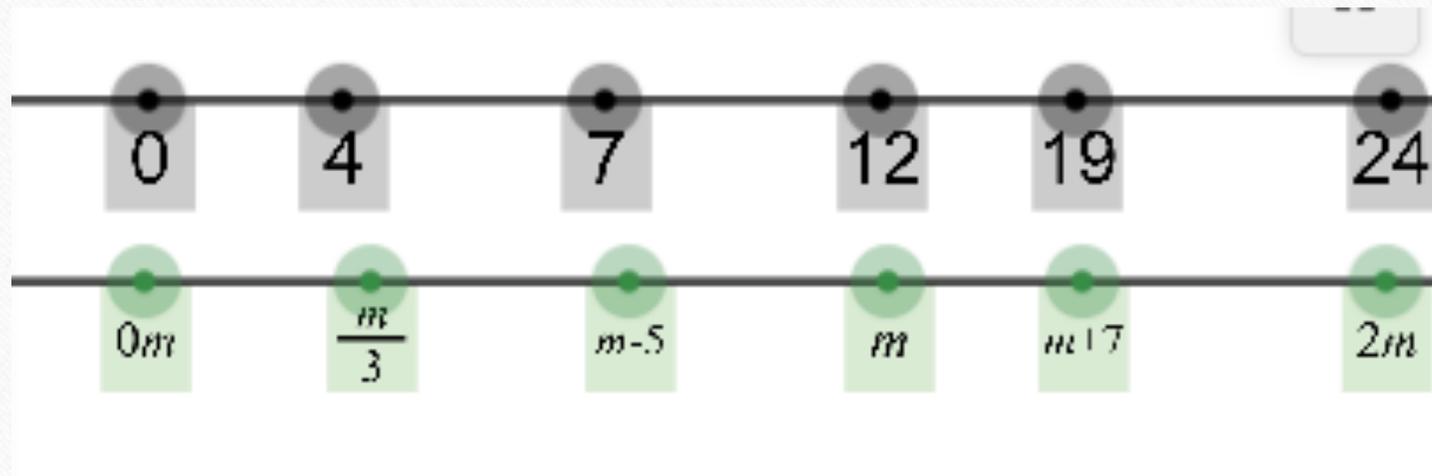
How it starts



What I did

- <https://www.desmos.com/calculator/dcmyqwksvg>

How it ends



What I ask

- You knew the right order for the numbers, of course.
- So why did you not just move the guy under the number and be done with it?

0

4

7

12

19

24

$\frac{m}{3}$

m

$m+7$

$2m$

$m-5$

$0m$

More consolidation

- Which of the expressions could you link with a number right away?
- How did you know m had to be greater than 0?
- Which expression were you sure was less than m (of $m-5$, $m/3$, $m+7$, $2m$)?
- Did you know which came first? Explain.

More consolidation

- $m, m-5, m/3, m+7, 2m$)?
- 0, 4, 7, 12, 19, 24
- How did looking at the numbers help you decide who m had to be?

Setting lessons up like this needs ...

- Lots of attention
- Lots of collaboration
- Lots of practice

Followed by

- Tasks that kids do and that teachers analyze together, whether live or on video or sometimes written work

I'll leave these with you to possibly discuss with your staff

- If your teachers (in many grades) asked kids to do one of the tasks that follow, what would you be looking for when you looked at student work (make a list) and how should the teachers consolidate?
- In the course of doing this, you need to be thinking about what the point of the activity is (since I didn't already tell you).

Primary

- You only have bags of 3 counters or 7 counters, as many of each as you want. You can't open them to get the counters out.
- List as many numbers as you can that you can show with your bags.
- List as many numbers as you can that you cannot show.
- [By the way: some cans: 3, 6, 7, 10, 13, 14,...
- Some cant's: 1, 2, 4, 5, 8, 11]

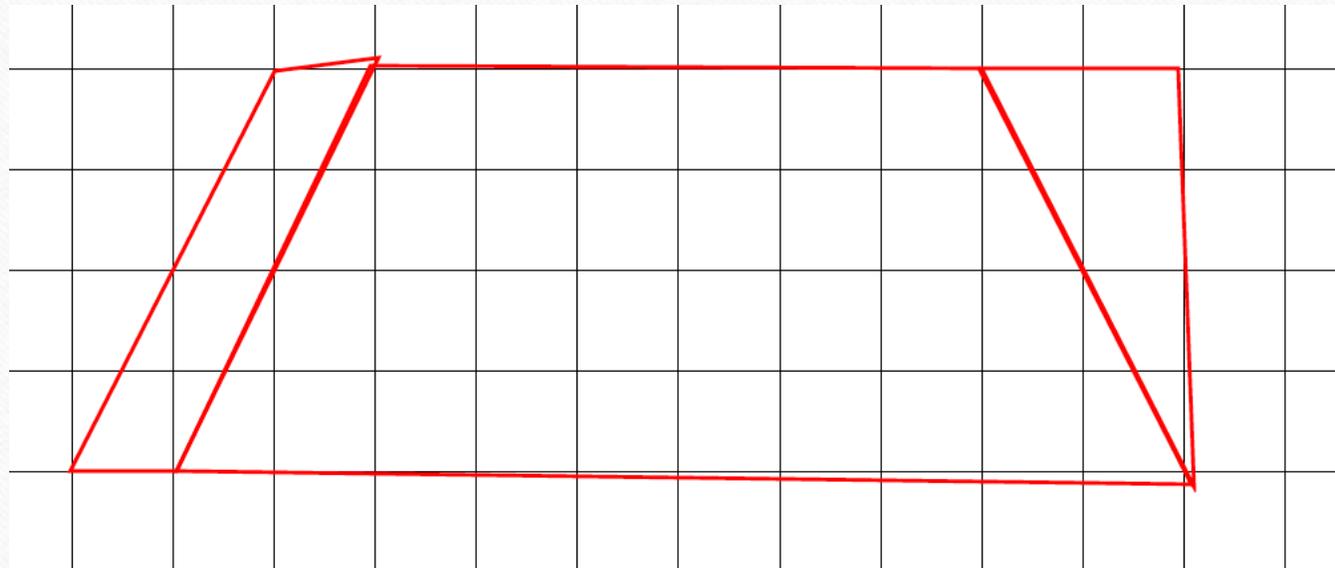
Junior

- The perimeter value for a rectangle (in cm) is 4 more than the area value (in square centimetres). What could the rectangle be?
- [By the way, solutions include 4×2 , 5×2 , 17×2 .]

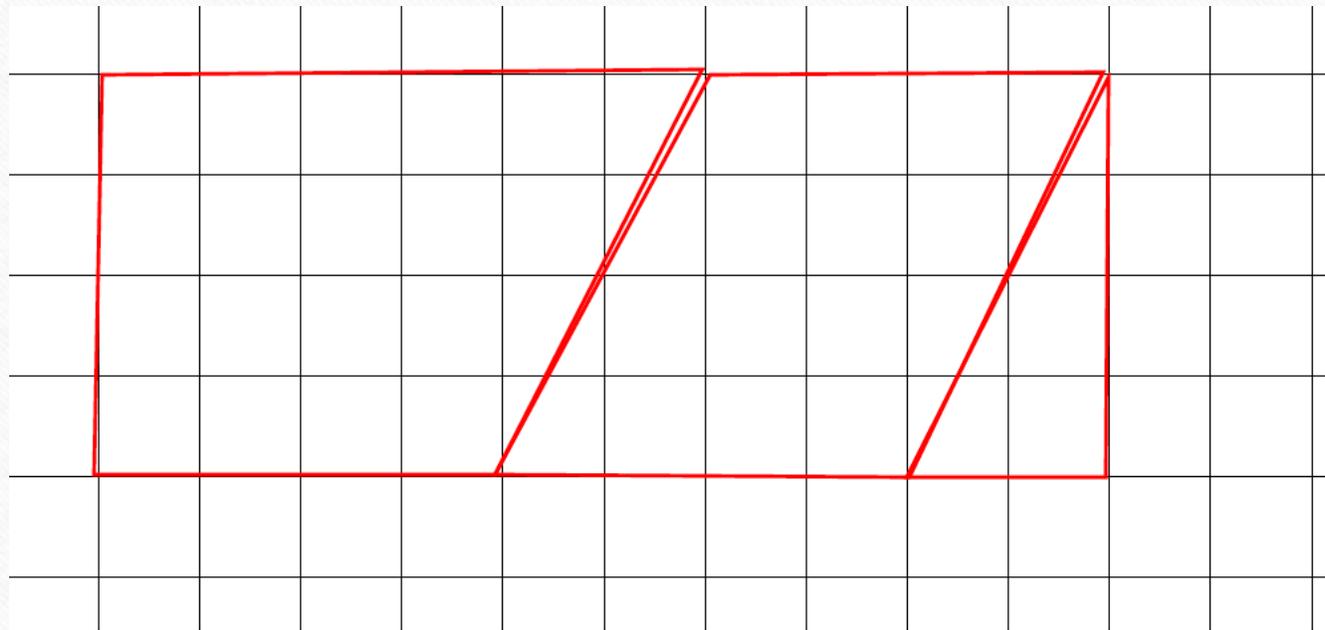
Intermediate

- A larger shape is made by putting together a trapezoid, a parallelogram and a triangle.
- The total area is 40 cm^2 . What could the shape look like and what might its dimensions be?

Possible solution



Possible solution



You will need to...

- Let me know how this task goes for you.
- Let me know where you want us to focus next time.

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