

June 19, 2014



Transforming Mathematics Education

Flexible & Engaging
Seamless Common Core Companion

Please go to the MVP website!
Use computer, phone or tablet

www.mathematicsvisionproject.org

Resources and Information

Past Presentations

Monterey Math 2:

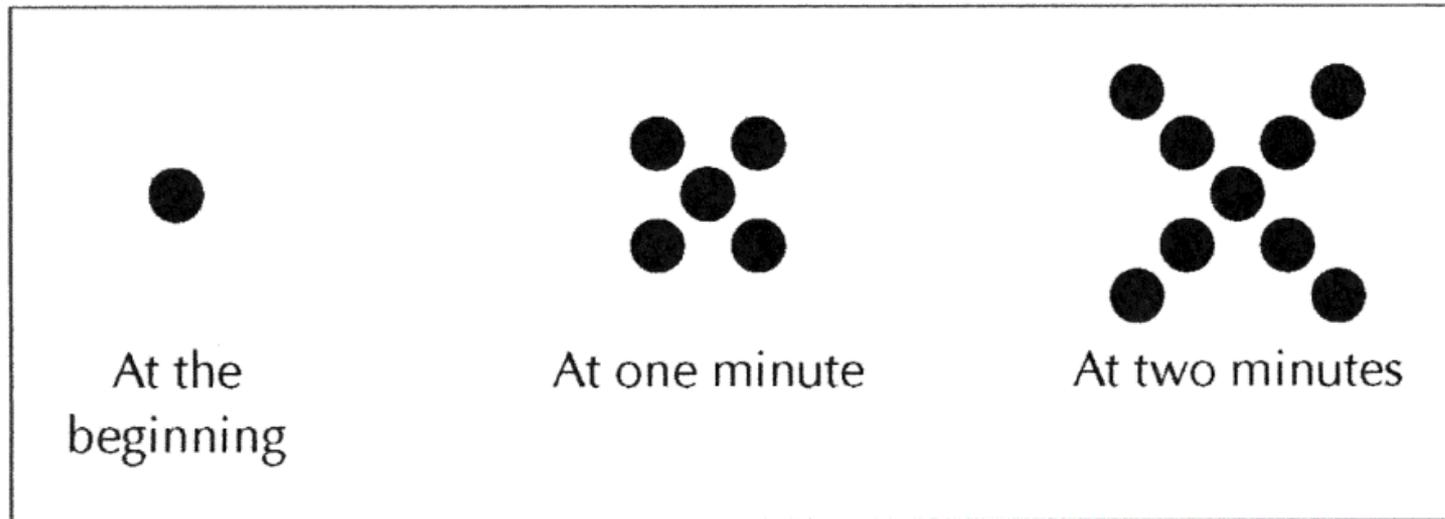
Formative Assessment

Activating Your Schema

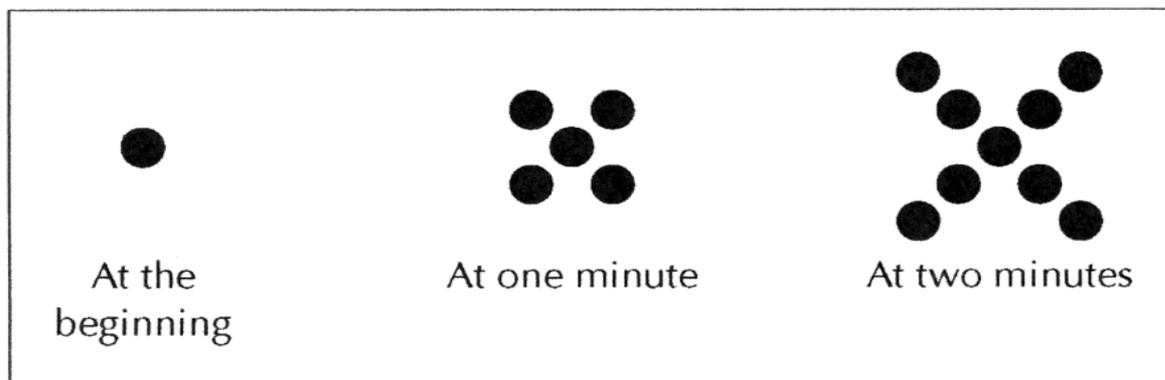
Quiet Write:

Functions content from Secondary Math I

Growing Dots



Growing Dots

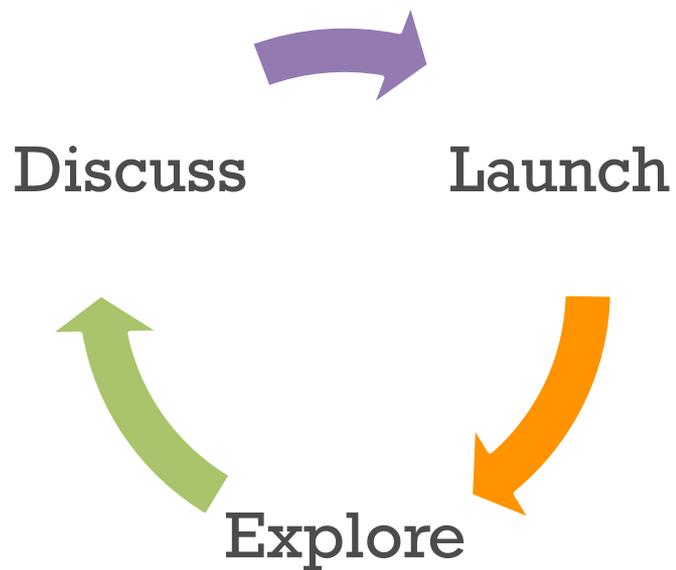


- Describe the pattern that you see in the sequence of figures above.
- Assuming the sequence continues in the same way, how many dots are there at 3 minutes?
- How many dots are there at 100 minutes?
- How many dots are there at t minutes?
- Solve the problems by your preferred method. Your solution should indicate how many dots will be in the pattern at 3 minutes, 100 minutes, and t minutes. Be sure to show how your solution relates to the picture and how you arrived at your solution.

Video

- Math Content
- Teacher Moves

The Teaching Cycle



The *Teaching Cycle*: Launch

How will you . . .

- hook and motivate students;
- provide schema (the problem setting, the mathematical context, and the challenge) for the mathematical task;
- provide tools, information, vocabulary, conventions and notations, as necessary; and
- describe what the expectations are for the finished task without giving away too much of the problem and leaving the potential of the task intact?

The *Teaching Cycle*: Explore

- How will you organize and encourage students to explore, investigate, experiment, look for patterns, make conjectures, collect and record data, participate in group discussions, and revisit and revise their thinking relative to the mathematical ideas intended to be elicited by the task?
- What will you look for and listen for as you observe students?
- What will you accept as evidence of student understanding?
- What questions will you ask to stimulate, redirect, focus, and extend the students' mathematical thinking?

The *Teaching Cycle*: Discuss

- How will you select which students will present and discuss their solutions and strategies?
- How will you determine what ideas to pursue in depth and what to defer for another time?
- How will you decide whether to contribute to the discourse by providing additional information (e.g., vocabulary, conventions, notation), suggesting other models, demonstrating alternative strategies, clarifying difficult issues; or to allow students to continue to struggle to make sense of an idea or concept?

Math 1 : Module 3 Overview

- Learning Cycles and Progressions

Arithmetic and Geometric Sequences: Thinking Through the Unit

Learning Cycle #1: Introducing Arithmetic and Geometric Sequences

- **Growing Dots**

(*Develop* initial ideas and strategies for representing arithmetic sequences with equations, tables, graphs, and story contexts)

- **Growing, Growing Dots**

(*Develop* initial ideas and strategies for representing geometric sequences with equations, tables, graphs, and story contexts)

- **Scott's Workout**

(*Solidify* concepts about arithmetic sequences by examining the constant differences between consecutive terms)

- **Don't Break the Chain**

(*Solidify* concepts about geometric sequences by examining the constant ratios between consecutive terms)

Math 1 : Module 3 Overview

- Learning Cycles and Progressions

Learning Cycle #2: Arithmetic and Geometric Sequences as Functions

- **Something to Chew On**

(*Solidify* that arithmetic sequences are discrete functions that increase or decrease at a constant rate)

- **Chew on This**

(*Solidify* the difference between arithmetic and geometric sequences by comparing their rates of growth)

- **What Comes Next? What Comes Later?**

(*Solidify* ways of representing arithmetic and geometric sequences using recursive and explicit equations)

Math 1 : Module 3 Overview

- Learning Cycles and Progressions

Learning Cycle #3: Using Rates of Growth to find missing terms in Arithmetic and Geometric Sequences

- **What Does it Mean?**

(*Solidify* how using rate of change can be used to find missing terms in an arithmetic sequence)

- **Geometric Meanies**

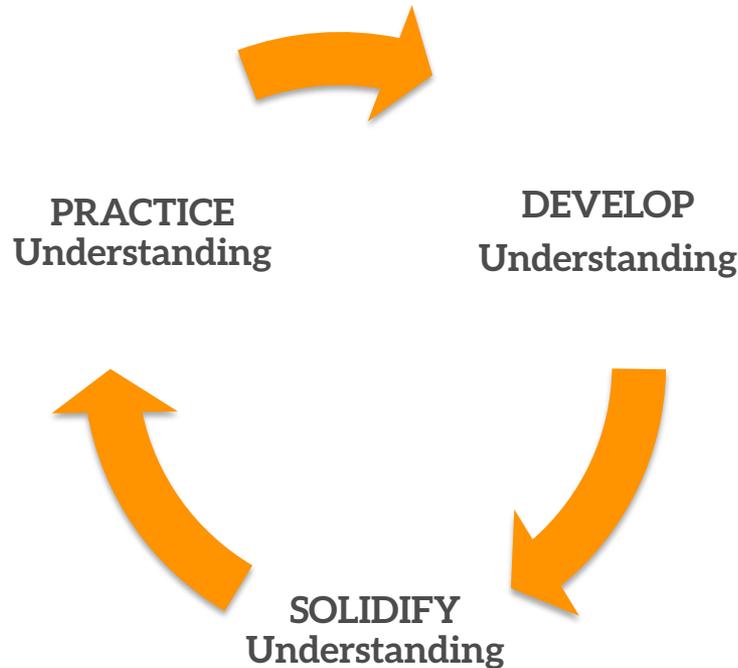
(*Solidify* how using rate of change can be used to find missing terms in a geometric sequence)

- **I Know . . . What Do You Know?**

(*Practice* fluency with geometric and arithmetic sequences)

Task Sequencing

Comprehensive Mathematics Instruction Framework



- *Develop Understanding* tasks surface student thinking
- *Solidify Understanding* tasks examine and extend
- *Practice Understanding* tasks build fluency

Something to Talk About

1.1 Something to Talk About

A Develop Understanding Task

Cell phones often indicate the strength of the phone's signal with a series of bars. The logo below shows how this might look for various levels of service.



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Figure 1



Figure 2



Figure 3

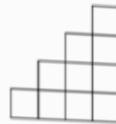


Figure 4

Module 1 : Progressions and Practices

Work the task:

- What mathematical ideas are students asked to draw upon?
- What representations were used in your group?
- What tools would be useful?

Preparing your chart paper:

- Title of task
- Main mathematical purpose or goal
- Show your work on the task including the representations you used—tables, graphs, equations, or diagrams

Thank You

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