The Ongoing Assessment Project

OGAP

# NCTM 2019

## Beyond the Algorithm:

***Tools and Strategies for Building Fluent, Flexible Multiplicative Reasoners***

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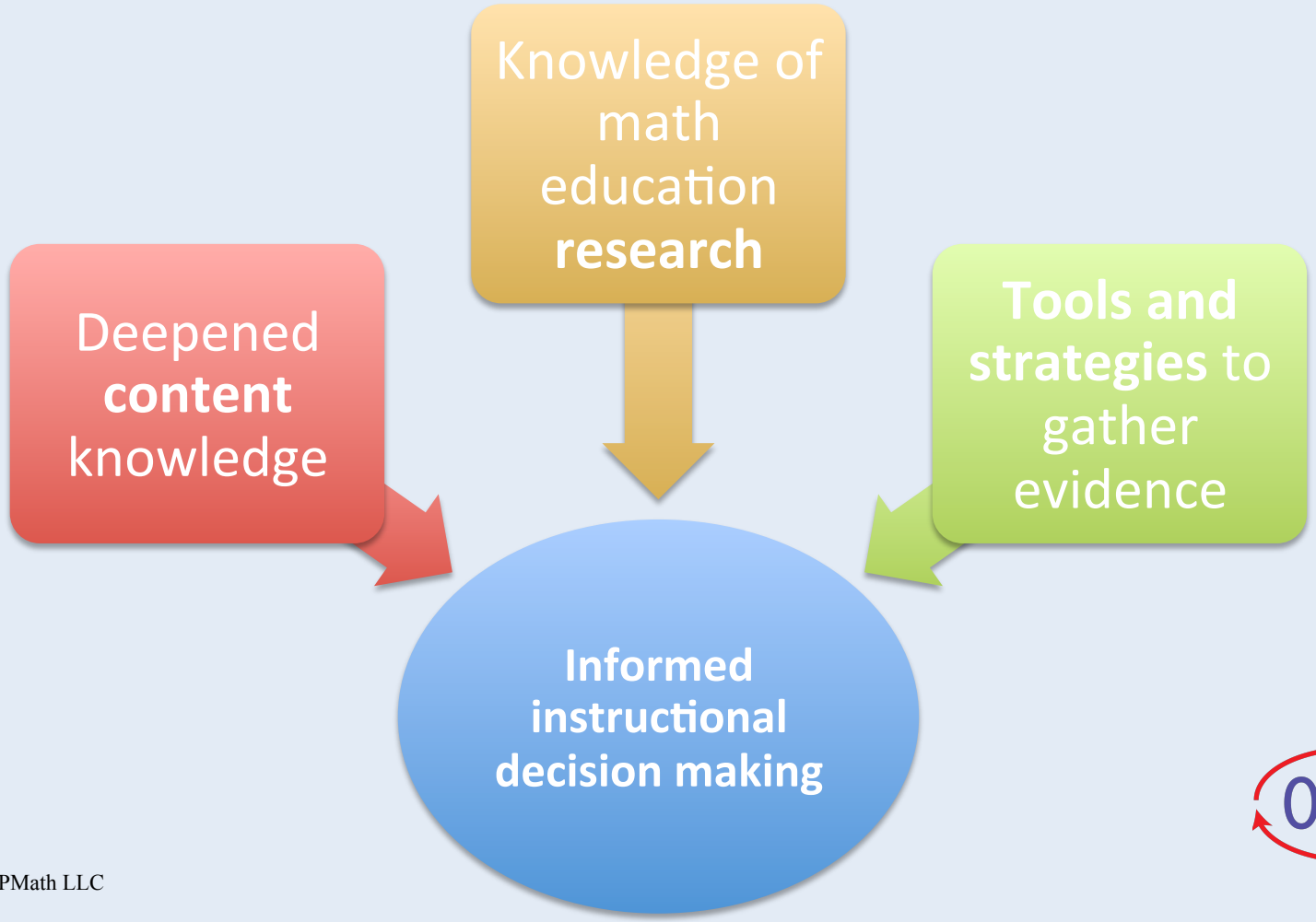
# The Ongoing Assessment Project (OGAP)

- OGAP is an intentional, systematic, and ongoing **formative assessment** system designed to gather evidence as students learn specific mathematics concepts (Additive Reasoning, Multiplicative Reasoning, Fractions, Proportions)

- OGAP is grounded in the math education research on how students learn math concepts – **Learning Progressions**

# OGAP – Knowledge-based Decision Making



# Four Principles Guide OGAP

1. Build on pre-existing knowledge

   *How People Learn, National Research Council (2000)*

2. Learn (and assess) for understanding

   *Adding it UP! National Research Council (2001)*

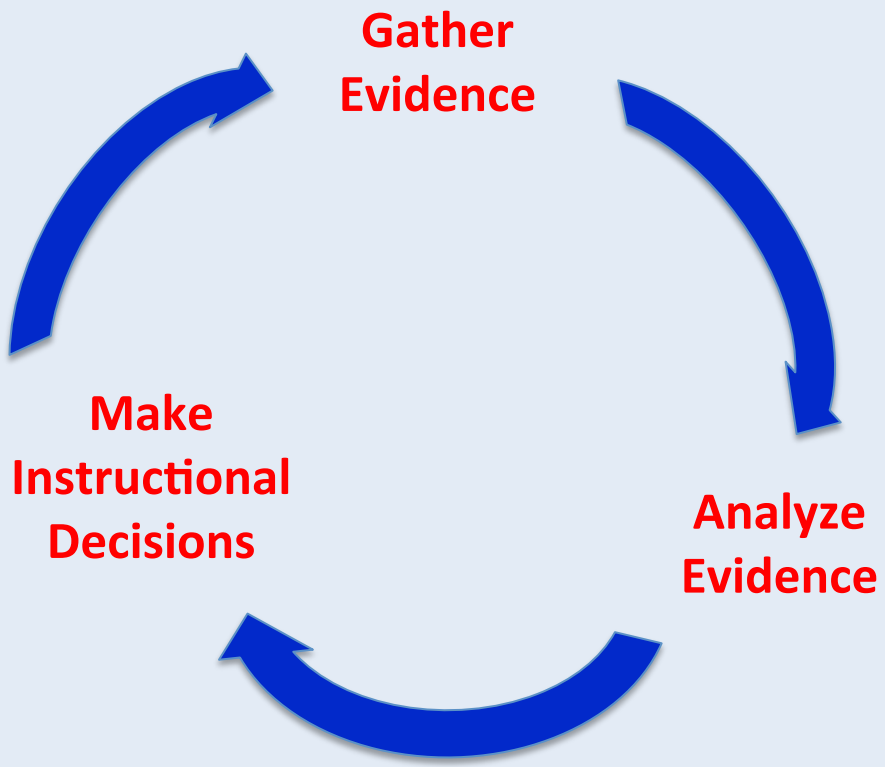
3. Use frequent formative assessment

   *NRC (2003), Black & Wiliam (1998)*

4. Build assessments on mathematics education research

   *Knowing What Students Know, National Research Council (2000)*

# OGAP Cycle



# R10 – Car Travel

**Solve this problem *two* different ways**

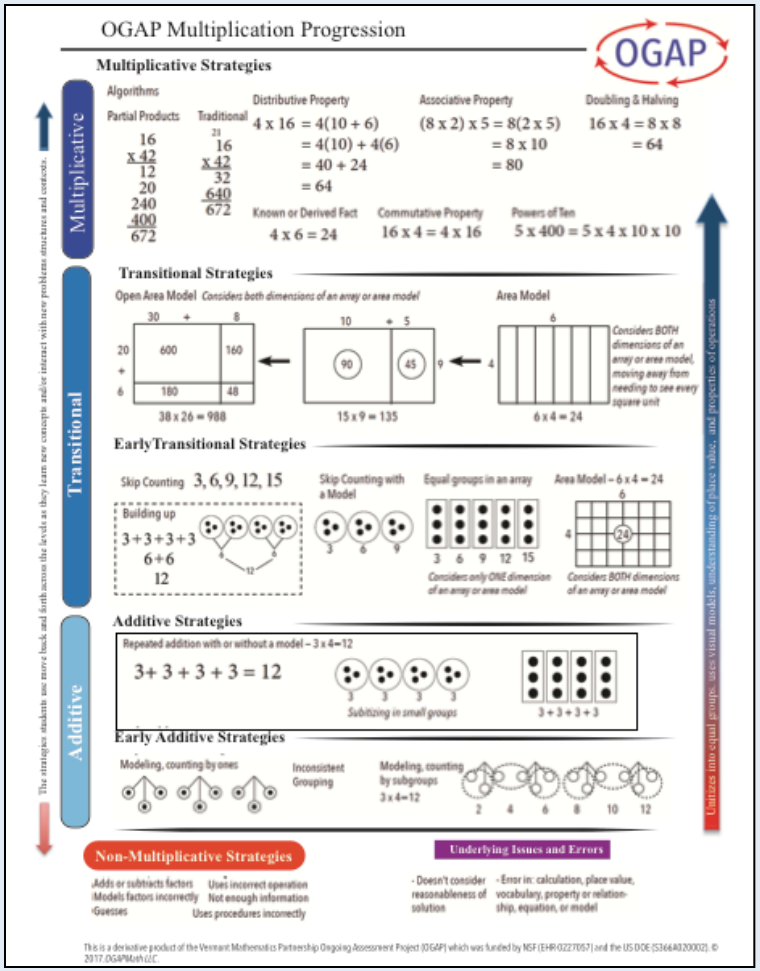
A car uses 1 gallon of gas to travel 34 miles.

How far can the car travel on 16 gallons of gas?

Show your work.

Compare your strategies with a partner.
Find your strategies on the OGAP Learning Progression.

# The OGAP Multiplicative Learning Progression




- What do you notice?
- What is unfamiliar?
- What questions do you have?

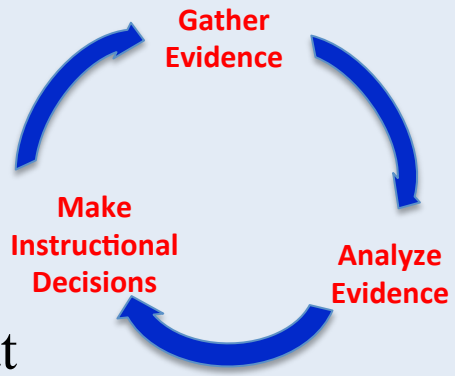
# Important Ideas About the Multiplicative Progression

1) Movement along the Progressions is not linear
2) Students' strategies will be at different levels
3) The Progressions provide instructional guidance
4) The Progressions are not evaluative (not for grading)
5) Collection of underlying issues/errors is important

# Examining Student Work

1. Spread out all of the work

2. Sort the student solutions by strategy
   - Pay attention to the mathematics they are using
   - You may mark right and wrong but don't sort that way




3. How could you describe the 'piles' you have created? What do they all have in common?
   - Put a sticky note on your piles that describes the students' strategy

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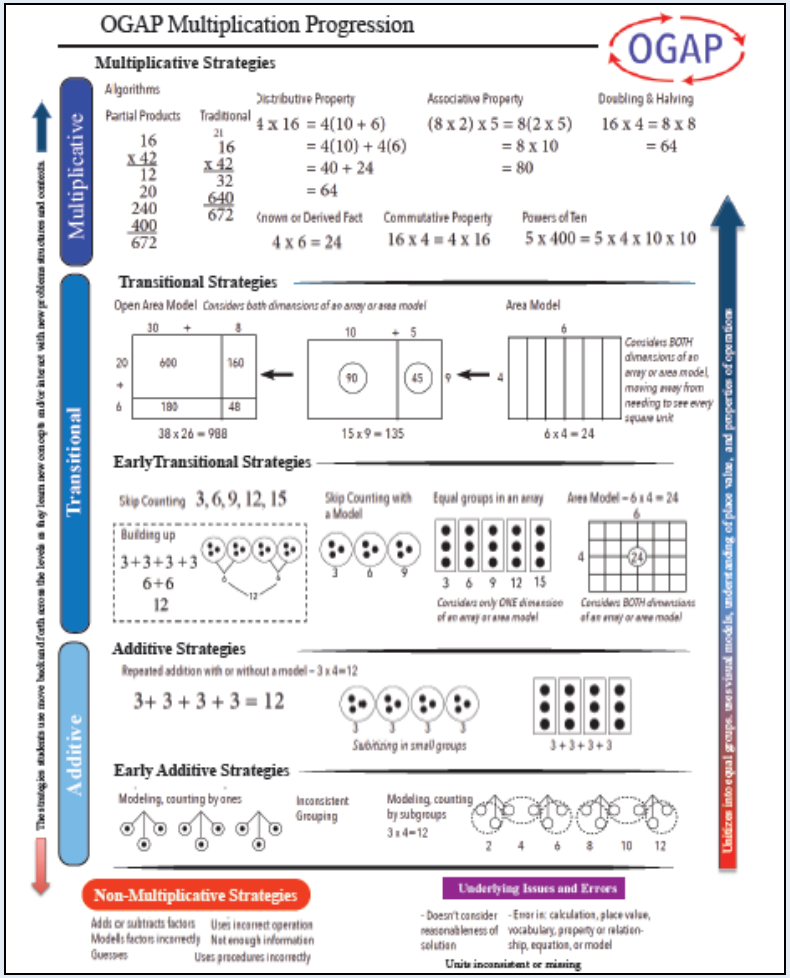
# Examining Student Work

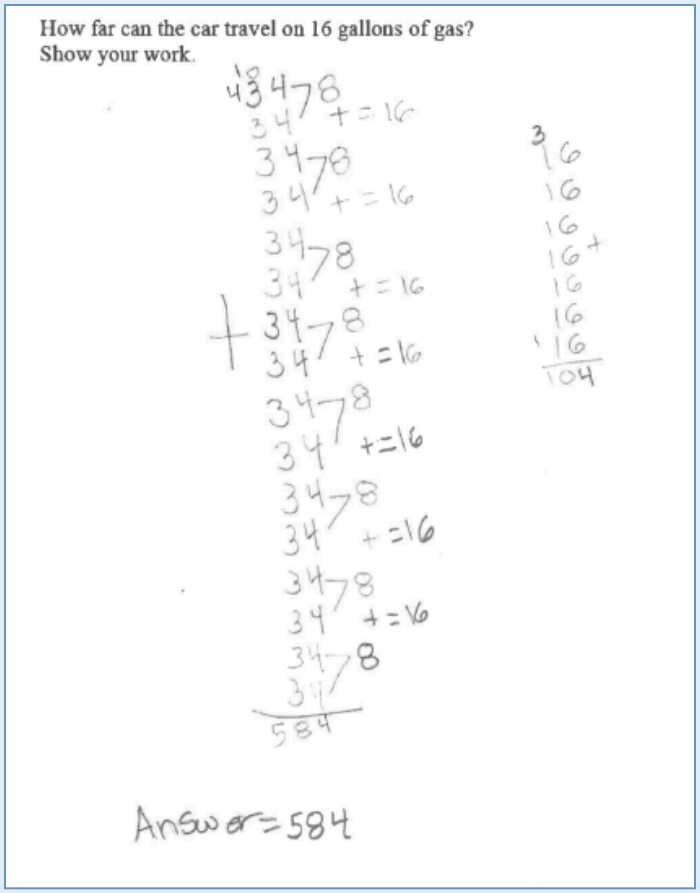
Analyze each pile of student work. Where do you see the evidence of understanding on the Learning Progression?



# Questions to Answer After Analyzing Student Work

- What's the good news? What is the evidence of developing understanding that can be built upon?
- What are issues or concerns that are evidenced in student work?
- What are possible next instructional steps based on that evidence?

# A Possible Next Instructional Step: Student 6


How far can the car travel on 16 gallons of gas?
Show your work.

Answer = 584

Based on the OGAP MR Learning Progression –

- What might be a next instructional step for this student?
- Hint – it is *not* to teach the US algorithm

# A Possible Next Instructional Step: Select and Sequence

- Select two pieces of student work the teacher could display in front of the class
- How might discussing the similarities and differences between the solutions help move students' mathematical understandings forward?

# Parting Thoughts

Write on an index card……

- How did sorting and analyzing student work help deepen your understanding of using formative assessment to drive instruction?
- What is a big idea that you are thinking about?

Turn and Talk with a partner.

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# THANK YOU!

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