

52 MATH JOURNAL PROMPTS

Task Cards Book #3



DENISE GASKINS

Author of Let's Play Math: How Families Can Learn Math Together and Enjoy It

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Introduction and Tips

“This is the wonderful thing about just thinking and playing with half-formed thoughts: often exciting ideas will flash into your brain when you least expect them.”

—JAMES TANTON

The point of math journaling is to help children explore the world of math in a new way. To enjoy playing with ideas. To value curiosity and creative thinking. And to fight for true understanding, doing whatever it takes to help math make sense.

In a journal, children examine their own concepts about numbers, shapes, and patterns through drawing or writing in response to a question. Journaling teaches them to see with mathematical eyes—not just to remember what we adults tell them, but to create their own math.

Children come to realize that learning is more than memorizing facts and procedures, and they develop a richer mathematical mindset. They begin to see connections and make sense of math concepts. They grow confident in their ability to think through new ideas.

Gather Your Supplies

There is no “right” way to do math journaling. Students may use any bound notebook or loose paper, lined or unlined, or graph paper of any type you have on hand. For written prompts, some students may prefer typing on the computer.

Personally, I love dot grid pages for journaling because I can start a line anywhere on the page, and the dots serve as anchors for drawing shapes or

patterns. My favorite paper has a dotted grid spaced at $\frac{1}{4}$ inch or 0.5 cm. Young children may want wider spacing: $\frac{1}{2}$ inch or 1 cm. Triangle dot paper (isometric grid) is also fun, because it encourages writing at different angles.

The [Incompetech website](#) is a great place to download graph paper of all varieties.

If your students are using a bound journal, you may want them to draw the geometry and math art prompts on blank paper. They can use the journaling page to record what math they see in their design and how they thought about creating it.

In particular, geometric constructions made with a compass and straight-edge (or a ruler) are much easier to draw on a loose sheet of plain paper. For best results, use masking tape to hold the paper in place so it doesn’t shift under the compass.

In addition to your journaling paper, you will find the following supplies useful on your mathematical adventure:

- pencils, both plain and colored
- colorful gel pens
- a ruler for making straight lines
- a drafting compass for drawing circles and comparing distances
- other drafting tools, like plastic triangles or a circle template
- dice for playing games
- a deck of ordinary playing cards, poker or bridge style

Create Your Own Math

When students create their own math, they forge a personal connection to mathematical concepts and relationships. And it's fun!

Children might make up a math game, write a story or poem, draw a comic, or pose a problem. Create math art, think up a challenging question, or write a puzzle. Since earlier chapters focused on writing and math art, most of these prompts involve creating puzzles or problems.

The "Story Problem Challenge" is one of my favorite math club activities. My students invent their own word problems in any style they like. They don't have to know how to solve the problems they create. We read the stories aloud, and everyone works together to find the solutions.

For puzzles where the child already knows the answers (for example, Two Truths and a Lie), let them trade with a friend. Can they each solve the other's puzzle? Can they stump each other? Or save the child's work and let them come back to it another day, after they've forgotten the answers.

And when students create something they're proud of, let them share it with the world. Visit the Student Math Makers Gallery at tabletopacademy.net/math-makers to learn how your students can submit their own math creations.

- 149. Number Compositions:** Pick a number and see how many ways you can write it. Try to fill your whole page with different expressions for that number. What kind of crazy math will you create?
Example: $7 = 5 + 2 = 10 - 3 = \sqrt{49} = (5 + 2) \times (10 - 3) \div (49/7) = \dots$
- 150. Gadgets Galore:** Imagine that you run a hobby shop or gadget store. What do you sell, at what prices? Write a story for your shop. What math questions might you ask about your story?
- 151. Family Math:** Write some math problems about your family. Your problems can include numbers, shapes, money, time, patterns—or any kind of math you like.
- 152. Today Is...:** Write a math problem where the answer is today's date. Can you think of more than one problem? Can you fill a whole page with today-math puzzles?
- 153. Cutting Pizza:** Draw a large circle to represent your pizza. Draw straight lines to cut it into slices. Try to make as many pieces as you can. The pieces don't have to be all the same size.
What do you notice? What questions can you ask?

- 154. Permutations:** Three students ran a 100-meter sprint. Nobody tied another runner. In what order might they cross the finish line? How many different ways might they finish?

What if there were more runners?

Permutations count how many ways we can arrange things in order—in this case, from first to last. Make up a permutations puzzle of your own.

- 155. Cross-Math Puzzles:** Create a mathematical crossword puzzle with clues. The puzzle can use numbers or letters in the squares.

Optional challenge: Make a copy with blank squares plus all the clues. Trade puzzles with a friend.

- 156. Growing Patterns:** Draw a pattern that grows according to some rule. Show the first three or four stages of your pattern's life. Can you describe the growing rule with math?

Examples: visualpatterns.org.

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Example: $7 = 5 + 2 = 10 - 3 = \sqrt{49} = (5 + 2) \times (10 - 3) \div (49/7) = \dots$

150. Gadgets Galore:

Imagine that you run a hobby shop or gadget store. What do you sell, at what prices? Write a story for your shop. What math questions might you ask about your story?

151. Family Math:

Write some math problems about your family. Your problems can include numbers, shapes, money, time, patterns—or any kind of math you like.

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Write a math problem where the answer is today's date. Can you think of more than one problem? Can you fill a whole page with today-math puzzles?

153. Cutting Pizza:

Draw a large circle to represent your pizza. Draw straight lines to cut it into slices. Try to make as many pieces as you can. The pieces don't have to be all the same size. What do you notice? What questions can you ask?

154. Permutations:

Three students ran a 100-meter sprint. Nobody tied another runner. In what order might they cross the finish line? How many different ways might they finish? What if there were more runners? *Permutations* count how many ways we can arrange things in order—in this case, from first to last. Make up a permutations puzzle of your own.

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Create a mathematical crossword puzzle with clues. The puzzle can use numbers or letters in the squares. Optional challenge: Make a copy with blank squares plus all the clues. Trade puzzles with a friend.

156. Growing Patterns:

Draw a pattern that grows according to some rule. Show the first three or four stages of your pattern's life. Can you describe the growing rule with math? Examples: visualpatterns.org.



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