

Mathematics Anxiety

What is it, why it matters, and how to tackle it?

What is Mathematics Anxiety?

Mathematics anxiety is a specific form of academic anxiety that disrupts learning, reasoning, and performance in math-related tasks. It can develop early, often from negative classroom experiences, and affects both low- and high-achieving students.

The connection between anxiety and performance is two-way: anxiety makes it harder to succeed in mathematics, and repeated struggles increase the anxiety. Mathematics anxiety is not just a classroom issue – it can lead students to avoid math in daily life, reduce their confidence, and even limit future career choices.

Research also shows consistent gender differences: girls often report higher levels of anxiety, despite performing at the same level as boys, which contributes to long-term gaps in STEM (Science, Technology, Mathematics, Engineering) participation.

Why it matters?

Mathematics anxiety affects more than test results. It influences how students approach learning, their confidence, and their long-term relationship with mathematics. Even capable students may fall into a cycle of avoidance and underachievement.

One key factor is self-efficacy – students' belief in their own ability to succeed in mathematics. Low self-efficacy makes students more vulnerable to anxiety, as they doubt their capacity to solve problems or to improve with effort. In contrast, strong self-efficacy helps students cope better with difficulties, increases motivation, and buffers against the negative effects of anxiety.

Impacts of Mathematics Anxiety

- **Academic achievement:** Even capable students may underperform, give up on tasks, or avoid participation, leading to lower grades and weaker skills.
- **Self-esteem and self-efficacy:** Constant fear of failure and negative self-talk (“I can’t do math”) erode confidence and reduce motivation to try.
- **Future study and career choices:** Students may avoid advanced math courses or STEM pathways, limiting their educational and professional opportunities.
- **Emotional and social well-being:** Anxiety creates stress, frustration, and sometimes physical symptoms (headaches, stomach-aches). It can also lead to withdrawal from peers and feelings of isolation.



Recognizing and Preventing Mathematics Anxiety

Recognizing and addressing mathematics anxiety is essential not only for academic success but also for students' well-being, confidence, and long-term potential.

Awareness and Recognition

- Learn to spot early signs: fear, avoidance, frequent negative self-talk, "Am I doing it right?" questions, or physical symptoms (headaches, stomach-aches, feeling sick).
- Understand how early experiences and family attitudes can shape anxiety.

Collaboration and Systemic Support

- Work closely with parents, school psychologists, and special educators.
- Advocate for smaller class sizes and co-teaching when possible.
- Share experiences and solutions with colleagues through peer learning.

Digital Tools and Games

- Use games to create a playful, stress-free learning atmosphere.
- Recognize limitations: not all students benefit, so use games as one tool among many.

Differences across age groups:

- Primary school: anxiety may appear very early when basic skills are shaky
- Middle school: negative experiences and avoidance become more visible
- Secondary school: strong performance pressure, fear of failure, withdrawal from participation

Teacher Tips: What You Can Do?



- **Create a safe and supportive climate:** Normalize mistakes and make them a part of learning. Reduce performance pressure and focus on growth rather than perfection.
- **Provide individualized support:** Use small groups, flexible pacing, and calm working environments. Give students space to learn at their own rhythm.
- **Build confidence step by step:** Start with easier tasks to create small successes. Reinforce progress with steady practice and clear strategies.
- **Diversify assessment:** Offer oral responses, flexible timing, and low-stakes tests to reduce fear of failure.
- **Use positive feedback often:** Highlight effort, persistence, and improvement — not just correct answers. Celebrate progress, however small.
- **Stay alert and respond early:** Notice signs of stress, avoidance, or negative self-talk. Intervene gently and provide encouragement before anxiety grows.



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MathifyMe - Making maths more accessible using Game-based learning to create a more inclusive and less stressful environment in the learning of maths

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