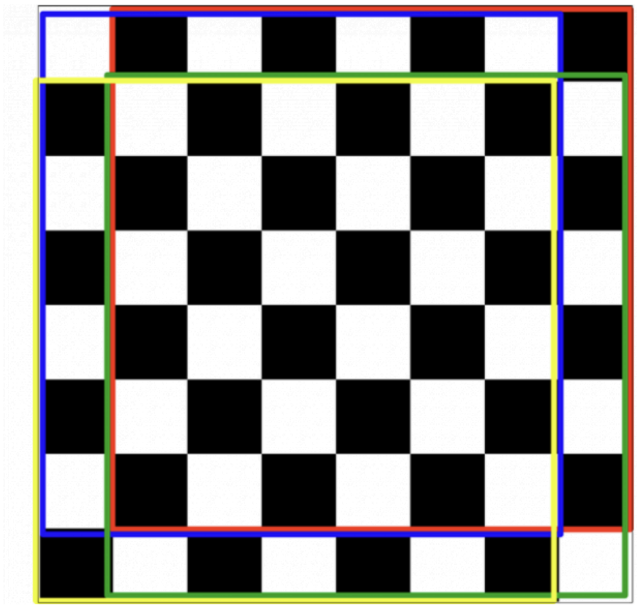
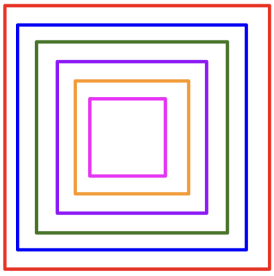
Focus on Toolkit 1

Practice 1: Tasks ● Begin the lesson (first 5 minutes) with a thinking task ● Jump right into curricular tasks to ensure that the stage for thinking is set successfully ● Script curricular tasks such that you ○ Begin by asking a question about prior knowledge ○ Then ask a question that is an extension of that prior knowledge, and ○ Then ask students to do something without telling them how	
Practice 2: Grouping (VRG) ● Strategic grouping is just as effective as random grouping ● When grouping students randomly, it must be visible to students that the method is truly random. ● In K-2 form groups of two, in grades 3-12 form groups of three ● Set up your method of randomization such that it tells students where to go and that makes students think you know what group they are in	
Practice 3: Vertical Writing Spaces (VNPS) ● Have only one marker per group and move the marker around ● Make sure to tell the students NOT to erase any of their work ● Sometimes have the rule that the person writing cannot write any of their own ideas ● Hold groups responsible for the learning of every member of the group	





Using different colors for each size of square, you can drag it around to see all of the positions of this unique area.

1x1 64 squares = 8^2
2x2 49 squares = 7^2
3x3 36 squares = 6^2
4x4 25 squares = 5^2
5x5 16 squares = 4^2
6x6 9 squares = 3^2
7x7 4 squares = 2^2
8x8 1 square = 1^2

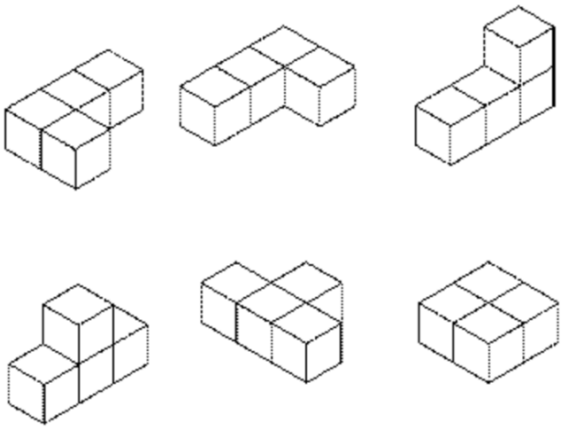
205 squares in all.

*Link to detailed explanation

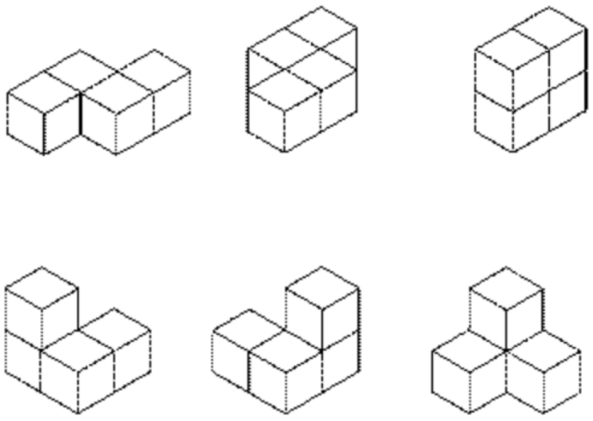
Focus on Toolkit 2

Practice 4: Defronting ● Cluster desks and tables away from the vertical surfaces. ○ Make sure to keep your room very organized to encourage risk-taking ● Position desks and tables so that chairs point in all different directions. ● Try not to stand at what used to be the front. ● Move around the room when you are talking to the students.	
Practice 5: Answering Questions ● Answer only keep-thinking questions. ● When asked a proximity or stop-thinking question that you do not want to answer, answer with a question: ○ Isn't that interesting? Can you find something else? Show me how you did that? Is that always true? Why do you think that is? Are you sure? Why don't you try something else? Why don't you try another one? Does that make sense? Are you asking me or telling me? ● When asked a proximity or stop-thinking question, smile and walk away no matter the grade level of the student. ● Talk to students about the three types of questions they ask and the types of questions you will answer AFTER you have already implemented the practice	

Practice 6: Launching ● Give the first thinking task in the first 15 minutes after you begin the lesson. ● Give the thinking task with students standing loosely clustered around you. ● Give the instructions and thinking task verbally. ● Identify and create locations in the room where there is enough space for all the students to stand. ● Try to use different locations around the room for presenting tasks. ● If new knowledge is needed to do the first task, think about what the minimum new knowledge needed is, as well as the minimum things that need to be said and written to pass on that knowledge. ● When giving a task, write on the board only the details that the students would otherwise need to remember - quantities, measurements, geometric shapes, data, etc. ● When the students have started working, ask yourself if what is written on the board would make sense to a student who comes in late.	



There are only 12 solutions.



Focus on Chapter 12:

Evaluate What You Value

- The 3 math competencies that students need to be successful as mathematicians are
  - Perseverance
  - Willingness to take risks
  - Ability to collaborate
- Make the rubrics on your own without student input
- Turn the T-charts into two or three column rubrics
  - Assess one competency at a time
  - Use an arrow instead of labels
  - Keep language to a minimum
  - Preserve student voices
  - Have no more than 5 indicators

Aspect	Not Yet Within Expectations	Meets Expectations (Minimal Level)	Fully Meets Expectations	Exceeds Expectations
Snapshot	• ***The student is unable to meet basic requirements of the task without close, ongoing assistance. Unable to provide a relevant extension.***	• ***The work satisfies most basic requirements of the task, but it is flawed or incomplete in some way. May produce a simple extension with help.***	• ***The work satisfies basic requirements. If asked, the student can produce a relevant extension or further illustration.***	• ***The work is complete, accurate, and efficient. The student may volunteer an extension, an application, or a further illustration.***
Concepts and Applications* • recognizing mathematics • grade-specific concepts, skills • patterns, relationships	• unable to identify mathematical concepts or procedures needed • does not apply relevant mathematical concepts and skills appropriately; major errors or omissions • often unable to describe patterns or relationships	• identifies most mathematical concepts and procedures needed • applies most relevant mathematical concepts and skills appropriately; some errors or omissions • may need help to describe and use patterns and relationships	• identifies mathematical concepts and procedures needed • applies mathematical concepts and skills appropriately; may be inefficient, make minor errors or omissions • describes and uses basic patterns and relationships	• identifies mathematical concepts and procedures needed; may offer alternatives • applies mathematical concepts and skills accurately and efficiently; thorough • independently describes and uses patterns and relationships
Strategies and Approaches • procedures • estimates to verify solutions	• appears unsystematic and inefficient • results or solutions are often improbable	• generally follows instructions without adjusting or checking • may need reminding to verify results or solutions; estimates are generally logical	• follows logical steps; may be inefficient • makes logical, relatively accurate estimates to verify results or solutions	• structures the task efficiently; may find a shortcut • makes logical estimates to verify results or solutions
Accuracy • recording, calculations	• often includes major errors in recording or calculations	• may include some errors in recording or calculations; generally "close"	• recording and calculations are generally accurate; may include minor errors	• recording and calculations are accurate; may use mental math
Representation and Communication • presenting work • constructing charts, diagrams, displays • explaining procedures, results	• work is often confusing, with key information omitted • often omits required charts, diagrams, or graphs, or makes major errors • explanations are incomplete or illogical	• most work is clear; may omit some needed information • creates required charts, diagrams, or graphs; some features may be inaccurate or incomplete • explanations may be incomplete or imprecise	• work is generally clear and easy to follow • uses required charts, diagrams, or graphs appropriately; may have minor errors or flaws • explains procedures and results logically in own words	• work is clear, detailed, and logically organized • uses required charts, diagrams, or graphs effectively and Accurately • explains procedures and results clearly and logically; may include visuals

The more details the better for a rubric.

• closed to others' ideas • disrespectful of others • actively excluding • hogging the marker • discouraging		• open to others' ideas • respectful of others • actively inclusive • sharing the marker • encouraging

Ability to Collaborate

• working alone  • not trying and/or giving up  • goofing off 		• working together  • not giving up when it gets tough  • focused and on track with the task 