



A Practical Guide for Math Tutors Working With ADHD and ASD Students

How to teach algebra and geometry to neurodivergent teens—calmly, clearly, and effectively

Students with ADHD or ASD often struggle in math not because they "can't do it," but because the way math is traditionally taught clashes with how their brains process information. Algebra and geometry demand sustained attention, multi-step thinking, working memory, and flexible problem-solving—exactly the areas where ADHD and ASD can create friction.

This guide gives tutors concrete, actionable strategies to help neurodivergent learners succeed in algebra, geometry, and beyond.

1. Start With the Brain: What ADHD/ASD Means for Math Learning

Students may struggle with:

- Holding multi-step procedures in working memory
- Organizing notes, steps, and assignments
- Initiating tasks or knowing where to begin
- Managing frustration when problems feel "too big"
- Staying focused long enough to complete a problem
- Shifting between abstract concepts (variables, functions, proofs)

These challenges mirror the executive-function difficulties usually experienced by people with ADHD—attention, organization, multi-step instructions, time management, and impulse control.



Your job as a tutor is not just to teach math—it's to reduce cognitive load, increase clarity, and build independence.

2. Break Every Math Task Into Manageable Chunks

This is one of the most effective ADHD tutoring strategies, and you should use it both on individual math problems and, on a macro level, to the tutoring session as a whole: "Let's do half the worksheet, then take a break." Always monitor your student for cognitive overload or other signs of distress and be willing to stop and regroup.

How to apply this to math problems:

- Turn a 12-step algebra problem into 4 labeled phases
- Break geometry proofs into "Given," "Goal," "Tools," "Steps"
- Use checklists:
 - Step 1: Identify what the problem is asking
 - Step 2: Write down what you know
 - Step 3: Choose a strategy
 - Step 4: Solve
 - Step 5: Check your answer

Chunking reduces overwhelm and gives the student a sense of progress.

3. Use Multi-Sensory, Concrete Teaching Techniques

Adopt multisensory learning as a core strategy for neurodivergent students.



In algebra:

- Use color-coding for variables, exponents, and operations
- Highlight each step in a different color
- Use manipulatives (algebra tiles, graphing boards)
- Let students "talk through" their reasoning aloud

In geometry:

- Draw diagrams together
- Use physical objects to demonstrate angles, rotations, congruence
- Let students trace shapes, highlight key parts, or use rulers/compasses

Multisensory input increases engagement and retention.

4. Establish Predictable Routines

Predictability helps ADHD students feel secure and focused. Use a consistent session structure:

- **Warm-up (5 minutes):** Review one skill the student already knows to build confidence.
- **New concept (10–15 minutes):** Teach using visuals, examples, and step-by-step modeling.
- **Guided practice (15 minutes):** Work through problems together.
- **Independent practice (5–10 minutes):** Student tries one or two problems alone. Monitor them very closely; perhaps ask them to talk through their thinking aloud. Never let them cut corners and jump to the answer, even if they get it right. Insist that they write down each step of the problem; otherwise you are guaranteeing careless mistakes as the problems get harder.
- **Wrap-up (3 minutes):** Summarize what they learned and preview the next session.

Routine reduces anxiety and increases productivity.

5. Build Movement Into Sessions

Movement breaks improve concentration for ADHD learners, even high schoolers who have mastered impulse control.

Examples:

- "Solve two problems, then take a 2-minute stretch break."
- "Let's stand up and walk through this geometry diagram."
- "Use a whiteboard on the wall so they can work while standing."

Movement resets attention and reduces restlessness.

6. Use Positive Reinforcement and Goal Setting

Celebrate small successes and use praise to build motivation.

How to apply it in math:

- Praise effort, not correctness: "You stuck with that problem even when it got tricky—that's huge."
 - Set micro-goals: "Today we're going to master combining like terms."
 - Track wins visually: A simple progress chart or "skills mastered" list works wonders.
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7. Teach "Math Executive Function" Skills Explicitly

Many neurodivergent students need direct instruction in:



- How to start a problem
- How to check work
- How to organize notes
- How to manage time during tests
- How to break down word problems

These skills are just as important as the math itself.

8. Create a Sensory-Friendly, Low-Distraction Environment

This may not come naturally to a math tutor, but do take a moment to evaluate the student's homework space to see if it is likely to sabotage the student's chance of success:

- Is it a quiet, clutter-free workspace?
- Are there distracting noises (if so, suggest white noise machines or gentle background music)?
- Is there comfortable seating (kids with ADHD really should not be doing homework on the couch in front of the TV)?
- Do they have all the needed materials on the table (and no distracting items)?

A calm environment helps students stay regulated and ready to learn.

9. Collaborate With Parents and Schools

As a math tutor, don't rush into non-math areas, but over time, you may see some areas where you can be helpful.

Ask parents:

- What accommodations are in their IEP/504? Should the parent ask for the IEP to include a reduced homework load (e.g., fewer math problems, but that does NOT mean only the easy ones!)?
- What triggers frustration or shutdowns?
- What rewards motivate them? Encourage parents to build in some extrinsic rewards for good work. That's very important for children with autism or ADHD.

Consistency across home, school, and tutoring dramatically improves outcomes.

10. Use Smart Tools — But Teach Students Not to Depend on Them

Technology can be a game-changer for ADHD and ASD learners. Tools like Desmos, WolframAlpha, and Khan Academy make abstract concepts visual, interactive, and easier to process. Timers and color-coded notes help with organization and pacing.

But there's a crucial caution: Students should use tools to understand math, not to avoid thinking about math.

Many neurodivergent learners are quick to reach for calculators or step-by-step solvers the moment a problem feels uncomfortable. If tutors don't set boundaries, students may develop "calculator reflex"—typing in answers without understanding the underlying process.

Useful tools for math tutoring (with guidance):

- **Desmos** — excellent for visualizing functions, transformations, and geometry. Tutor guidance: Have students sketch or predict the graph before using Desmos. Use the tool to confirm or explore, not replace reasoning.
- **WolframAlpha** — powerful step-by-step algebra explanations. Tutor guidance: Use it to check work or demonstrate a process, but require students to attempt the steps themselves first. Avoid letting them copy solutions.



- **Khan Academy** — clear videos and structured practice. Tutor guidance: Assign specific videos as reinforcement, not as a substitute for working through problems with you.
- **Color-coded digital notes** — great for organizing steps, formulas, and examples. Tutor guidance: Encourage students to write at least some steps by hand to strengthen working memory and reduce passive learning.
- **Timers** — helpful for pacing, transitions, and task initiation. Tutor guidance: Use short, predictable intervals (3–7 minutes) to build focus stamina without pressure.

Why This Matters

Students with ADHD often struggle with:

- Task initiation
- Working memory
- Sustained attention
- Frustration tolerance

Online tools can feel like shortcuts that bypass these challenges — but doing so also bypasses learning.

When students rely too heavily on calculators or automated solvers, they lose opportunities to build:

- Conceptual understanding
- Step-by-step reasoning
- Error-checking habits
- Confidence in their own thinking

Tutor strategies to prevent over-reliance:

- Require students to write out steps even when using a calculator.
- Ask: "Before we check the graph, what do you expect it to look like?"
- Use calculators only after the student has set up the problem.



- Ask: "Before we use the calculator, give me an estimate of what the answer will be."
- Treat tools as verification, not creation.
- Occasionally run "no-calculator sessions" for foundational skills.
- Praise effortful thinking: "I like how you worked through the steps before checking the answer."

The goal is to help students use technology as a support, not a crutch.

Final Thoughts

Tutoring math to students with ADHD/ASD isn't about simplifying the content—it's about simplifying the path to understanding. When tutors break tasks into chunks, use multisensory methods, build predictable routines, incorporate movement, and celebrate progress, students not only learn math—they gain confidence, independence, and pride.