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Description automatically generated with medium confidenceMath Messages That Build Confidence

**Tip Sheet**



**What to do:** Promote these messages about math and your students’ ability to learn it.

**Why it matters:** All of us encounter messages about math in our schools, homes, workplaces, and popular culture. They can be spoken, written, or conveyed through attitudes and behaviors. Some are positive, true, and empowering. Others are negative, untrue, and harmful. Either way, they are a powerful influence. The messages below can build students’ confidence in their abilities and reduce math anxiety.

# Messages About Math

* **Math builds mental muscle.** It gives your brain a workout and sharpens your thinking skills.
* **Math’s needed for most careers.** It’s not just for scientists and engineers. Hundreds of careers require math skills, like animation, construction, fashion design, food services, marketing, nursing, stockbroking, and more.
* **Math can help you reach your goals.** People use math at home, work, school, and in everyday life in a variety of ways, like planning a trip, cooking a meal, doing tax returns, or creating a budget for the boss. Help students see how math can help them reach their goals and do things that matter to them.

# Messages About Math Ability

* **Effort and persistence matter more than natural ability when it comes to learning math.** That doesn’t mean you should just tell students to “try harder.” Instead, provide specific strategies and supports to help them see they can influence their own learning through effective study habits, focus, persistence, participation in group work, asking questions, and seeking help when they need it.
* **Boys and girls are equally capable of learning math.** Individual differences in math performance mostly depend on the age of the student, their existing math skills and knowledge, and what kind of math they’re doing. But all students are capable of learning math. Messages like “maybe you’re just not good at math” or “boys are always better at math than girls” can diminish confidence and motivation.
* **There are many ways to be good at math.** Data analysis, visualization, mental math, logical arguments, critical thinking, and spatial reasoning (like imagining how two objects will fit together) are just a few examples of ways to be good at math. There are many ways to build on what you already know to develop these abilities.
* **You can be good at math even if you have trouble memorizing math facts, rules, and formulas.** You might be surprised to learn that the students who score the lowest on international math tests are those who use memorization as their main strategy. Those who score highest have a conceptual understanding of math as a set of connected, big ideas. It’s helpful to know math facts, but many successful people with degrees in science and engineering never memorized the “times table.”
* **Faster isn’t smarter, though mental math shortcuts can be handy.** Some of the most successful mathematicians, scientists, and thinkers aren’t fast at arithmetic. While timed tasks and competition bring out the best in some students, they bring out anxiety in others. Former National Council of Teachers of Mathematics (NCTM) president Cathy Seeley says overemphasizing speed can do more harm than good. Being fast doesn’t mean you’re better at math.
* **Mistakes are learning opportunities.** Mistakes can be powerful teachers if you help students see them as a normal part of learning. Encourage students to share and discuss mistakes, to unravel what went wrong, and to build new understandings. When you wrestle with a mistake and learn from it, your brain grows new dendrites, and you gain confidence. Mistakes don’t mean you have poor math ability.

**Math Messages and Math MUSTs**

MUST is an acronym for four tools that fight math anxiety and nurture a can-do attitude:

* **M** is for the **messages** students get about math and their ability to learn it.
* **U** is for **understanding** math concepts and how thoughts and emotions affect learning.
* **S** is for **skills** that help you learn and use math — and manage anxiety, if it’s an issue.
* **T** is for **thrills** because students need positive experiences to help them discover the magic and satisfaction of math in a way that’s meaningful to them.

For more about the math MUSTs, see the 21st CCLC NTAC Math Toolkit for these tools:

* **Math Anxiety and Four MUSTs for Addressing It**
* **Math Understanding: Helping Students Think Conceptually**
* **Math Skills for Students to Learn and Practice**
* **Math Thrills: Putting Fun Into the Equation**

*In mathematics the art of proposing a question  
must be held of higher value than solving it.*

**— Georg Cantor**

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