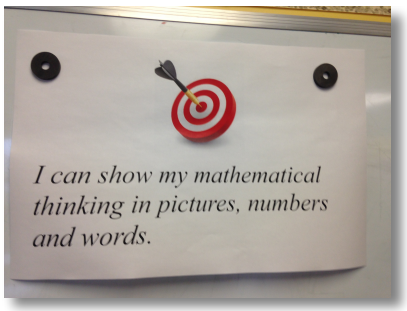
Title: 43 Chicken Nuggets link: https://www.youtube.com/watch?v=vNTSugyS038

Big Idea: Development of computational fluency and multiplicative thinking requires analysis of patterns and relations with whole number.

Curricular Competencies:

- *developing mental math strategies and abilities to make sense of quantities*
- *visualizing to explore mathematical concepts*
- *developing and using multiple strategies to engage in problem solving*
- *explaining and justifying mathematical ideas and decisions*
- *representing mathematical ideas in concrete, pictorial and symbolic form*



ACT ONE: (share first 0:27 seconds)

Establishing a Need to Know**:** watch the first 27 seconds of the clip. After viewing the short clip, invite students to consider:

What did you notice?	What do you wonder?

and jot down the ideas as students share their thinking…

Driving Question: What exact numbers of chicken nuggets can you buy? What are some exact numbers of chicken nuggets you cannot buy?

Estimating: Apparently exactly 43 chicken nuggets is the highest number you cannot make using the standard packs that McDonalds uses…

How many other numbers of McNuggets are impossible?	How many other numbers of McNuggets could be possible?

What information would be helpful to know for solving this investigation?

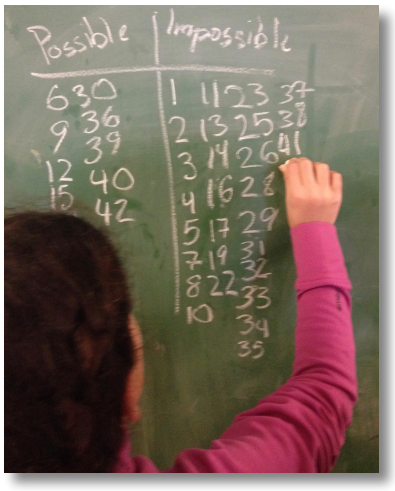
ACT TWO: (share 0:28 - 0:41 seconds of clip)

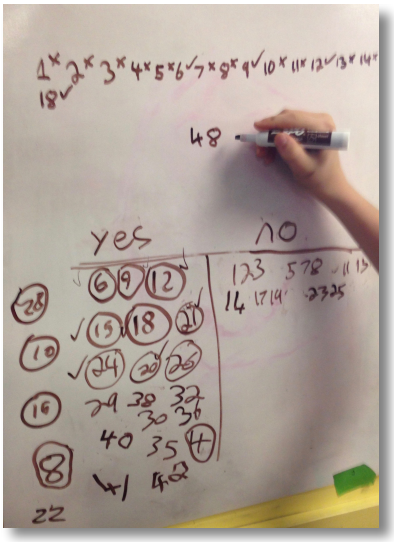
Thinking Classroom Routines: Students will now work in visibly random teams of three to solve the investigation using one dry erase marker, one eraser and a large vertical non-permanent surface.

Students might discover that there are many impossible numbers (eg. 1, 2, 3, 4, 5, 7, 8, 10, 11, 13, 14,16, 17, 21, 22, 23…..)

Then any number greater than these is possible by simple adding 6 to each of the representations of 44-49 to get 50-55, 6 more to get 56-61, and so forth…

44 as 20+6+6+6+6
45 as 9+9+9+9+9
46 as 20+20+6
47 as 20+9+9+9
48 as 6+6+6+6+6+6+6+6, and
49 as 20+20++9





ACT THREE: (share video clip from 0:41 seconds to 2:57)

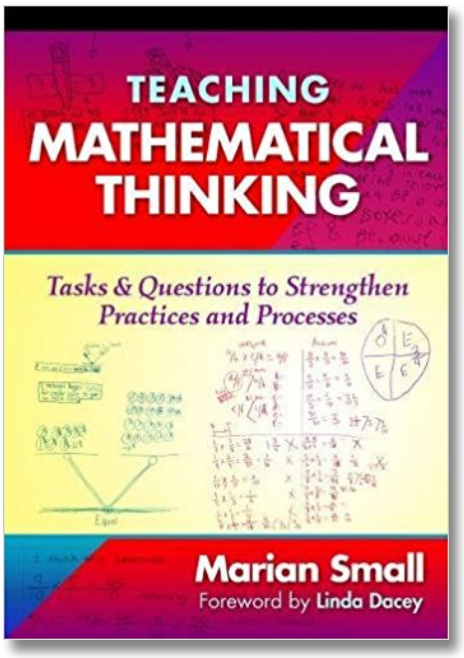
Students explore the clip to confirm their thinking. But wait, there's more! What if chicken nuggets are available in packs of 4.

Invite students to return to their stand-up think boards and identify (cross out) the numbers that are now possible because of being able to buy nuggets in packs of 4.

(share the final 3 minutes of the clip)

Whole Group reflection:
Strengths: What worked (What strategies did you use to work toward a solution)?
Stretches: What was difficult?
Next steps: What would you do differently next time?

This problem has many solutions which helps build perseverance. As well, the numbers students are adding are not intimidating.



For further explanation and elaboration with this rich problem, look to Marion Small's resource, *Teaching Mathematical Thinking: Tasks and Questions to Strengthen Practices and Processes*, pages 19-21