

# FAMILY MATH IN ADOLESCENCE<sup>1</sup>

Adolescence, roughly spanning ages from 12 to 18, is a time of profound biological, cognitive, and social changes. During this time, teens start to think more deeply, make more of their own decisions, form stronger relationships, and explore who they are and what they care about. In mathematics, adolescents move into higher-order thinking while learning to apply logic, reason quantitatively, and approach problems with multiple strategies. In school, mathematics becomes more abstract with a focus on algebra (solving problems with letters or symbols that stand for unknown numbers), geometry (studying shapes, angles, lines, and space), and data analysis (looking at information to find patterns or answers to questions). These mathematical experiences not only shape academic pathways but also build the cognitive flexibility and perseverance needed for adult life.

## WHAT FAMILIES CAN DO

### **Believe in Your Teen's Math Potential:**

Teens are capable of deep, abstract thinking and they need adults who believe in that potential and reinforce how math is a powerful tool for solving real-world problems and shaping their future. When families hold high expectations and express confidence in their teen's math abilities, students are more likely to succeed. Without that belief, teens, especially those from historically underserved groups, may be steered into lower-level courses that limit their confidence and future choices. You can help by:

- Encouraging a growth mindset by reminding teens that math ability grows with effort and time, and that everyone gets stuck. Struggle and mistakes are a normal part of learning and help us grow.
- Praising effort and strategy and saying things like "I noticed how hard you worked on that problem," rather than "You're so smart."
- Encouraging your teen to talk through math problems—they'll learn more by explaining their thinking.
- Helping them set up a quiet, organized study space and building a routine with short, focused work sessions

### **Talk About Math Throughout Everyday Experiences:**

Even though it might become more difficult to help teens with their day-to-day math homework and assignments, there are still many ways families can talk and do math together at home and in the community. Everyday moments like comparing prices at the store, doubling recipes, figuring out discounts, connecting math to music and sports, or discussing how personal data from social media can be used and misused, can become meaningful math conversations. Ask open-ended questions like "How did you figure that out?" instead of jumping to the answer. Math can also come alive through community experiences like calculating distances using public transit maps, budgeting for a family celebration, or exploring geometric patterns in cultural art. These real-world connections make math feel useful and help teens build both confidence and skills.

### Expand Support and Opportunities:

Families play an important role in connecting with schools and finding opportunities in the broader community where teens can expand and explore their math curiosities. Stay in touch with your teen's teachers by attending conferences or reaching out to learn what math topics are being taught and how you can reinforce them at home. Most schools offer online academic portals where families can track assignments, test scores, and upcoming deadlines. These tools can help you spot areas where your teen might need extra support or where they're ready for more challenges. Enrichment isn't just for when teens are struggling; it's essential for keeping them engaged, deepening their understanding, and preparing them for future opportunities. Enrichment opportunities like math clubs, robotics teams, coding camps, or local workshops at libraries or community centers are often available in-person or online. You can also talk with school counselors early and often to identify relevant course options and sequences aligned to your teen's aspirational goals. High school curriculum generally includes classes such as Algebra I & II, Geometry, Precalculus, as well as statistics and data sciences. These courses create pathways to college and open doors to a wide range of careers in fields like engineering, health sciences, computer programming, and architecture.

## RESOURCES

**General Math Support: Online lessons, exercises, and videos for middle and high school math topics, including SAT prep.**

- [Khan Academy](#)
- [You Cubed](#)
- [Desmos](#)
- [CK-12](#)
- [PBS LearningMedia: Resources to Learn Mathematics](#)

**College and Career Connections: Tips and ideas for parents for navigating math pathways**

- [College Board – BigFuture](#)
- [Road Trip Nation](#)
- [High School Math Parents' Guide to Student Success](#)

**Mathematics in Everyday Conversations: Resources for families to talk about and do math with teens**

- [Math Narrative Project](#)
- [Math Trails](#)
- [Why do people get so anxious about math?](#)
- [A New Equation for High School Math](#)